Attachment A

1532 Bull Lea Rd, Lexington, KY 40511
Outlined in RED below (approximate)
Attachment B

Sample Language to be Included in Ground Lease
Specific to Financial Reporting

Landlord and Tenant agree to the following:

A. Tenant agrees to submit a completed Questionnaire to Landlord (see Exhibit B-1, attached).

B. If not previously done, Tenant agrees to register its business with the Lexington Fayette Urban County Government ("LFUCG"), and provide its LFUCG occupational license number to Landlord.

C. Tenant agrees to submit a quarterly capital expenditure report to Landlord evidencing all capital expenditures made by Tenant within the Coldstream High-Tech Building Project during the previous calendar quarter. Tenant agrees to submit such capital expenditure report to Landlord within sixty (60) days of the end of each calendar quarter, commencing with the first calendar quarter end following the commencement of construction on the Coldstream High-Tech Building Project. Such capital expenditure report shall continue to be submitted by Tenant on a quarterly basis to Landlord until the Lease has been terminated or Tenant has been notified by Landlord that such reports are no longer required. Each quarterly capital expenditure report shall be made using a form substantially similar to Exhibit B-2, attached and incorporated herein, and, if requested by Landlord, shall include electronic copies of paid invoices or receipts related to the capital expenditures. Quarterly capital expenditure reports shall clearly identify each capital expenditure item and the specific facility to which the expenditure was related.

D. Tenant agrees to submit a periodic tax report to Landlord evidencing the following taxes generated within the Coldstream High-Tech Building Project and paid during the previous calendar year:

- Total local occupational license taxes withheld from Tenant’s employees working within the Coldstream High-Tech Building Project and remitted to LFUCG during the previous calendar year.
- Total net profits taxes generated by Tenant within the Coldstream High-Tech Building project and remitted to LFUCG during the previous calendar year.
- If Tenant does not operate under a distinct Kentucky sales tax ID number within the Coldstream High-Tech Building Project, Tenant shall include on the report total state sales taxes collected and remitted to the state Department of Revenue by Tenant during the previous calendar year on sales transacted within the Coldstream High-Tech Building Project. If Tenant does operate under a distinct Kentucky sales tax ID number within the Coldstream High-Tech Building Project, this item is optional.
- If Tenant does not operate under a distinct Kentucky withholding tax ID number within the Coldstream High-Tech Building Project, Tenant shall include on the tax report total state income taxes withheld from Tenant’s employees working within the Coldstream High-Tech Building Project and remitted to the state Department of Revenue during the previous calendar year. If Tenant does operate under a distinct Kentucky...
withholding tax ID number within the Coldstream High-Tech Building Project, this item is optional.

Tenant agrees to submit such tax report to Landlord within sixty (60) days of the end of each calendar year, commencing with the first calendar year end after the commencement of construction on the Coldstream High-Tech Building Project.

E. Landlord and Tenant expressly acknowledge that this Lease must be disclosed in response to a request made under the Kentucky Open Records Act, KRS 61.870 et seq., or as required by other applicable law. Except as required by the Kentucky Open Records Act or other applicable law or court order, Landlord agrees to hold confidential and will not disclose other information submitted by Tenant per the items above, and only use in conjunction with the reporting requirements with LFUCG and the Commonwealth of Kentucky.
EXHIBIT B-1

Business Information

Agency Name
Contact Person
Title
Address
City, State
Telephone Number
Zip
Email Address

Tax Identification Numbers (if applicable):

Commonwealth Business Identifier Number (CBI)
FEIN or SSN
KY Corporation Tax

Are you registered with the Secretary of State?

Yes
No

For Corporation Income Tax Purposes

Is all income earned at the site of the business location?

Yes
Separate
No
Consolidated

KY Withholding
KY Sales Tax

If a box was checked for multiple locations, please list the addresses of other business locations:

For multiple locations only - Are separate accounting records kept for activity within and outside the footprint?

Yes
No

Provide a brief description of business activity, property sold and services provided at the location address:

Was the business previously operated under a different owner or name?

Yes
No

Former Business Name:
Name of previous owner:
Date of acquisition:

I understand that the information provided will be confidential and will be shared only with the Commonwealth of Kentucky's Department of Revenue and the Cabinet for Economic Development.

Printed Name
Title
### Capital Investment Report

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- Reimbursable P.I. Costs
- Non P.I. Capital Investment
- Capital Investment for $20mn Threshold
8-24 UNIVERSITY RESEARCH CAMPUS (P-2) ZONE

8-24(a) Intent - This zoning category is created to provide for a mixture of compatible office, and research uses in a campus setting that adheres to high quality standards. Residential, retail, and hotel/motel uses are intended to be supportive uses for the organizations located on the research campus.

8-24(b) Principal Uses (Other uses substantially similar to those listed herein shall also be deemed permitted.)

1. Banks, credit agencies, security and commodity brokers and exchanges, credit institutions, savings and loan companies, holding and investment companies.
2. Offices for business, professional, governmental, civic, social, fraternal, political, religious, and charitable organizations.
3. Research development and testing laboratories or centers.
4. Colleges, universities, business colleges, technical or trade schools, and other schools and institutions for academic instruction, including dormitory facilities.
5. Libraries, museums, art galleries, and reading rooms.
6. Hospitals, medical and dental offices, clinics, and laboratories.
7. Telephone exchanges, radio, and television studios.
8. Studios for work or teaching of fine arts, such as photography; music; drama; dance; and theater.
9. Community centers and private clubs.
10. Computer and data processing centers.
11. Ticket and travel agencies.
12. Television system signal distribution centers and studios.
13. Meeting and conference centers.
14. Storage and warehousing, when conducted in a completely enclosed building.
15. Parking lots and structures.
16. Offices of purchasers, processors, and handlers of agricultural products, limited to administrative uses only.
17. The manufacturing, compounding, assembling, processing, packaging, or similar treatment of articles of merchandise from the following previously prepared materials: bone, canvas, cellophane, cellulose, cloth, cork, feather, felt, fiber, fur, glass, hair, horn, leather, paper, plastics, precious and semi-precious metals, precious and semi-precious stones, rubber, sheet metal (excluding large stampings), shell, textiles, tobacco, wax, wire, wood (excluding sawmills, planing mills), and yarn.
18. The manufacturing, compounding, assembling, processing, packaging, or similar treatment of such products as: bakery goods; billboards; candy; ceramics; cosmetics; drafting instruments; electrical parts; appliances; electric or neon signs; electronic instruments; food products; meat packaging; ice cream; medical and dental instruments; musical instruments; pharmaceuticals; pottery, china, or figurines; radios; record players; rubber and metal stamps; rubber products; scientific instruments and equipment; shoes; television receivers; toiletries, soaps and detergents; toys; and watches and clocks.
19. Other industrial and manufacturing uses, such as beverage manufacturing; dairy and non-dairy, and food and non-food product bottling plants; box and crate assembly; cabinet shop; cannery; caterers; cooperage; crematory; dextrine and starch manufacturing; enameling, lacquering and japanning; furniture manufacturing; heating equipment manufacturing; inflammable underground liquid storage; iron works (ornamental), and wire drawing; parcel delivery stations; phonograph record manufacturing; public utility service yard; and tool manufacturing.
20. Recycling, sorting, baling and processing of glass, nonferrous metals (not including automobile wrecking yard), paper scrap and storage of waste paper, when wholly conducted in a completely enclosed building.
21. Indoor and outdoor athletic facilities, such as field houses; gymnasiums; soccer; polo; and baseball fields.
22. Outdoor recreational facilities, including swimming pools; tennis courts; golf courses and golf driving ranges, and similar uses.
23. Agricultural research and experimentation facilities.
24. Kindergartens, nursery schools, and child care centers for four (4) or more children. A fenced and screened play area shall be provided, which shall contain not less than twenty-five square feet per child.
25. Veterinarian clinics and laboratories.
26. Supportive uses, limited to the following uses:
   a. Multi-family dwellings.
   b. Townhouses, except that not more than twelve (12) units shall be attached.
   c. Restaurants, brew-pubs, and banquet facilities with indoor live entertainment. Such facilities utilizing live entertainment shall be located at least one-hundred (100) feet from any non-mixed use residential structure.
   d. Hotels and motels, as specifically regulated under Article 8-24(o)(13) herein.
   e. Designed retail sales or mixed-use areas, which shall be limited to the following uses:
      i. Offices for business, professional, governmental, civic, social, fraternal, political, religious, and charitable organizations.
      ii. Banks, credit agencies, security and commodity brokers and exchanges, credit institutions, savings and loan companies, holding and investment companies.
      iii. Establishments for the retail sale of food products, as per Article 8-16(b)(17).
      iv. Medical and dental offices, clinics, and laboratories.
v. Ticket and travel agencies.

vi. Restaurants, brew-pubs, and banquet facilities; with live entertainment, dancing, and/or sale of alcoholic beverages.

vii. Establishments for the retail sale of merchandise, as per Article 8-16 (b)(19).

viii. Beauty shops, barber shops, and shoe repair.

ix. Quick copy services utilizing xerographic or similar processes, but not including offset printing methods.

x. Laundry and laundry pick-up stations, but not including self-service laundry.

xi. Kindergartens, nursery schools and child care centers for four (4) or more children. A fenced and screened play area shall be provided, which shall contain not less than 25 square feet per child.

xii. Athletic club facilities.

xiii. Market gardens.

xiv. Multi-family dwellings.

xv. Townhouses, except that not more than twelve (12) units shall be attached.

27. Temporary cellular telephone transmitting facility; not to exceed 70’ in height and with a 1:1 height-to-yard ratio.

28. Adult day care centers.

29. Day Shelters.

8-24(c) Accessory Uses (Uses and structures which are customarily accessory, clearly incidental, and subordinate to permitted uses.)

1. The accessory uses permitted in the P-1, B-4, and I-1 zones, except as specifically prohibited in Article 8-24(e) below.

2. Within the designated retail area, the following accessory uses shall be permitted:
   a. Parking areas and structures.
   b. Outdoor patio area.
   c. Warehousing, wholesaling, and storage, excluding outdoor storage.
   d. Drive-through facilities for the sale of goods or products or the provision of services otherwise permitted herein.
   e. Satellite dish antennas, as further regulated by Article 15-8.

8-24(d) Conditional Uses (Permitted only with Board of Adjustment approval.)

1. Helistops and/or heliports, provided such facilities conform to the requirements of all appropriate Federal, State, and local regulations.

2. Mining of non-metallic minerals, but only when the proposal complies with the requirements of the Mining/Quarrying Ordinance (Code of Ordinances #252-91) and the conditions and requirements as set forth therein. The Board of Adjustment shall specifically consider and be able to find:
   a. That the proposed use will not constitute a public nuisance by creating excessive noise, odor, traffic, dust, or damage to the environment or surrounding properties;
   b. That a reasonable degree of reclamation and proper drainage control is feasible; and
   c. That the owner and/or applicant has not had a permit revoked or bond or other security forfeited for failure to comply with any Federal, State or local laws, regulations or conditions, including land reclamation, pertaining to the proposed use.

3. Outdoor live entertainment and/or dancing, when accessory to a restaurant, brew-pub or banquet facility. Such uses shall be located at least one-hundred (100) feet from any structure devoted solely to residential use. The Board may also impose time restrictions to minimize nuisance to the surrounding neighborhood.

4. Temporary structures designed for use or occupancy for 61 to 180 days per 12-month period on a single property, calculating said period by cumulative consideration of the use of any and all such structures on a single property.

8-24(e) Prohibited Uses (All uses other than those listed as principal, accessory, or conditional uses, or substantially similar to principal, accessory, or conditional uses shall be prohibited. The uses below are provided for illustration purposes and for the purpose of limiting permitted uses and are not intended to be a total listing of all the uses that are prohibited.)


2. All outdoor storage and display, and/or sales areas, including any vehicular sales facilities; but excluding outdoor patio areas operated in conjunction with a restaurant.

3. Any uses first permitted in the Heavy Industrial (I-2) zone.

4. Refuse dumps, incinerators, and landfills.

5. A facility for the storage and distribution of gas by railroad tank cars, through gas piping, or by tank trucks which each have a water capacity in excess of 4,000 gallons.

6. Ecotourism activities.

7. Establishments for the storage, display, rental, or sales of any type of vehicles.

8. Automobile and vehicle refueling and/or service stations.
Lot, Yard, and Height Requirements (See Articles 3 and 15 for additional regulations)

8-24(f) Minimum Lot Size – No limitation, as specifically regulated under 8-24(o) herein.

8-24(g) Minimum Lot Frontage - No limitation.

8-24(h) Minimum Front Yard - 200’ on streets classified as expressways and major arterials on the official functional classification map; 100’ on streets classified as minor arterials; 5’ on collector and local streets.

8-24(i) Minimum Side Yard - 15’.

8-24(j) Minimum Rear Yard - 25’.

8-24(k) Minimum Useable Open Space – 40% for the entire P-2 development, as specifically regulated under Article 8-24(o) herein.

8-24(l) Maximum Floor Area – Maximum floor area ratio of 0.75 and as further regulated by Article 8-24(o).

8-24(m) Maximum Height of Building - 120’.

8-24(n) Off-Street Parking (See Article 16 for additional parking regulations.)

Uses first permitted in the B-4 zone - As per B-4.

Uses first permitted in the I-1 zone - As per I-1.

Office Uses - One (1) space for each 400 square feet of floor area.

Townhouse Dwelling Units – One (1) space per dwelling unit.

Multi-family Dwelling Units – Three (3) spaces for every two (2) dwelling units or 0.9 spaces per bedroom in a multi-family dwelling, whichever is greater.

Hospitals – One (1) space for every three (3) beds, plus one (1) space for each employee on the maximum working shift, with a minimum of five (5) spaces.

Hotels and/or Motels – One (1) space per suite with a minimum of five (5) spaces.

Designated Retail Area for Non-Residential Uses - One (1) space for each 400 square feet of floor area for the first 10,000 square feet; one (1) space for each 200 square feet of floor area after the first 10,000 square feet.

Kindergartens, Nursery Schools, and Childcare Centers – Three (3) spaces for the first twelve (12) children, plus one (1) space for every ten (10) (or fraction thereof) additional children.

Adult Day Care Center - One (1) space for every ten (10) persons being provided care, plus one (1) space per caregiver on the maximum shift.

Day Shelter - One (1) space for every ten (10) persons being provided services, plus one (10 space per staff member on the maximum shift.

Other Recreational Facilities or activities not otherwise stated herein – Five (5) spaces, plus one (1) space for each employee for each separate use.

Combinations - Combined uses shall provide parking equal to the sum of individual requirements.

8-24(o) Special Provisions
1. Any site to be zoned in a P-2 zoning category shall be a minimum of fifty (50) net acres in size.

2. No more than sixty percent (60%) of any P-2 project shall be covered with buildings and parking lots or other paved surfaces designed for vehicular use. All open space areas shall be permitted, however, to contain outdoor recreational/athletic facilities, such as ball fields; jogging trails; tennis courts; picnic areas; golf courses; or similar outdoor activities for the use of the employees of the principal use of the property or the public at large. Land owned by the developer at the time of rezoning, which is subsequently dedicated at no cost to the public as recreational or open spaces (not streets), shall be included in such open space requirement.

3. The developer shall be required to provide proof of at least the following private covenants having been created prior to the approval of any final development plan:

a. A design committee of at least three registered architects and landscape architects (mixed 2 to 1 in either combination) shall be required to review and approve all site and architectural designs within the development.

b. An owners’ association or other mechanism which provides for uniform maintenance of all open space areas and common areas.

4. Landscaping shall be required as per Article 18 of the Zoning Ordinance, except as modified herein. Perimeter landscaping around the exterior boundary of the project shall be as provided under Article 18 for the I-1 zone; however, the Commission may permit such portions of required perimeter planting to be reallocated to areas interior to the site, where it finds that solid screening is not needed to screen the uses from the adjoining rights-of-way or properties. Tree canopy requirements shall be met for the development in accordance with Article 26. In addition, ten (10) square feet of landscape area for each 100 square feet,
or fraction thereof, of vehicular use area shall be required within the development. Street trees shall be required as outlined in the Land Subdivision Regulations. Open space shall be defined on the preliminary development plan, and designated to protect and/or formally recognize existing natural and man-made features with a particular emphasis on any environmentally sensitive areas, geologic hazard areas, cemeteries, floodplains, or other area in order to meet the open space requirements for the P-2 development. Structures devoted solely to residential use shall be screened from adjacent industrial, office or business use as required by the Property Perimeter Requirements provided in Article 18-3(a)(1)(C & D)(3).

5. Signage within the P-2 zone shall be specifically regulated under Article 17-7(m) of the Zoning Ordinance.

6. A preliminary development plan shall be required to be filed in conjunction with any zoning map amendment to a P-2 zone. No building permits shall be issued for any lot or building within the development unless and until final development plans are approved, as provided in Article 21. Prior to filing a final development plan with the Planning Commission, the site developer shall seek the approval of the design committee, as established under Article 8-23(o)(3)(a) herein.

7. At the time of filing of the final development plan, the site developer shall provide a summary report documenting the conceptual design review and recommendation(s) of the design committee. Such summary report shall inform the Planning Commission of the following: architectural elements included in the building(s) design; how the building(s) will be compatible in form and scale with adjacent structures; building materials; entry features; and sustainable building features. The Planning Commission shall consider the design committee’s recommendation in their decision. A final development plan with two or more buildings shall be designed as a cohesive architectural statement, with all development features exhibiting compatible design elements.

8. Each subdivided lot shall have access to adjacent streets or joint parking areas, as provided by appropriate easements shown on the final development plan and final record plat.

9. Parking areas shall not be permitted to encroach into required front yards. However, no more than 10 visitor parking spaces may be permitted within such required yards.

10. In addition to the required development plan, the applicant for any P-2 zoning category shall be required to file a comprehensive development statement at the time of filing. Such comprehensive development statement shall include, at a minimum:
   a. A traffic impact analysis.
   b. A preliminary site analysis of all significant natural and man-made features with a particular emphasis on any environmentally sensitive areas, geologic hazard areas, existing vegetation which should be given priority as use for open space areas.
   c. Any proposed use restrictions, building requirements, architectural requirements, or similar restrictions over those required herein.

Such studies shall be evaluated by the staff as part of the overall review of the map amendment request and development plan. Based upon such review, the Planning Commission and/or Council may impose restrictions on uses or other development aspects, including design criteria, as a part of the approval of the P-2 project.

11. Except to the extent otherwise permitted in above, all uses shall be conducted in a completely enclosed building.

12. No site utilities shall be permitted to be above ground, with the exception of major electric and telephone distribution lines (which shall generally be located on lot perimeters), pad mounted transformers, and similar facilities. Service connections of such utilities to individual buildings shall be required to be underground. Any utilities to be located above ground shall be shown on required final development plans. All such overhead utilities shall be designed, located, and, where appropriate, screened, so as to preclude visibility from adjoining arterial roadways and public open space and/or greenway areas to the greatest extent feasible.

13. Supportive uses are subject to the following requirements:
   a. The total acreage of supportive uses shall not exceed fifteen percent (15%) of the area of the P-2 development.
   b. Supportive uses shall only be developed and constructed either concurrently with or after construction and occupancy of at least 250,000 square feet of floor area for other principal permitted uses. Development shall be phased as follows:
      i. Until 250,000 square feet of other principal permitted uses are approved and constructed for the P-2 development, the permitted floor area of supportive uses shall not exceed a maximum of twenty percent (20%) of the total floor area of all approved and constructed structures.
      ii. Once the P-2 development has 250,000 square feet of existing floor area of other principal permitted uses, the phasing restriction in Article 8-24(o)(13)(b)(i) shall no longer apply.
   c. Designated retail or mixed-use areas can be included within the supportive uses. Such designated retail and mixed-use areas shall be defined on
a preliminary development plan for the P-2 zone. The designated retail or mixed-use areas shall be designated and located to primarily serve the needs of employees, residents, and visitors to the university research campus. Entrance to designated retail or mixed-use areas shall be located on collector or local streets and not major or minor arterial streets.

d. Entrance to restaurants, brew-pubs and/or banquet facilities, with indoor live entertainment shall be located on collector or local streets, and not on major or minor arterial streets.

e. The number of hotels and/or motels within a P-2 development shall not exceed a total of one (1) per fifty (50) net acres of the P-2 development.
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2.0 Site Design Criteria

3.0 Site Development Guidelines

4.0 Stormwater Control

5.0 Architectural Guidelines
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   5.2 Laboratory Building
   5.3 Residential Building
   5.4 Retail Building
   5.5 Parking Garage
   5.6 Mixed-use Building
   5.7 Sustainability

6.0 Design Implementation
1.0 Introduction

Purpose
The overall objective in establishing design guidelines for site development at Coldstream Research Campus and other development areas of Coldstream Farm is to ensure a sense aesthetic value and environmental sensitivity in the development of the campus.

These guidelines are for use by the University of Kentucky and the tenants of the campus, their architects, landscape architects, engineers, and maintenance personnel in the design, development, and care of the tracts within the Coldstream boundaries.

In no instance are these guidelines intended to be less restrictive than the requirements of the Lexington – Fayette Urban County Government. For any item not covered by these guidelines, the provisions of the P-2 Ordinance covering minimum requirements for development shall apply.

Objectives for Use
The following are the objectives for these design guidelines:
- To promote a high quality park setting for a mix of buildings marked by a consistently high quality of architectural design.
- To assist in the development of a comprehensive open space system for the community.
- To promote and enhance the development of an attractive, effective, and safe transportation network.
- To assure those locating in the campus that the quality of the overall development will remain high; and therefore, that the economic and environmental values will be protected permanently.
- To preserve, enhance, and protect the natural and cultural features of the environment.
- To provide direction for maintenance following development of the site.

Design Review Committee
A Design Review Committee oversees the application of the design guidelines. This committee is comprised of architects, landscape architects, and other design professionals who interpret the guidelines to project tenants and developers, review all plans for building and site design, and serve to discern any special requirements for preservation of natural site characteristics. Official approval of all development and construction plans will be subject to approval of the Design Review Committee prior to implementation. Construction work will be given periodic inspection by a representative of the Design Review Committee to ensure its compliance with the Design Guidelines. Each proposal will be considered on its own merits. The Design Review Committee will study the natural conditions of each parcel and its development potentials and problems. Each proposal will be evaluated on the basis of its conformance to high aesthetic standards, its relationship to the characteristics of the site, and its compatibility with the development on adjoining parcels.

The process of project applications and design review is described in Chapter 6: Design Implementation.

Master Plan
The master plan for Coldstream Research Campus builds upon the existing fabric of development since its inception in the 1980’s. The current plan, dated 2009, has a series of overarching objectives, out of which flows these Design Guidelines. The Design Guidelines are the primary tool to achieve the objectives of the master plan, and as such, have a variety of measurable strategies to effect those objectives.

Objectives include:
- The creation of a walkable community, one in which the standard of measure is the human, not the automobile.
- The evolution toward a mixed use community in which to work, live, shop, and recreate.
- The preservation of the natural systems of Cane Run and its tributaries.
- The enhancement of the cultural landscape around the Carnahan House and its incorporation into a mixed use town center for the campus.
• The creation of a comprehensive open space network connecting all developed areas within the campus to each other with walking and bicycle trails to reduce vehicular trips.
• The creation of a compact street grid with small parcel sizes and small setbacks to produce a human-scaled neighborhood pattern of development.
• The inclusion of local retail within office and residential buildings across the campus to reduce vehicular trips.
• The provision for a wide variety of building types and sizes to best meet the diverse needs of the marketplace.
• The inclusion of principles of sustainability into planning, design, and maintenance of the campus to set a benchmark for environmental stewardship within the region.
• The establishment of a benchmark of LEED certification for all commercial buildings and an energy star rating for residential buildings. LEED Silver commercial buildings are strongly encouraged.
2.0 Site Design Criteria

Purpose
This chapter addresses the qualities of the common areas of Coldstream Research Campus. Common areas are those outside of lease lines and include green spaces and roadways. These areas create an impression of the character of the campus through both hard materials – pavements, walls, lights, etc. – and soft materials – plants, berms, and bodies of water. It is the intent of these Design Guidelines that the common areas have a consistent character that builds upon the beauty of the existing landscape of the campus.

The master plan for Coldstream Research Campus is a framework for development of a variety of building types, all set within a verdant park setting. This concept builds upon the existing green infrastructure of parks, historic grounds, and floodplains. Collectively, these existing open spaces create a valuable and scenic common area that benefits users and visitors to the campus. The master plan envisions additional green areas to create a comprehensive network of green spaces that encourage walking, provide storm water management, and provide for active and passive recreation. In addition to green spaces, roadways are a critical part of the public realm of Coldstream Research Campus. Both existing and proposed roads are a part of the master plan and each type has a unique set of guidelines that shape its character. One of the overarching concepts of the master plan is to transform the existing paradigm of automobile-scaled environment toward a more human scaled environment. To that end, guidelines are proposed herein that suggest some critical spatial relationships that will lead in that direction.

Green Spaces
**Coldstream Park:** This area is a 225-acre park containing Cane Run and a tributary of Cane Lexington – Fayette Urban County Government and is open to the public, with trails and parking areas in place. In the master plan, a few improvements are envisioned; notably a pair of pedestrian bridges to cross the stream and a pair of road crossings as well. In addition, a series of new trails are proposed to provide continuous walking opportunities both east and west of Cane Run itself. These improvements would require approval of Lexington – Fayette Urban County Government prior to implementation. **Carnahan House:** The Carnahan House is the historic center of the research campus and both the house and its grounds should be retained and enhanced. The master plan proposes to preserve the existing entry drive and tree grove area east of the house, and to supplement that with additional trails to provide more walkability. The existing stone walls should be retained as is, but with two pedestrian openings of 6 feet in width created; one each on the north and on the south walls to allow for better pedestrian access to this grove. The immediate setting of the house itself is envisioned in the master plan to be adapted into an elliptical-shaped public green of 275 feet x 600 feet. This area would capture the house, its driveway approach, and immediate landscape, but would remove parking, outbuildings, and a swimming pool. New parking and service would be provided in the ellipse for the adapted reuse of the house as a restaurant, meeting facility, or bed and breakfast. The intent is to create a vibrant future for this historic building in a new public setting. The roads that frame the ellipse would provide a new north – south access for both vehicles and pedestrians to traverse the campus, and the construction of these would require some selective removal of existing stone walls in this area.

**The Quadrangle:** The quadrangle is a new green space that is the extension of the historic grove of trees and lawn that is the driveway approach to the Carnahan House from Newtown Pike. It stretches from the house to Coldstream Park, creating a green ribbon from east to west and capturing the two primary natural and cultural landscapes of the campus into one continuous landscape. The south side of this green is a straight line, echoing the straight line of the stone wall of the Carnahan House and signifying the cultural landscape, while the north side forms a graceful curve that flows to Cane Run and signifies the natural landscape. Reinforcing this notion is the landscape itself, with formal rows of trees on the south side and informal groves of trees on the north side. A series of walks are proposed in the quadrangle and connect access points from outside across the green to each other in a stitching pattern, to facilitate easy pedestrian movement both east/west and north/south, much like in a quadrangle on a
college campus. Benches and other site furniture are envisioned throughout the quadrangle to make it both passage and destination for users and visitors. The quadrangle should be 75% pervious and feature a minimum tree canopy coverage of 30%. To denote the mission of the research campus as a place of innovation and technology, a series of helical wind turbines are proposed along the south side of the quadrangle from Newtown Pike across Cane Run itself. These turbines would be placed at 400-foot to 500-foot intervals and are envisioned as 60 feet in height. They would serve as highly visible symbols of 21st century technology and generate power that could be utilized to operate lighting in the park. Thus, the quadrangle is envisioned as the civic green for the campus, with respect to the past, but technology that speaks to the future.

The Crescent: The Crescent is about one acre of green in the Northeast Village on McGrathiana Parkway. It is a formal space intended to serve as passive recreation for the mixed use community adjoining it. It is envisioned as predominantly lawn, with a surrounding walk and trees that shade the walk. Benches and trash receptacles should be provided for the comfort and convenience of pedestrians. Shade structures, public art, or fountains may be a part of the program, but are not required. The Crescent should be 75% pervious and feature 50% tree canopy coverage.

Bull Lea Square: Bull Lea Square is a quarter acre park and plaza that straddles Bull Lea Road on the north side of its intersection with Street A. It is envisioned as a sunny pocket park onto which retail uses like a delicatessen or coffee shop may front. It is proposed as a mix of lawn, against Street A, and paved plaza, against the pair of enframing office buildings. In this manner, the walkway adjacent to the buildings may function as an outdoor café in the mild seasons, with umbrella tables and chairs providing shade and seating. This walkway should be a minimum of 15 feet wide and a maximum of 25 feet wide to accommodate that intended use. Retail storefronts and entry doors should face directly upon the square, with no vehicular conflicts. The square should be 50% pervious and feature 30% tree canopy coverage.

Roadways
The roadways of Coldstream Research Campus carry vehicles, bicycles, and pedestrians to and through the site. Varieties of road types exist or are proposed to provide that circulation. These include:

Level 2: Major Arterial
Newtown Pike
- Right of Way: 130 feet; No on-street parking
- Speed: 55 mph
- Building Setback: 200 feet
- Sidewalk: 8 foot asphalt trail
- Landscape character: Informal

Level 3: Minor Arterial
Citation Boulevard
- Right of Way: 150 feet; No on-street parking
- Speed: 45 mph
- Building Setback: 100 feet
- Sidewalk: 8 foot asphalt trail on north side
- Landscape Character: Informal

Level 4: Collector Road
McGrathiana Parkway
- Right of Way: 90 feet; No on-street parking
- Speed: 35 mph
- Building Setback: 10 feet minimum; 20 feet maximum
- Sidewalk: 8 foot concrete both sides in Northeast Village; one side in Northeast and Northwest Villages
- Landscape Character: Formal; street trees at 40 foot centers
Right of Way: 70 feet (Carnahan Center area); On-street parking both sides
Speed: 25 mph
Building Setback: 0 foot – 10 feet
Sidewalk: 15 foot pavers both sides in Carnahan Center; 10 foot concrete beyond
Landscape Character: Formal; Street trees at 30 foot centers

Bull Lea Road
Right of Way: 70 feet; On-street parking both sides
Speed: 25 mph
Building Setback: 0 foot – 10 feet maximum
Sidewalk: 15 foot pavers both sides in Carnahan Center; 10 foot concrete both sides
Landscape Character: Formal; Street trees at 40 foot centers

Eastern/Western Parkway
Right of Way: 60 feet; No on-street parking
Speed: 35 mph
Building Setback: 10 feet minimum; 30 feet maximum
Sidewalk: 8 foot concrete on building side only

Level 5: Local Street
Street A
Right of Way: 70 feet; On-street parking both sides
Speed: 25 mph
Building Setback: 0 foot – 20 feet maximum, except at square
Sidewalk: 8 foot concrete both sides
Landscape Character: Formal; Street trees at 40 foot centers

Street B
Right of Way: 60 feet; On-street parking building side only
Speed: 35 mph
Building Setback: 20 feet
Sidewalk: 8 foot concrete both sides
Landscape Character: Formal; Street trees at 40 foot centers

Street C
Right of Way: 70 feet; On-street parking both sides
Speed: 25 mph
Building Setback: 0 foot – 15 feet maximum
Sidewalk: 6 foot concrete both sides
Landscape Character: Formal; Street trees at 50 foot centers

Street D,E,F,G
Right of Way: 60 feet; No on-street parking
Speed: 25 mph
Building Setback: 60 feet minimum
Sidewalk: 6 foot concrete one side
Landscape character: Informal; Street trees at 60 foot centers
1.0 Site Development Guidelines

Purpose
This chapter describes the character and quality of building development within leased parcels. The information contained herein sets the standards for quality that will protect and enhance Coldstream Research Campus as it grows in the future. The information should be used by corporations, developers, architects, landscape architects, and engineers as they prepare site plans for individual buildings and parcels. The intent is to foster a consistent level of quality and conformance to the master plan, so that the individual projects contribute to the overall ambience and value of the campus. The master plan anticipates future building patterns with a distinctly different character than the existing patterns. The existing pattern features generous setbacks from streets, parking in the front yard, and inconsistent relationships between a building and the street it addresses. This has resulted in a sprawling, automobile–scaled environment. The pattern of the master plan features smaller setbacks from streets, little parking in the front yard, and a consistent relationship between a building and the street it addresses. This will result in a walkable, pedestrian–scaled environment. The primary siting difference from the existing pattern to the proposed master plan lies in what is termed “streetwall” buildings: buildings that have a direct connection and orientation to the street upon which they front. The following guidelines illuminate the criteria necessary to achieve that end result.

Building Locations
Parcels for lease in Coldstream may be developed for one building or a series of buildings, depending upon the size of the parcel. As described in the master plan, whether a single building or multiple buildings, any building shall have its front yard and address on a street. Since the streets in the campus vary in terms of scale, building setbacks vary as well. In Chapter 2, each street type is illustrated, with a menu of building setbacks. Setbacks are defined as the horizontal distance from right of way line of street to building façade. Applicants should note that in Coldstream there are some setbacks that include both minimum distance and also maximum distance. The maximum distance criteria is included to create the pattern of streetwall buildings described above, and mandates that buildings directly address the street onto which they front. Further, all buildings shall have an entry on the front yard with a walkway that leads directly to the street and sidewalk. The side and rear yards for any building shall conform to standard zoning ordinance requirements, without additional requirements from these design guidelines. That said, in the case of a building that lies at the corner of two streets, each façade that addresses each street shall conform to the setbacks for each street. The intent is to consistently align streets with buildings. Therefore, it follows that parking, circulation, and services areas should be in the side or rear yards. As a practical matter, if the majority of parking fields are in the rear yards, it follows that an entry should be provided on the rear yard façade of the buildings. This may, on a daily basis, serve as the primary entry, but it does not relieve the applicant of the obligation to provide an entry on the front yard.

Building Height / Mass
The height of a given building varies by use and location within the campus. In general, the intent is to promote new building heights that are in harmony with the existing building heights. In most areas of the campus, a 45 feet height limit is recommended. This would support up to a 3 story office or up to a 4 story residential building, uses that are proposed throughout the master plan. Certain particular areas or neighborhoods are planned for higher buildings. These include Interstate Commerce, which should have an 8 story height restriction as it lies adjacent to the interstate highway and Carnahan Center, which should have a maximum height of 90 feet to allow for a robust mix of retail, office, residential, and hotel uses as envisioned in the master plan.

Site Circulation
There are three types of circulation systems to be included in any parcel or building development plan: vehicular, pedestrian/ bicycle, and truck/service vehicle. Many times, these systems are co-located but each has different requirements that must be addressed. For vehicles, there should be a clearly defined access drive from the street which should be 24 feet minimum and 30 feet maximum. Buildings over 75,000 SF may have 2 such entry drives, but no more than 2 entry drives are permitted for any single building. Parcels of multiple buildings may have up to 3 entries, unless the parcel is over 10 acres, in which case up to 4 entries are permitted. For any building or parcel with multiple entries, these shall be a
minimum of 200 feet apart from each other and also from any street. The intention for these guidelines is to provide adequate vehicular access without compromising the continuity of pedestrian sidewalks that follow streets. For buildings or parcels over 100,000 square feet, there should be a main circulation drive leading from street to building without perpendicular parking along it. Parallel parking on such an approach drive is permitted. For trucks and service vehicles a separate cartway is not required, but where the site permits, a separate drive from street to service yard is encouraged, especially for users with multiple tractor trailer loading docks, so that the large truck movements are not through parking fields. All truck turning movements shall be within a given parcel and are not permitted within a street right of way. When trucks and cars share the drive, care should be taken in the site plan to accommodate the large turning radii of trucks. Pedestrians and bicyclists should have continuous access within a parcel from the street to the building entry in a manner that meets the standards of ADA and with a minimum of vehicular conflict points. Pedestrian paths shall be a minimum of 6 feet wide. Separate Class 1 bicycle lanes are not required within a parcel, but Class 2 shared bicycle lanes of 5 feet width are encouraged to reduce vehicular trips.

Parking
Parking is a necessity in the campus, but in many cases can detract from the overall campus if its extent is uncontrolled. It is the intent of these guidelines to utilize low impact development strategies to mitigate the negative aspects of parking including increased storm water runoff, decreased water quality, and heat gain. Parking fields should consider the smallest possible footprint of impervious surface, utilizing 9 feet x 18 feet spaces with 24 feet drive aisles, yielding a tray of 60 feet. Provision of 10% compact spaces at 8.5 feet wide is encouraged to reduce that footprint. No more than 10 spaces in a row may be provided without a planted island of 9 feet wide to support a shade tree. In addition, 10% of the interior area of a parking field shall be devoted to planted islands. These islands shall not be smaller than 9 feet x 18 feet in size. Note that the interior area is defined as that area within the overall paved outline of the parking field; in this manner, corners where two parking trays intersect count towards interior area, while perimeter green space does not. Where parking fields abut a street, a continuous evergreen hedge or shrub mass shall be provided with a height of 4 feet to visually screen the parked cars from public view.

Bioswales are encouraged on the perimeter of parking fields. Bioswales are shallow depressions filled with water tolerant plantings that capture the first flush of storm water and absorb much of it into the groundwater through the plant root systems, thus reducing downstream runoff. The absorption process cleanses road salts, oils, and fertilizers from the water, and thus improves water quality as well. Bioswales may be provided within a parking field or at its perimeter and should feature a curbless edge to facilitate the capture of rain water. However, care should be taken to include curb stops in this instance, so that cars do not drive into the bioswale. It is also critical to coordinate the site grading plans with any consideration of using bioswales so that drainage is effective. Bioswales have specific requirements for soil mix, subbase, drain pipes, and plantings and should be designed by a licensed landscape architect or engineer.

Porous pavements are also encouraged in parking fields to reduce storm water runoff and to polish rain water. This pavement type is structurally appropriate for parking areas, but features voids in its surface to allow for rain water to percolate through the pavement. Concrete, asphalt, and precast concrete pavers are various types of porous paving that may be considered.

Heat gain from paved areas and rooftops has been linked to global climate change. There are two ways that parking fields can reduce heat gain. One is to utilize pavements with high albedo (light color) for better reflectivity of solar heat. In this manner, a light colored concrete would be favored over a dark asphalt. A second way to mitigate heat gain is to shade the pavement. The guideline for planted islands stated above will go far to reducing heat gain. In addition, trees around the perimeter of a parking field are encouraged. It is worth noting that certain shade trees are water tolerant and therefore could be included within a bioswale, doubling the benefit.
Service Areas
Service areas for loading, utilities, and waste management are a necessary function but should not detract from the overall appearance of the landscape and park setting. To that end, no such service facilities shall be placed in the front yard of any building. Such facilities may occur in the side or rear yard and shall be screened from view from any street with an opaque screen, the type of which varies by the facility.

Loading areas are typically expanses of pavement that allow for truck turning movements as well as loading/unloading of materials and supplies. In the case of some office buildings with limited service needs, truck docks may be within the building footprint, and therefore no additional screening is required. In the case of some research or manufacturing buildings with multiple docks and large service trucks, these areas shall be screened from view from any street by a 6 feet high masonry wall that is of the same material as the building or a double row of evergreen trees of 6 feet height. Berms may be substituted for plantings or walls if space permits, as long as a total height of 6’ is achieved. Wood fences are not permitted as a screening device.

Utilities, including transformers, condensers, satellite dishes, back flow preventers, etc. should be screened from view from streets to the extent practicable, given that some access to them is required for routine maintenance. Care should be taken in the development of a site plan to coordinate these features and to consolidate them into one area, rather than have them strewn about the landscape. Where utilities are co-located within loading areas, the screening wall provided for the loading can be extended to include the utilities. The preferred color for such utility structures is black and the preferred method of screening is with evergreen shrubs as part of larger landscape design. Individual utilities with individual walls or fences are not encouraged, and therefore care should be taken in the site planning process to illustrate comprehensively all such utility structures. Waste management is an issue of health and safety and all such facilities shall meet health department codes. In addition, dumpsters and recycling bins should be visually and physically screened from view. Where practical, these should be located within the building footprint. When in a service yard, dumpsters shall be screened with a 6 feet wall for office, retail, hotel, and laboratory buildings that is of the same material as the building. Toxic, hazardous, or medical waste and material shall be stored in locked containment areas in accordance with health department and environmental regulatory agency requirements.

All dry utilities within a parcel shall be underground. This includes electric, cable, communication, and fiber optic. Care should be taken to aggregate such dry utilities into defined corridors to maximize opportunities for landscape planting throughout the site and to minimize excavation areas for routine maintenance and replacement.

Site Lighting
Parking fields and pedestrian paths within a parcel shall be adequately illuminated for public safety. Two types of exterior lights should be considered for that purpose: roadway/parking light masts and walkway light poles.

For the roadway/parking lights, the height of the mast shall not exceed 24 feet and the poles should be spaced accordingly for even illumination. The lamp should be a downlight or cutoff type, to avoid light spill toward the sky or adjacent parcels. The light source should be metal halide, LED, or color corrected high pressure sodium. Standard high pressure sodium produces a yellow cast which renders landscape plantings as brown, so a color corrected version is preferred.

For walkway lights, the height of the pole shall not exceed 14 feet, nor be less than 10 feet in height. These fixtures shall be spaced accordingly along pedestrian walks to provide a minimum average footcandle reading of 1.0. Like roadway lights, pedestrian lights should be downlights and share a common light source within a given parcel, for an even and consistent reading throughout the parcel. Consideration should be given to energy efficiency in selection of light fixtures, with LED sources currently having the most efficient output, then color corrected high pressure sodium, then metal halide.
Site lighting fixtures should be black or anodized bronze in color to blend into the landscape during the day. Contemporary style is preferred over classical or traditional styles, in keeping with the character of the architecture of the campus. Floodlighting of building facades is discouraged as it causes unnecessary light spill into the night sky, though selective downlighting of facades is allowable.

**Signage**

Building and parcel identity is an important component of wayfinding and efficient circulation throughout the campus. To that end, both building mounted signs and freestanding signs are permitted. Any and all such signs must first conform to Lexington/Fayette Urban County Government ordinances. Beyond those legal requirements, the intent of these design guidelines is to create signs that are clear, simple, direct, and appropriately scaled for their intended purpose.

**Landscape Plantings**

The existing landscape of Coldstream Research Campus is one of the great strengths of its character; its historic groves of trees, vast sweeps of bluegrass, and natural riparian areas associated with Cane Run contribute to a beauty and tranquility that adds terrific value to the campus. The planted landscapes of the roads and existing research buildings have respected that landscape ethic and it is the intent of these guidelines to continue that standard of quality. Landscape plans submitted by an applicant shall be produced by a licensed landscape architect.

To that end are a series of guidelines that will assist applicants in the creation of landscapes that fit within the existing patterns and will add value to the overall campus. In the front yard of any building, shade trees are encouraged, depending upon the building setback and the presence of street trees along the street. Where the setback is 20 feet or greater, shade trees are encouraged. Where the setback is less than 20 feet, shade trees should not be planted, and either flowering trees, shrubs, or groundcovers are more appropriate to the available space.

Evergreen trees are not permitted in the front yard.

In the side and rear yards, a variety of shade, flowering, and evergreen trees are encouraged, in either formal or informal patterns, depending upon the architectural context. In general, a formal architecture setting should have a formal landscape plan, while an informal architecture setting should have an informal landscape plan.

Landscape plans should avoid the practice of monoculture, which is the use of large quantities of a single species, as the occurrence of a pest or disease could decimate a given parcel. It is preferred to intermix species to minimize that risk. There are certain circumstances in a formal landscape where consistency is desirable, but judgment should be used to avoid monoculture. Therefore, a strategy for parcel landscape is that no single species should represent more than 25% of landscape plantings.

Native plants are preferred over exotic plants, as they require less water and maintenance for healthy growth. These plantings are more likely to reseed themselves and be resistant to pests, fungi, and diseases. Native plants also contribute to wildlife habitat with a variety of nuts, berries, and seeds as food sources for animals. The landscape plant palette which follows provides a list of native plants appropriate to Coldstream Research Campus.

In parking areas, the guidelines from that section above apply as far as quantity. As far as type, all parking islands should be planted with shade trees for maximum pavement cooling. Flowering trees and evergreen trees should not be used in parking islands. At the perimeter of a parking field, evergreen trees are appropriate as a screening material. Care should be taken in the design of such buffers so that they fit within the overall landscape concept and do not stand apart from it. For example, in a formal landscape, an informal evergreen mass would not be appropriate; similarly, a straight evergreen hedge set within an informal landscape would be equally inappropriate. The intent of a landscape screen is that it fits seamlessly into an overall pattern.
Recent studies have demonstrated that lawn areas can contribute to strong concentrations of nitrogen and phosphorous runoff into waterways, a leading source of non-point pollution in watersheds. While the Lexington area is known worldwide for its bluegrass, it is the intent of these guidelines to improve water quality while creating a memorable landscape. Therefore, care should be taken in landscape plans to provide judicious use of lawn areas, and not simply have lawn as the ubiquitous groundcover for everything not paved. Two strategies are recommended here. One is to use organic fertilizers for any lawn area to reduce the quantities of nitrogen and phosphorous, and the second is to consider the use of native grasses, forbs, and perennials to create meadows as a landscape type. Meadows would be appropriate at the perimeter of a site and not appropriate in the front yard. Meadows could also be placed next to bioswales (a bioswale is a form of a wet meadow) to form a large sweep of native plantings. The value of a meadow lies in its ability to sustain itself without undue mowing, fertilizers, pesticides, or irrigation. That said, meadows, to be successful, need to be expansive in size, and therefore, judgment must be used in the inclusion of a meadow within a parcel landscape plan so it fits within the overall plan.

**Site Furnishings**

Site furniture enhances the aesthetics, comfort, and safety of the pedestrian environment and should be provided wherever there is pedestrian traffic. Such areas include building entrances, park areas, intersections, and areas of special interest or views. Types of site furniture include bike racks, benches, trash receptacles, newspaper racks, bollards, transit stop shelters, and site amenities like chairs, tables, planters, and display panels.

All site furniture selections should be coordinated with one another and should be compatible with the surrounding architecture and other contextual elements. For newly established areas, a consistent furniture style should be provided.

Benches are an integral part of the pedestrian experience and impact visual quality of a place. Benches should be used throughout Coldstream at building entrances, drop-off zones, congregation points, and high activity areas.

Trash receptacles should match the benches, strategically placed along major walkways, intersections of paths, and near building entrances, picnic areas, food services, and congregation points.

Bicycle racks should be placed at each major building and in visible locations for safety purposes and to reduce potential for theft. Bicycle racks for Coldstream shall be stainless steel.
2.0 Stormwater Control

Stormwater Management
Coldstream Research Campus is located in Northern Fayette County, Kentucky along the lower reaches of Cane Run Creek, a significant watershed of the region. Due to karst topography in the lower reaches of Cane Run, the creek and natural ground water is a major contributor of the Royal Spring Aquifer. The Royal Spring Aquifer and Cane Run are the primary sources of water supply for Georgetown and Scott Country, to the north of Coldstream Research Campus and Lexington. The Coldstream Research Campus watershed feeds directly into these municipal water sources and thus the management of stormwater discharged within Coldstream Research Campus is critical to the protection of these water supplies. Consequently, mitigation of stormwater pollution is imperative and the regulatory oversight is heightened.

These guidelines are intended to provide direction towards Best Management Practices and procedures for short and long term management of stormwater.

Coldstream Research Campus Jurisdictions
Coldstream Research Campus is located in Lexington-Fayette Urban County, which has a merged City/County government. Jurisdiction of development lies with several entities. Stormwater management means and methods are primary considerations for approval and permitting of new development at Coldstream Research Campus. Any development at Coldstream Research Campus will require review and approvals by each of these entities
• University of Kentucky/ Coldstream Design Review Committee
• LFUCG Division of Engineering
• Commonwealth of Kentucky Division of Water

Requirements for each entity are contained in the:
• Coldstream Stormwater Master Plan
• LFUCG Stormwater Manual
• Kentucky BMP’s for Controlling Erosion, Sediment and Pollutant Runoff from Construction Sites

Sustainable Stormwater Management
A sustainable approach to stormwater management involves finding ways to harvest it on site, using it for irrigation, ornamental water features, and groundwater recharge. As the value of water is recognized, the value of natural systems to store, clean and distribute available fresh water must also be recognized. Technology exists to integrate systems that mimic nature’s capacity to store, filter and clean water.

Examples of Sustainable Practices at Coldstream Research Campus
Protect and restore existing hydrologic functions:
Avoid development and disturbance near Cane Run Creek. Plant native or appropriate non-native vegetation, re-grade soils only where necessary, and use soft engineering techniques to preserve the functions of floodplains and riparian buffers.

Manage and clean water on-site: Design sites to capture, slow, and treat stormwater runoff by reducing impervious surfaces, harvesting rainwater, and directing remaining stormwater runoff to soil and vegetation-based water treatment methods, such as vegetated bioretention facilities, rain gardens, wetlands, green roof, and bioswales. Maintain and store vegetation to ensure water can percolate into the soil or groundwater.

Design stormwater feature to be accessible to site users: Integrate multifunctional stormwater management features into site design to improve both water quality and aesthetics. Stormwater management features can provide calming views, spaces for restoration, and even opportunities for play and interaction with water.
Design the site to minimize or eliminate use of potable water for irrigation: Use native and appropriate non-native vegetation adapted to site conditions, climate, and design intent. Group plants with similar water needs to maximize irrigation efficiency. Climate-based controllers for irrigation systems can also be used to lower water consumption. In addition, non-potable water can be collected and used for irrigation from sources such as rainwater from rooftops, gray water, air conditioners condensate or stormwater basins.

These initiatives are parallel with the site guidelines of the U.S. Green Building Council’s LEED requirements. LEED requirements have become a benchmark for sustainable and energy efficient site design. The intent of these guidelines is not to mandate LEED, but to encourage the use of principals set forth as the prerequisites and conditions of LEED sustainable sites.

Stormwater Controls
Development within the Coldstream Research Campus shall conform with the approved Stormwater Master Plan. Stormwater quantity control is not required based on the approved Stormwater Master Plan. Thus, stormwater detention to control and delay discharge is not required.

Stormwater quality controls are required for all development at Coldstream Research Campus. Stormwater quality controls are intended to remove solid particles from stormwater runoff and may consist of bioretention basins, bioswales, infiltration basins, vegetated filtration strips, riparian buffers, sand filters and/or prefabricated treatment devices. The design parameters for stormwater quality control shall comply with the LFUCG Stormwater Manual.
3.0 Architectural Guidelines

Purpose
The objective of these architectural guidelines is to ensure quality, continuity and environmental sensitivity in future development of the Coldstream Research Campus.

The information contained in these guidelines is meant to be used by Coldstream Research Campus owners, tenants and personnel, public works officers, and personnel responsible for planning, design, or maintenance, as well as private firms contracted for planning, design, or renovation and maintenance of facilities. All future construction projects should be guided by these recommendations to assure that the Campus achieves its potential for development and a lively and attractive environment.

Building Types
All buildings within the Coldstream Research Campus Plan have been assigned a building type. A building type represents a recognizable urban form, such as a townhouse, a mixed-use office, or a laboratory. The building type of each building is based on the desired urban form, relationship to the street, and desired relationship of the building to the site.

Each building type in the architectural guidelines is organized into the following groups of elements.
- Building Siting
- Height and Massing
- Parking and Service
- Architectural Design
- Special Features

Building Materials
All buildings shall be composed of high quality durable materials that also contribute to the goal of sustainability. Material selection for individual buildings must consider the context and character of its neighboring buildings and remain harmonious in appearance. Preferred materials are indicated for each building type within the guidelines. Materials that are not allowed include: E.I.F.S., vinyl siding, artificial stone, low slope industrial metal roofing, prefabricated industrial metal buildings, painted metal siding as primary skin, non-decorative CMU, decorative CMU as primary skin, and hazardous materials including, but not limited to, asbestos and lead based paint.

Sustainable Strategies
Sustainability is important at the Coldstream Research Campus and is essential to creating neighborhoods that are economical, durable, efficient, and healthy environments in which to live, work, and play. Every new building in the campus must obtain certification from the Leadership in Energy and Environmental Design (LEED) Green Building Rating System or an equivalent national standard. All office buildings and laboratories are encouraged to seek a LEED Silver or higher rating. The U.S. Green Building Council’s LEED rating system is utilized because it represents the current national standard for commercial green building and uses established and innovative practices, standards, and technologies to provide common design guidelines and third-party certification to ensure sustainability goals are achieved. New buildings may achieve the goals of the LEED system by focusing on energy conservation, energy production, sustainable materials, and water efficiency. These guidelines illustrate specific strategies to achieve the goal of a sustainable development.
3.1 Office Building

Office Building - Commercial Office

Building Siting
- Main facades of buildings shall be generally parallel to the streets or property lines.
- Building shall sit on the setback line as per Chapter 2. The buildings in the Quadrangle shall sit directly on the setback line creating a consistent building edge alignment.
- Corner lots are considered to have two front lot lines. Any lot line fronting main streets or The Quadrangle shall be considered a front lot line.
- Buildings may vary in depth up to 10 feet along their fronts to undulate the façade providing variety and interest.

Height and Massing
- Building heights shall be up to 3 stories.
- Building massing and height may vary to allow for variety and creation of special feature building segments.
- Predominant roof form shall be flat and parapeted. Pitched roof forms are allowed at corners and feature areas. Additional height is allowed at pitched roofs, roof equipment penthouses and special feature building segments.

Parking and Service
- Parking shall be located adjacent to buildings in surface lots accessed by tertiary roads. Lots adjacent to main streets should be screened with appropriate landscaping at their perimeters.
- Buildings directly fronting streets should utilize parallel parking at the streets for visitor parking with lobby access provided accordingly. Buildings fronting The Quadrangle should provide visitor parking within their main parking lots differentiated as may be required.
- All services to be located to building rears or sides and should be screened and incorporated into building design. No curb cuts are allowed on the front lot line along building frontage.
- Dumpsters should be completely enclosed and recessed into the buildings they serve or may be exterior if completely screened with durable materials matching the parent building.

Architectural Design
- All sides of buildings shall be of the same quality of materials.
- Building façade materials shall be durable and of high quality. Preferred materials include: brick, stone, high quality precast concrete, metal panels, metal and glass curtain walls, and preapproved newly developed materials as may present themselves in the future. Locally derived, sustainable and high-recycled content materials are strongly encouraged.
- Building fenestration at facades directly fronting main streets and The Quadrangle shall include a minimum of 40% openings or windows. Substantially increased openings or all-glass walls are allowed. Blank walls shall be avoided on these facades with the maximum length of any segment without fenestration limited as follows: 25 feet fronting The Quadrangle, 20 feet fronting other streets.
- Buildings may include segmented portions having little or no openings as may be required but such segments shall not appear overly monolithic and shall include special materials, design features or offsets to provide relief.
- Continuous ribbon type windows and reflective or dark tinted glass are prohibited.
- Main entrances shall be at the front facades and should be articulated as significant building elements. Buildings fronting The Quadrangle may provide main entrances at other facades but should provide a secondary entrance on The Quadrangle façade having architectural significance.
- No mechanical or utility equipment shall be visible from any street or The Quadrangle.

Special Features
• At upper floor or parapet, approved corporate signage, features and specialized lighting are allowed.
• Roofs shall be considered a visible 'elevation' and shall be designed with features, materials and patterns that reflect the character of the building.
Office Building – Interstate Office

**Building Siting**
- At lots fronting the Interstate, buildings should be sited at rear of lots adjacent to Interstate. At lots not fronting the Interstate, buildings shall create corners along the main streets and shall sit back from setback line on main streets no more than 25 feet and sit back from setback line on minor streets no more than 12 feet.
- At lots not fronting the Interstate, the lot line fronting the minor streets shall be considered the front lot line and no less than 80% of the front lot width shall be covered by direct building frontage.

**Height and Massing**
- At lots fronting the Interstate, building heights shall be up to 8 stories but no less than 4 stories. At lots not fronting the Interstate building heights shall be up to 8 stories but no less than 2 stories.
- Building massing and height may vary to allow for variety and creation of special feature building segments. At lots fronting the Interstate, iconic forms are encouraged.

**Parking and Service**
- Parking shall be located adjacent to buildings in surface lots accessed by tertiary roads. Lots adjacent to main streets should be screened with appropriate landscaping at their perimeters. Below grade and/or above grade structured parking is allowed per the Parking Garage guidelines.
- All services to be located to building rears or sides. At lots not fronting the Interstate, no curb cuts are allowed on the front lot line.
- Dumpsters must be completely enclosed and recessed into the buildings they serve.

**Architectural Design**
- Upper floor may utilize materials differing from other floors, change of color and additional height to provide unique expression and increased visibility from the Interstate.
- Building façade materials shall be high quality and durable. Preferred materials include: stone, high quality precast concrete, metal panels, metal and glass curtain walls, and preapproved newly developed materials as may present themselves in the future. Wood may be used as accent and trim material. Locally derived, sustainable and high-recycled content materials are strongly encouraged.
- Building fenestration at floors above ground level shall include a minimum of 40% openings or windows. Substantially increased openings or all-glass walls are allowed.
- Continuous ribbon type windows and reflective or dark tinted glass are prohibited.
- Main entrances shall be at the front facades and can be emphasized with canopies or similar features.
- At lots not fronting the Interstate, blank walls at ground level shall be avoided. The maximum length of any segment of a street-fronting ground floor façade without transparency is 20 feet.
- No mechanical or utility equipment shall be visible from any street.

**Special Features**
- At upper floor or parapet, approved corporate signage, features and specialized lighting are allowed.
- Roof terraces or vegetative roofs are encouraged. Roofs shall be considered a visible ‘elevation’ and shall be designed with features, materials and patterns that reflect the character of the building.
3.2 Laboratory Building

Building Siting
- Main facades of buildings shall be generally parallel to the streets or property lines or adjacent buildings.
- Building shall sit on the setback line as per Chapter 2.
- Corner lots are considered to have two front lot lines. Any lot line fronting main streets, The Quadrangle or facing Citation Boulevard shall be considered a front lot line.
- Buildings may vary in depth to undulate the façade providing variety and interest.

Height and Massing
- Building heights shall be up to 3 stories.
- Building massing and height may vary to allow for variety and creation of special feature building segments.
- Predominant roof form shall be flat and parapeted. Additional height is allowed at roof equipment penthouses and special feature building segments.

Parking and Service
- Parking shall be located adjacent to buildings in surface lots accessed by tertiary roads. Lots adjacent to main streets should be screened with appropriate landscaping at their perimeters.
- Buildings directly fronting streets should utilize parallel parking at the streets for visitor parking with lobby access provided accordingly. Buildings fronting The Quadrangle and Citation Boulevard should provide visitor parking within their main parking lots differentiated as may be required.
- All services to be located to building rears or sides and should be screened and incorporated into building design. Manufacturing and similar operations shall consolidate truck traffic and screen loading areas from view from main streets. No curb cuts are allowed on the front lot line along building frontage.
- Dumpsters should be completely enclosed and recessed into the buildings they serve or may be exterior if completely screened with durable materials matching the parent building.

Architectural Design
- All sides of buildings shall be of the same quality of materials.
- Building façade materials shall be durable and of high quality. Preferred materials include: brick, stone, high quality precast concrete, metal panels, metal and glass curtain walls, and preapproved newly developed materials as may present themselves in the future. Locally derived, sustainable and high-recycled content materials are strongly encouraged.
- Building fenestration at facades directly fronting main streets and The Quadrangle shall include a minimum of 20% openings or windows. Substantially increased openings or all-glass walls are allowed. Blank walls shall be avoided on these facades with the maximum length of any segment without fenestration limited as follows: 30 feet fronting The Quadrangle, 30 feet fronting main streets, 100 feet fronting Citation Boulevard.
- Buildings may include segmented portions having little or no openings as may be required but such segments shall not appear overly monolithic and shall include special materials, design features or offsets to provide relief.
- Continuous ribbon type windows and reflective glass are prohibited.
- No mechanical or utility equipment shall be visible from any street or The Quadrangle other than specialized equipment necessary for laboratory functionality. Where screening such equipment proves unreasonable, it may extend above screen wall structures and shall be carefully arranged so as to minimize visibility. Free standing ground level equipment is not allowed unless fully screened.
- Roofs and mechanical screens shall be considered a visible ‘elevation’ and shall be designed with features, materials and patterns that reflect the character of the building.
- Building canopies shall not be supported by adjustable turnbuckles and cable systems.
Special Features

- At upper floor or parapet, approved corporate signage, features and specialized lighting are allowed.
- Buildings in the Citation Neighborhood shall consider their facades facing Citation Boulevard as front facades and must include enhanced design treatment, features, materials and lighting to present well these largest buildings.
- Vegetated roof systems are encouraged.
3.3 Residential Building

Residential Building - Multi-Family

Building Siting
- Main facades of buildings shall be parallel to the streets or property line.
- Buildings shall sit on the setback line as per Chapter 2.
- Buildings may vary in depth up to 8 feet to undulate the façade providing variety and interest.
- Corner lots are considered to have two front lot lines.
- Not less than 80% of the front lot width shall be covered by direct building frontage.
- Building adjacencies shall create vistas and/or drives connecting the parking lots behind buildings in a prominent manner.
- Certain buildings in Carnahan Center shall abut parking garage structures directly serving to screen them from street view.

Height and Massing
- Building heights shall be up to 5 stories but no less than 3 stories.
- Building massing may step back at the corners, entrances or at feature areas.
- Predominant roof form shall be flat and parapeted. Pitched roof forms are allowed at corners and feature areas. Additional height is allowed at pitched roofs and special feature building segments. Additional roof level occupiable volumes set back a minimum of 15 feet are allowed for amenity use.
- Certain buildings in Carnahan Center that abut parking garage structures directly shall take the form of half of a similar freestanding multifamily residential building.

Parking and Service
- Parking shall be located behind buildings in surface lots accessed by tertiary roads between or beyond buildings. Lots shall be configured so as not to be visible from main streets and should be screened with appropriate landscaping at other perimeters.
- Certain buildings in Carnahan Center that abut parking garage structures directly may have individual parking spaces provided at their rear in the parking structures that they screen.
- Lighting in parking structures shall be arranged so that the source of light is screened from view at the buildings street sidewalks.
- All services to be located to building rears or sides accessed by tertiary roads between or beyond buildings. No service drive curb cuts are allowed on any of the main streets within the building street wall frontage.
- Dumpsters must be completely enclosed and recessed into the buildings they serve.

Architectural Design
- Upper floor and recessed or projected areas may utilize materials differing from other floors to provide unique expression.
- Building façade materials shall be high quality and durable. Preferred materials include: brick, stone, cast stone, cementitious panels or siding at upper levels, metal panels and glass, and preapproved newly developed materials as may present themselves in the future. Wood or other siding products may be used as special feature area surfaces and as trim materials. Locally derived, sustainable and high-recycled content materials are strongly encouraged.
- Building fenestration shall include a minimum of 35% openings, windows or balconies. While punched windows are encouraged, substantially increased openings or all-glass walls are allowed in recessed or special corner feature areas. Ribbon windows are not allowed.
- Main entrances shall be at the front facades and articulated as significant public entrances.
- First floor screening at street facades may include elevated patio features or carefully screened and landscaped buffers that engage the street and sidewalk.
- Ground level residential units may have individual entries accessing sidewalks.
- At certain buildings in Carnahan Center that abut parking garage structures directly, units may access private parking stalls directly at each level, or may be accessed by common building lobbies and single loaded corridors as necessary.
- No mechanical or utility equipment may be visible from main front or side facades. Unit exhaust and louvers are not allowed on these facades; systems shall route through roof.
- Roofs may be occupiable and embellished for amenity use. Stair and elevator access to room shall be integrated in to the core architecture.

Special Features
- Individual unit balconies are allowed at floors above grade.
- Roof terraces or vegetative roofs are encouraged.
- Façade mounted entry canopies or awnings and specially approved signage is allowed.
Residential Building – Garden Style Multi-Family

Building Siting
- Main facades of buildings along perimeter streets shall be generally parallel to the streets or property line.
- Building shall sit on the setback line as per Chapter 2.
- Buildings may vary in depth up to 8 feet to undulate the façade and create perceived breaks between buildings.
- Corner lots are considered to have two front lot lines.
- Building adjacencies shall create vistas and/or drives connecting the parking lots and green spaces behind buildings. Minimum separation between buildings shall be 30 feet.

Height and Massing
- Building heights shall be up to 3 stories but no less than 2 stories.
- Building massing may step back at the corners, entrances or at feature areas.
- Predominant roof form shall be flat to integrate with the urban character of the neighborhood. Pitched segments are acceptable for feature areas.

Parking and Service
- Parking shall be located behind buildings in surface parking aisles accessed between buildings. Lots shall be configured so as not to be visible from main streets and should include appropriate landscaping at the perimeters or parking may be covered with architecturally compatible structures.
- Trash services shall be provided within the development in centralized fully screened bin enclosures carefully located about parking areas or against or between buildings.

Architectural Design
- Building façade materials shall be high quality and durable. Preferred materials include: brick, stone, cast stone, cementitious panels or siding, metal panels and glass, and preapproved newly developed materials as may present themselves in the future. Locally derived, sustainable and high-recycled content materials are strongly encouraged.
- Building fenestration shall include a minimum of 25% openings, windows or balconies.
- Main entrances shall be at the front facades and may be open breezeways if stairs are concealed from street view.
- First floor screening at street facades may include elevated patio features or carefully screened and landscaped buffers that engage the street and sidewalk.
- Ground level residential units may have individual entries accessing sidewalks.

Special Features
- Individual unit balconies and patios are allowed.
- Exposed metal flue-type chimneys are not allowed.
- Amenity building and common amenities such as a pool and recreation are allowed when fully concealed and screened within the development.
Residential Building – Townhouse

Building Siting
- Main facades of buildings along perimeter streets shall be generally parallel to the streets or property line.
- Buildings shall sit on the setback line as per Chapter 2.
- Buildings may vary in depth up to 4 feet to undulate the façade and create variety of style and break to unit rows.
- Corner lots are considered to have two front lot lines.
- Building adjacencies shall create vistas and/or drives connecting the parking lots and green spaces behind buildings. Minimum separation between buildings shall be 20 feet.

Height and Massing
- Building heights shall be up to 3 stories but no less than 2 stories.
- Building massing may step back at the corners, entrances or at feature areas.
- Predominant roof form shall be pitched with eaves. Dormers and gable embellishment are allowed. Flat roof design with parapets is acceptable in the Carnahan Center neighborhood.

Parking and Service
- Parking for units that front streets shall be internally garaged from back of unit. Units that abut garage structures shall include parking within the abutting garage structure accessed though the back of unit.

Architectural Design
- Building façade materials shall be high quality and durable. Preferred materials include: brick, stone, cast stone, metal or engineered wood siding, cementitious panels or siding, metal panels and glass, and preapproved newly developed materials as may present themselves in the future. Locally derived, sustainable and high-recycled content materials are strongly encouraged.
- Building fenestration shall include a minimum of 25% openings, windows or balconies.
- Main entrances shall be at the front facades at grade level.
- First floor screening at street facades may include elevated patio features or carefully screened and landscaped buffers that engage the street and sidewalk.

Special Features
- Individual unit balconies and patios are allowed.
- Exposed metal flue-type chimneys are not allowed.
3.4 Retail Building

Retail Building – Neighborhood Retail

Building Siting
- Retail uses shall be incorporated into the volumes of the parent buildings, normally located on corners or ends of parent buildings.
- Retail portions of buildings may sit directly on setback line or may vary in depth inward up to 6 feet to undulate the façade providing variety or differentiation from parent building.

Height and Massing
- Retail portions shall occupy the first floor of parent buildings. When occupying in single story buildings the retail portion may have additional height up to one half additional story.

Parking and Service
- Parking shall be provided on adjacent streets and in the parent buildings parking scenario.
- At smaller parent buildings where retail portions extend to back of building, all services shall be provided as part of the parent building back of house services. At larger parent buildings where direct access to back of parent building is not possible and where loading and trash service is not desirable over sidewalks to back of house, trash storage must be enclosed and recessed completely into the building via secured alley or other concealed entry.
- No service drive curb cuts are allowed on any of the main streets within the building street wall frontage.

Architectural Design
- Facades may be of different materials from the parent building.
- Building façade materials shall be high quality and durable. Preferred materials include: brick, stone, cast stone, metal and glass, and preapproved newly developed materials as may present themselves in the future. Wood and aluminum may be used as storefront and trim materials. Finished face concrete masonry may be used at ground level at back of house areas. Locally derived, sustainable and high-recycled content materials are strongly encouraged.
- Main entrances shall be at the front facades and may be emphasized with canopies or similar features which should provide a minimum clearance of 9 feet above the sidewalk.
- Blank walls at ground level shall be avoided. The maximum length of any segment of a street-fronting ground floor façade without transparency is 15 feet.
- Storefronts shall be provided for no less than 65% of the length of street-fronting facades shall have transparent glass. Storefront sills shall be no higher than 3 feet above the adjacent sidewalk and tops of storefront openings shall be no less than 9 feet above the adjacent sidewalk.
- Storefronts shall continue at the exposed side of buildings for no less than 20 feet from the front façade.
- Awnings are allowed over storefront windows and doors. No awning may be substantially wider than the storefront it covers. Awnings should provide no less than 8 feet clearance above sidewalks. Awnings must be hung from the building façade and may not be supported by columns on the sidewalk.
- Building lighting should be mounted at 8 feet or higher.
- No mechanical or utility equipment may be located within 20 feet of the street-fronting façade or corner.
- Flat roofs should drain to internal roof drains and/or to the rear leaving street-fronting façades free of gutters and downspouts.

Special Features
- Building arcades at ground level are strongly discouraged.
- Allowances for on-sidewalk dining areas are strongly encouraged as well as accommodation of bicycles.
- Façade mounted flags, clocks, specialty lighting, information displays and specially approved banner signage are allowed.
- All branding and main signage should be located within 9 to 18 feet above grade for multi-story buildings and at any height for single story buildings. Blade or canopy signage is encouraged.
Retail Building – Large Format Retail

Building Siting
- Minimum street frontage shall be 100 feet.
- Main facades of buildings shall be parallel to the streets or property line.
- Corner lots are considered to have two front lot lines.
- Buildings shall sit directly on the setback line at front lot lines.
- Buildings may vary in depth up to 8 feet to undulate the façade providing variety and interest.

Height and Massing
- Building heights shall be up to 45 feet above grade but no less than 25 feet above grade.
- Building massing should step back at the corners, entries or other specially articulated areas and may increase height for variety in roof line and building massing.
- Predominant roof form shall be flat and parapeted. Vertically projecting elements or elevated sloped roof forms are allowed at special feature building segments.

Parking and Service
- Parking shall be located in surface lots accessed by tertiary roads between or beyond buildings. Lots should be screened with appropriate landscaping at other perimeters.
- All services to be located to building rears or sides accessed by tertiary roads between or beyond buildings separate from patron parking routes. No service drive curb cuts are allowed on any of the main streets within the building street wall frontage.
- Dumpsters should be completely enclosed and recessed into the buildings they serve or may be exterior if completely screened with durable materials matching the parent building.

Architectural Design
- Front and side facades shall be of the same or similar materials and of a similar level of detail.
- Building façade materials shall be high quality and durable. Preferred materials include: brick, stone, cast stone, metal and glass, and preapproved newly developed materials as may present themselves in the future. Wood and aluminum may be used as storefront and trim materials. Locally derived, sustainable and high-recycled content materials are strongly encouraged.
- Main entrances shall be at the front facades or corners and may be emphasized with substantial canopies or similar features which should provide a minimum clearance of 9 feet above the sidewalk.
- Blank walls at ground level of street fronting facades shall be minimized. The maximum length of any segment of a street-fronting ground floor façade without transparency is 20 feet.
- Storefronts shall be provided for no less than 65% of the length of street-fronting facades shall have transparent glass. Storefront sills shall be no higher than 3 feet above the adjacent sidewalk and tops of storefront openings shall be no less than 12 feet above the adjacent sidewalk.
- Awnings are allowed over storefront windows and doors. No awning may be substantially wider than the storefront it covers. Awnings should provide no less than 8 feet clearance above sidewalks. Awnings must be hung from the building façade and may not be supported by columns on the sidewalk.
- Building lighting should be mounted at 8 feet or higher.
- No mechanical or utility equipment may be located within 20 feet of the street-fronting façade or corner.
- Flat roofs should drain to internal roof drains and/or to the rear leaving street-fronting façades free of gutters and downspouts.

Special Features
- Building arcades at ground level are allowed.
- All building mounted signage shall be higher than 9 feet above the sidewalk. Blade or canopy signage is encouraged.
• National retailers should incorporate branding colors and signage identity into a building façade that is unique to Coldstream.
Retail Building – Outparcel Retail

Building Siting
- Minimum street frontage shall be 45 feet.
- Main facades of buildings shall be parallel to the streets or property line.
- Corner lots are considered to have two front lot lines.
- Drive through buildings are strongly discouraged.
- Buildings shall sit directly on the setback line at front lot lines along main corridor street.
  Restaurants that have building forms stepping back from the setback line shall provide permanent vertical element around dining areas such as a wall or fence with landscaping.
- Buildings may vary in depth up to 15 feet to undulate the façade providing variety and interest.

Height and Massing
- Building heights shall be up to 35 feet above grade but no less than 22 feet above grade.
- Building massing should step back at the corners, entries or other specially articulated areas and may increase height for variety in roof line and building massing.
- Predominant roof form shall be flat and parapeted. Vertically projecting elements or elevated sloped roof forms are allowed at special feature building segments.

Parking and Service
- Parking shall be located in surface lots accessed by tertiary roads between or beyond buildings.
  Lots should be screened with appropriate landscaping at other perimeters.
- All services to be located to building rears or sides accessed by tertiary roads between or beyond buildings separate from patron parking routes.
- Dumpsters should be completely enclosed and completely screened with durable materials matching the parent building.

Architectural Design
- Front and side facades shall be of the same or similar materials and of a similar level of detail.
- Building façade materials shall be high quality and durable. Preferred materials include: brick, stone, cast stone, metal and glass, wood or engineered wood sidings, and preapproved newly developed materials as may present themselves in the future. Locally derived, sustainable and high-recycled content materials are strongly encouraged.
- Storefronts shall be provided for no less than 65% of the length of street-fronting facades shall have transparent glass. Storefront sills shall be no higher than 3 feet above the adjacent sidewalk and tops of storefront openings shall be no less than 10 feet above the adjacent sidewalk.
- Awnings are allowed over storefront windows and doors. Awnings should provide no less than 8 feet clearance above sidewalks. Awnings must be hung from the building façade and may not be supported by columns on the sidewalk.
- Building lighting should be mounted at 8 feet or higher.
- No mechanical or utility equipment may be located within 20 feet of the street-fronting façades.

Special Features
- All building mounted signage shall be higher than 9 feet above the sidewalk. Blade or canopy signage is encouraged.
- Outdoor dining is encouraged at street fronting facades or sides.
- National retailers should incorporate branding colors and signage identity into a building façade that is unique to Coldstream.
3.5 Parking Garage

Building Siting
- Main facades of structure shall be generally parallel to the streets or property lines or adjacent buildings.
- Corner lots are considered to have two front lot lines. Any lot line fronting main streets shall be considered a Primary façade for guideline purposes, and other facades considered a Secondary façade.
- Structure may undulate in depth to accommodate special stair or tower features or other uses such as small retail infill or residential units occurring at perimeter.

Height and Massing
- Heights shall be up to 6 stories, but no higher than highest adjacent building or building served.
- Garage massing and height may vary to allow for variety and creation of special feature building segments. Such segments are strongly encouraged to break up long monolithic facades.
- Roof forms over top parking deck are strongly encouraged and additional height is allowed where proposed.

Architectural Design
- Primary street-fronting facades shall be designed with opaque architectural screening and building-like façade features so as to completely screen structure and partially screen vehicles, and shall be designed in context with the adjacent street-fronting buildings and buildings served.
- Secondary facades exposed to view from adjacent properties shall be designed with screening features so as to generally screen structure and vehicles. Where garage is within 30 feet and adjacent to building served and completely screened from view, such as illustrated at Carnahan Center, façade screening is not required on facades facing building served.
- Façade materials shall be durable and of high quality. Preferred primary façade materials include: brick, stone, architectural precast concrete, metal panels and louver systems, metal and glass curtain walls. Preferred secondary façade materials include: any primary façade material, metal louver systems, perforated metal and mesh materials, vegetated trellis systems, and awning systems. Structural precast elements qualify as façade when incorporating architectural precast concrete faces with decorative patterning, coloring and textures. Preapproved newly developed materials acceptable. Locally derived, sustainable and high-recycled content materials are strongly encouraged.
- Building fenestration at primary facades directly fronting streets shall include a minimum of 20% openings or windows and as required for garage ventilation. Substantially increased openings without screening is strongly discouraged. Blank walls shall be avoided on these facades with the maximum length of any segment without fenestration limited to 20 feet.
- No mechanical or utility equipment shall be visible from any street.
- Architecturally designed structured canopy systems over parking aisles at top floor are strongly encouraged. Fabric systems are not acceptable.
- Where garages are within 60 feet and adjacent to taller neighboring buildings, roof systems are required and vegetated roofing systems are strongly encouraged.

Special Features
- At upper floor or parapet, approved corporate signage, features and specialized lighting are allowed.
- Vegetated roof systems are encouraged.
3.6 Mixed-Use Building

Mixed-Use Building – Mixed-Use Office

Building Siting
- The main facades of buildings shall be parallel to the streets or property line.
- Buildings shall sit directly on setback line (back of sidewalk).
- Buildings may vary in depth up to 5 feet to undulate the façade providing variety and interest, especially at retail.
- Corner lots are considered to have two front lot lines.
- Not less than 80% of the front lot width shall be covered by direct building frontage.
- Building adjacencies shall create vistas to connect the retail environment to garages structures in a prominent manner.

Height and Massing
- Building heights shall be up to 5 stories over retail but no less than 3 stories over retail. Retail floor-to-floor shall be 18 feet minimum, 20 feet preferred.
- Building massing should step back at the corners on Aristides Boulevard intersections and can increase height to articulate and celebrate these most urban corners.
- A strong unifying horizontal expression over the ground level retail area is encouraged.
- Building mass setbacks are allowed only on the upper floors and are encouraged.
- Predominant roof form shall be flat and parapeted. Vertically projecting elements or elevated sloped roof forms are allowed at special feature building segments.
- Buildings may include a single story ground level retail mass that projects substantially beyond the upper building massing. This segment of the building shall conform to the character of the parent building and shall follow the guidelines specific to retail uses.

Parking and Service
- Parking should be hidden behind buildings in structured decks. Below grade parking is allowed. If a portion of a parking structure or service area is visible from the street, it should be screened physically or with appropriate landscaping.
- Parking deck structures are limited to 3 stories to preserve the building’s 2nd story views, light and egress.
- Parking structures may stand free of the buildings or connect but shall allow unencumbered service drive access at sides and rears of buildings.
- Lighting in parking structures shall be arranged so that the source of light is screened from view at the buildings street sidewalks.
- All services to be located to building rears or sides accessed by tertiary roads between or beyond buildings. No service drive curb cuts are allowed on any of the main streets within the building street wall frontage.
- Dumpsters must be completely enclosed and recessed into the buildings they serve.

Architectural Design
- Front and side facades shall be of the same or similar materials and similarly detailed.
- Upper floor may utilize materials differing from other floors to provide unique expression.
- Building façade materials shall be high quality and durable. Preferred materials include: brick, stone, high quality precast concrete, metal and glass, and preapproved newly developed materials as may present themselves in the future. Wood and aluminum may be used as storefront and trim materials. Finished face concrete masonry may be used at ground level at service areas. Locally derived, sustainable and high-recycled content materials are strongly encouraged.
- Buildings may express uniform usage of materials, or may differentiate major building segments toward creating a multiplebuilding aesthetic by using various materials per segment only when
substantial physical breaks and planar offsets are incorporated at segment points to prevent a flat building appearance.

- Building fenestration at floors above ground level shall include a minimum of 40% openings or windows. While punched windows are encouraged, substantially increased openings or all-glass walls are allowed in recessed or special corner feature areas.
- Reflective or dark tinted glass is prohibited. Ground level storefronts shall have transparent glass.
- Main entrances shall be at the front facades and articulated as significant public entrances.
- Main entrances can be emphasized with canopies or similar features which should provide a minimum clearance of 9 feet above the sidewalk.
- Blank walls at ground level shall be avoided. The maximum length of any segment of a street-fronting ground floor façade without transparency is 20 feet.
- Storefronts shall be provided for no less than 65% of the length of street-fronting ground floor facades. Storefront sills shall be no higher than 3 feet above the adjacent sidewalk and tops of storefront openings shall be no less than 10 feet above the adjacent sidewalk.
- All ground level retail shall have its own entrance opening directly to a street.
- Storefronts shall continue at the exposed side of buildings for no less than 40 feet from the front façade.
- Awnings are allowed over storefront windows and doors. No awning may be substantially wider than the storefront it covers. Awnings should provide no less than 8 feet clearance above sidewalks. Awnings must be hung from the building façade and may not be supported by columns on the sidewalk.
- Building lighting should be mounted at 8 feet or higher. Lighting shall be aimed downward at the building such that no light projects above the fixture.
- No mechanical or utility equipment may be located within 40 feet of the street-fronting or corner, and shall not be visible from any street.
- Flat roofs should drain to internal roof drains and/or to the rear leaving street-fronting façades free of gutters and downspouts. Roofing on lower level or ground floor building segments visible directly form upper floors of buildings shall be vegetative, white, or otherwise decorative in design.

Special Features

- At building corners and spaces between buildings, change of materials, projections and delineating features and additional height are allowed.
- Building arcades at ground level are strongly discouraged except for recessed corner conditions at the Ellipse intersections.
- Balconies are allowed at top floor setbacks.
- Roof terraces or vegetative roofs are encouraged. Roofs shall be considered a visible 'elevation' and shall be designed with features, materials and patterns that reflect the character of the building.
- Façade mounted flags, clocks, specialty lighting, and specially approved banner signage are allowed.
- All signage should be located within 12 to 18 feet above grade. Blade or canopy signage is encouraged.
- Marquee signage may be attached to upper stories announcing large destination tenants or users, however careful attention shall be given to size and lighting.
Mixed-Use Building – Mixed-Use Multi-Family

Building Siting
- Main facades of buildings shall be parallel to the streets or property line.
- Buildings shall sit directly on setback line (back of sidewalk).
- Buildings may vary in depth up to 5 feet to undulate the façade providing variety and interest, especially at retail.
- Corner lots are considered to have two front lot lines.
- Not less than 80% of the front lot width shall be covered by direct building frontage.
- Building adjacencies shall create vistas to connect the retail environment to garages structures in a prominent manner.

Height and Massing
- Building heights shall be up to 5 stories over retail but no less than 3 stories over retail. At the Georgetown Pike Center neighborhood, buildings shall be no less than 2 stories over retail. Retail floor-to-floor shall be 18 feet minimum, 20 feet preferred.
- Building massing should step back at the corners on Aristides Boulevard intersections and can increase height to articulate and celebrate these most urban corners.
- A strong unifying horizontal expression over the ground level retail area is encouraged.
- Building mass setbacks are allowed only on the upper floors and are encouraged.
- Predominant roof form shall be flat and parapeted. Vertically projecting elements or elevated sloped roof forms are allowed at special feature building segments. Additional roof level occupiable volumes set back a minimum of 20 feet are allowed for amenity use.

Parking and Service
- Parking should be hidden behind buildings in structured decks. Below grade parking is allowed. If a portion of a parking structure or service area is visible from the street, it should be screened physically or with appropriate landscaping.
- Parking deck structures are limited to 3 stories to preserve the building’s 2nd story views, light and egress.
- Parking structures may stand free of the buildings or connect but shall allow unencumbered service drive access at sides and rears of buildings.
- Lighting in parking structures shall be arranged so that the source of light is screened from view at the buildings street sidewalks. Top level perimeter shall be solid to screen headlights into residential units.
- All services to be located to building rears or sides accessed by tertiary roads between or beyond buildings. This includes move-in events. No service drive curb cuts are allowed on any of the main streets within the building street wall frontage.
- Dumpsters must be completely enclosed and recessed into the buildings they serve. Retail waste rooms must isolate odor and unreasonable noise from residents.

Architectural Design
- Front and side facades shall be of the same or similar materials and of a similar level of detail.
- Upper floor and recessed areas may utilize materials differing from other floors to provide unique expression.
- Building façade materials shall be high quality and durable. Preferred materials include: brick, stone, high quality precast concrete, metal and glass, and preapproved newly developed materials as may present themselves in the future. Finished face concrete masonry may be used at ground level at service areas. Wood and aluminum may be used as storefront and trim materials. Locally derived, sustainable and high-recycled content materials are strongly encouraged.
- Buildings may express uniform usage of materials, or may differentiate major building segments toward creating a multiple building aesthetic by using various materials per segment only when
substantial physical breaks and planar offsets are incorporated at segment points to prevent a flat building appearance.

- Building fenestration at floors above ground level shall include a minimum of 40% openings or windows. While punched windows are encouraged, substantially increased openings or all-glass walls are allowed in recessed or special corner feature areas.
- Reflective or dark tinted glass is prohibited.
- Ground level storefronts shall have transparent glass.
- Main entrances shall be at the front facades and articulated as significant public entrances.
- Main entrances can be emphasized with canopies or similar features which should provide a minimum clearance of 9 feet above the sidewalk.
- Blank walls at ground level shall be avoided. The maximum length of any segment of a street-facing ground floor façade without transparency is 20 feet.
- Storefronts shall be provided for no less than 65% of the length of street-facing ground floor facades. Storefront sills shall be no higher than 3 feet above the adjacent sidewalk and tops of storefront openings shall be no less than 10 feet above the adjacent sidewalk.
- All ground level retail shall have its own entrance opening directly to a street.
- Storefronts shall continue at the exposed side of buildings for no less than 40 feet from the front façade.
- Awnings are allowed over storefront windows and doors. No awning may be substantially wider than the storefront it covers. Awnings should provide no less than 8 feet clearance above sidewalks. Awnings must be hung from the building façade and may not be supported by columns on the sidewalk.
- Building lighting should be mounted at 8 feet or higher. Lighting shall be aimed downward at the building such that no light projects above the fixture.
- No mechanical or utility equipment may be located within 40 feet of the street-facing façade or corner.
- No mechanical systems shall be visible from any street. Unit exhaust and louvers are not allowed on facades; systems shall route through roof.
- Flat roofs should drain to internal roof drains and/or to the rear leaving street-facing façades free of gutters and downspouts. Roofs may be occupiable and embellished for amenity use. Stair and elevator access to roof shall be integrated in to the core architecture.

Special Features

- At building corners and façade segments at spaces between buildings, change of materials, projections and delineating features and additional height are allowed.
- Building arcades at ground level are strongly discouraged except for recessed corner conditions at the Ellipse intersections.
- Balconies are allowed at top floor setbacks. Projecting balconies are not allowed into Aristides Right-of-Way. Recessed or projecting balconies are allowed at other facades.
- Roof terraces or vegetative roofs are encouraged. Roofs shall be considered a visible ‘elevation’ and shall be designed with features, materials and patterns that reflect the character of the building.
- Façade mounted flags, clocks, specialty lighting, and specially approved banner signage are allowed.
- All signage should be located within 12 to 18 feet above grade. Blade or canopy signage is encouraged.
Mixed Use Building – Mixed-Use Hotel

Building Siting
- Main facades of buildings shall be parallel to the streets or property line.
- Buildings shall sit directly on setback line (back of sidewalk).
- Buildings may vary in depth up to 8 feet to undulate the façade providing variety and interest, especially at retail.
- Corner lots are considered to have two front lot lines.
- Not less than 80% of the front lot width shall be covered by direct building frontage.
- Building adjacencies shall create vistas to connect the retail environment to garages structures in a prominent manner.

Height and Massing
- Building heights shall be up to 8 stories over ground floor but no less than 5 stories over ground floor. Retail floor-to-floor shall be 15 feet minimum, 18 feet preferred.
- Building massing may articulate inward or outward at the prime street façade corner and unoccupied feature elements may increase height up to an additional story.
- Predominant roof form shall be flat and parapeted. Pitched roof forms are allowed at corners and feature areas. Additional height is allowed at pitched roofs and special feature building segments.

Parking and Service
- Parking should be hidden behind buildings in structured decks. Below grade parking is allowed. If a portion of a parking structure or service area is visible from the street, it should be screened physically or with appropriate landscaping.
- Parking deck structures are limited to 4 stories and must be designed to preserve the building’s lowest guest room views, light and egress.
- Parking structures may stand free of the buildings or connect but shall allow unencumbered service drive access at sides and rears of buildings.
- Lighting in parking structures shall be arranged so that the source of light is screened from view at the buildings street sidewalks and from guest rooms beyond.
- All services to be located to building rear or sides accessed by tertiary roads between or beyond buildings. No service drive curb cuts are allowed on any of the main streets within the building street wall frontage.
- Dumpsters must be recessed into the buildings they serve. Trash room must isolate odor and unreasonable noise from residents.

Architectural Design
- Front and side facades shall be of the same or similar materials and similarly detailed.
- Upper floor and recessed or projected areas may utilize materials differing from other floors to provide unique expression.
- Building façade materials shall be high quality and durable. Preferred materials include: brick, stone, cast stone, metal panels and glass, and preapproved newly developed materials as may present themselves in the future. Finished face concrete masonry may be used at ground level at service areas. Wood and aluminum may be used as storefront and trim materials. Locally derived, sustainable and high-recycled content materials are strongly encouraged.
- Building fenestration at floors above ground level shall include a minimum of 30% openings or windows. While punched windows are encouraged, substantially increased openings or all-glass walls are allowed in recessed or special corner feature areas.
- Reflective or dark tinted glass is prohibited. Ground level storefronts shall have transparent glass.
- Main entrance shall be at The Ellipse street facade and articulated as a significant public entrance.
- Main entrance shall be emphasized with porte-cochere feature which should provide a minimum clearance of 14 feet above the sidewalk and arrival drop-off.
Blank walls at ground level shall be avoided on street and Quadrangle green space facades. The maximum length of any segment of street-fronting ground floor façade without fenestration is 20 feet.

Storefronts shall be provided for no less than 60% of the length of The Ellipse street-fronting ground floor facade. Storefront sills shall be no higher than 2 feet above the adjacent sidewalk and tops of storefront openings shall be no less than 9 feet above the adjacent sidewalk.

Any ground level retail other than restaurant shall have its own entrance opening directly to a street. A restaurant may include entrances from the hotel lobby but must provide dining engaging the Quadrangle green lawn as an amenity.

Awnings are allowed over storefront windows and doors. No awning may be substantially wider than the storefront it covers. Awnings should provide no less than 8 feet clearance above sidewalks. Awnings must be hung from the building façade and may not be supported by columns on the sidewalk.

Building lighting should be mounted at 8 feet or higher. Lighting shall be aimed downward at the building such that no light projects above the fixture.

No mechanical systems shall be visible from the Ellipse street or the Quadrangle green space.

Flat roofs should drain to internal roof drains and/or to the rear leaving street-fronting façades free of gutters and downspouts.

**Special Features**

- At building corners and spaces between buildings, change of materials, projections and delineating features and additional height are allowed.
- All building signage should be located within 10 to 16 feet above grade with operator or marquee signage allowed at top level.
- Roofs shall be considered a visible ‘elevation’ and shall be designed with features, materials and patterns that reflect the character of the building.
3.7 Sustainability

Sustainability – Energy Conservation

Designs for new buildings must make energy conservation a priority. According to the U.S. Department of Energy, buildings consume approximately 37% of the energy and 68% of the electricity produced in the United States annually. In addition to the pollutants released by power plants, generating electricity from fossil fuels has a multitude of harmful effects on the environment beginning with extraction, transportation, refining, and distribution.

Sustainable design confronts these problems by reducing the amount of energy required and using less harmful forms. In addition to the environmental benefits, buildings with higher energy performance will have lower operating costs. The rate of return on energy-efficiency measures will only improve as world competition for the available supply of fuel increases.

Geothermal Heating and Cooling
A geothermal heat pump moves heat from the earth into the building in the winter, and pulls the heat from the building and discharges it into the ground in the summer. It may also provide water heating to supplement or replace conventional water heaters. Geothermal heating and cooling systems are a means to reduce reliance on fossil fuels as they typically operate three times more efficiently than conventional systems. Geothermal systems are space saving, quiet and reliable operating practically maintenance free.

Buildings surrounded by open space and parking lots can take advantage of this area by installing a conventional horizontal closed loop system. Based on energy cost savings, the expected payback for this system is seven years. Buildings in the Carnahan Center should consider tapping into aquifers with a vertical open loop system. Open loop systems utilize two small wells under the building and have an expected payback of five years.

Daylighting
Daylighting design requires a careful balance of heat gain and loss, controlling glare and visual quality, and planning for variations in daylight availability. Major considerations during early design include building orientation, window size and spacing, glass selection, reflectance of interior finishes, and location of interior partitions. Further building design strategies to employ include shading devices, light shelves, light monitors, courtyards, atriums, and window glazing.

Daylighting will reduce the need for electric lighting in building interiors resulting in lower operating costs. Well designed day lit spaces have also been shown to increase occupant productivity and reduce absenteeism.

Solar Thermal Systems
Solar thermal is among the most cost-effective of all renewable energy systems. The most common solar thermal system is an indirect active water heater. These systems use pumps to circulate an antifreeze solution through heat-absorbing solar thermal collectors and into a heat-transfer unit where it warms the cool water heading into a conventional hot water tank. Solar thermal systems can be used to meet all the hot water needs of a building or supplement a conventional hot water system, eliminating or greatly reducing the need for gas or electricity to heat water.
Sustainability – Energy Production

On-site renewable energy.

Solar Power
Photovoltaic (PV) panels are a simple, low-maintenance method for producing onsite renewable energy. Equip buildings, especially those with large flat roofs, with photovoltaic panels to produce electricity for daytime building operations. PV panels are especially effective because their peak production matches the peak demand for office buildings. Should the initial investment in photovoltaic panels seem cost prohibitive, consider leasing roof space to energy providers that can install and maintain the panels onsite.

Sustainability – Sustainable Materials

Considering the extensive network of extraction, processing, and transportation steps required for production, the selection of building materials becomes an important aspect of sustainable design. Production of many building materials while polluting our air and water. Even after these materials have been created and shipped to the site, construction and demolition wastes continue to overload our landfills constituting nearly 40% of the total solid waste stream in the United States.

When selecting materials for new buildings it is essential to consider new and alternative sources. Substituting salvaged materials for new materials can reduce costs while adding character to the building. Recycled-content materials can make use of waste products that might otherwise end up in landfills. Choosing local materials is especially important because it reduces transportation while supporting the local economy. Rapidly renewable materials should be considered because they minimize natural consumption and protect natural habitats. Selecting wood that has been certified by the Forest Stewardship Council will help protect natural forests and their related ecosystems.

Sustainability – Water Efficiency

Incorporate high efficiency fixtures, waterless urinals, and occupant sensors into the building design to reduce the potable water demand. Consider harvesting stormwater and graywater for non-potable uses such as irrigation and toilet flushing. Large cisterns are an effective and widespread method for capturing water from roof run-off. The cistern can be used to store large quantities of water to be used later for onsite irrigation or sewage conveyance.

Reducing the amount of potable water used for building functions helps protect natural water resources such as rivers, streams, and underground aquifers. This in turn reduces the chemical inputs at municipal water treatment works leading to more stables taxes and water rates. Additional benefits of potable water conservation include reduced energy use and lower building operating costs.

Sustainability – Vegetated Roof

Incorporate a vegetated roof into the design to mitigate the heat island effect, conserve energy, and manage stormwater. Urban and heavily paved areas are known to have higher air temperatures due to high concentrations of dark surfaces. Simply covering a roof with sedums and other very low maintenance plants can return air temperatures to more natural levels. Vegetated roofs can lower heating and cooling demands and conserve energy by stabilizing building temperatures. The insulating properties of the soil and plantings prevent excess heat gain from the sun on hot days, while slowing heat loss on colder days. On rainy days, a vegetated roof will help control the quantity of water dumped into storm drainage systems and the quality of water returned to the ground. The plants absorb all the water they need during storms and act as a natural filter for the water that passes through to the storm drains.
4.0 Design Implementation

Work Procedures of the Design Review Committee

The Design Review Committee is authorized to review and act on all development proposals in accordance with the review procedures described herein, and to apply its judgment in accordance with the criteria contained in these guidelines.

Each development proposal will be reviewed by the Design Review Committee as the design for the building(s) and the site evolves, in accordance with the following schedule:

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, building program.

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

At the Committee’s option, a meeting will be held with the applicant, the applicant’s architect, and other consultants to discuss the design at this stage.

1. Property boundaries, including relationship to adjacent lands and access roads.
2. Topography, shown by one foot contours.
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.
6. Description of existing vegetation on the parcel, including the location, name, size, and condition of trees and shrubs. This shall include trees of 6” caliper or larger and all groups of trees, whatever their sizes.

Preliminary Plans
The applicant will submit no less than three (3) sets of preliminary architectural and site plans, including:

1. Dimensioned building plans, sections, and elevations, 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. Samples of proposed exterior materials and colors.
4. Site plan(s) showing:
   a. A grading concept at an appropriate interval.
   b. Layout of all roads, walks, paved areas, and other elements which constitute modification of the natural site.
   c. A planting concept, including placement and species of new plants and integration with existing planting.
   d. A site lighting concept, with heights, spacing, and other characteristics.
5. A cross section of the site, 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.
6. Concept plans for the major entrance sign and building identification sign, if any, including dimensions, location, material, lettering, color, lighting, and elevations of the prototype for on site directional signs, showing format, typeface, and colors.
7. Proposed methods for protecting any existing trees affected by grading, paving, or other construction.
8. An estimate of the maximum number of employees for the proposed development.
9. The results of a traffic impact analysis indicating (1) the number and peak hour time of cars entering and leaving the particular installation, (2) the estimated peak hour traffic at the intersection of the parcel entrance and the collector road, and (3) the estimate of the impact of the traffic generated by this installation on Citation Boulevard and Newtown Pike.
10. The applicant shall submit written evidence in the form of a letter from the Kentucky Department for Environmental Protection that the plan for the management of toxic and hazardous waste material meets their standards.
11. 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 and proposed mitigation of these as may be necessary. Approval, rejection, or recommendation for changes will be made by the Committee within fifteen days of receiving the proposal. The Committee will reserve the right to request a meeting with the applicant, the applicant’s architect, and other consultants 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 ensure 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 fifteen days after the three sets of required plans 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 plans and specifications marked “Approved” and signed by an authorized representative of the University of Kentucky. This set will become a part of the agreement between the applicant and the University of Kentucky.

**SITE PLAN REVIEW CHECKLIST**

**Site**
1. Coverage
   a. Building footprint 25% maximum
2. Building setbacks
   - From Interstate 64/75: 100 feet
   - From Newtown Pike: 200 feet
   - From Citation Boulevard: 100 feet
   - From McGrathiana Parkway: 10 feet
   - From local streets: Varies; See Chapter 2

**Buildings**
1. Floor area ratio: 0.4 typical;
2. In the area of Carnahan Center, a floor area ratio of 1.0 is recommended. Note that this is intended to stimulate the creation of an urban town center in this location.
3. Exposed mechanical equipment on roof shall be screened from view.

**Parking**
1. Offices: One space per 400 square feet of floor area
2. Laboratories: One space per 500 square feet of floor area.
3. Retail: One space for each 400 square feet of floor area for the first 10,000 square feet. One space per 200 square feet for floor area above 10,000 square feet. For ground floor retail within
an office or laboratory building that is locally serving and does not exceed 2,000 square feet, no off street parking is required.

4. Parking structures: Maximum of four stories above grade. In no case shall a parking structure exceed the height of the surrounding buildings it serves.

Service areas:
1. Screened from roads and exterior views.
2. Service area noises buffered.
3. Designed to mitigate impacts of any toxic or hazardous wastes.

Utilities
1. Indicate availability and underground location.

Lighting
1. Major lines and fixtures indicated.

Signage
1. Company identification sign at parcel entry.
2. Smaller identification sign at principal entrance to building.
3. Directional, traffic, and parking control signs.
4. All signs consistent with site architecture in colors, materials, and design.

Landscaping
1. Existing major trees to be preserved where possible, unless dying or badly damaged.
2. Development zones
   a. All construction of buildings and parking areas (except access drives) shall be restricted to the development zones shown on the plan.
   b. All landscape treatment visible from Newtown Pike to be compatible with that of the Newtown Pike scenic easement zone.
   c. Planting near buildings to respond to architectural features and materials.
   d. Fences to be used only for purposes of security or during building construction.
   e. Proposed landscape plan must comply with the minimum requirements of LFUCG.

Stormwater runoff control
1. Cane Run watershed is protected against pollution from surface run-off, debris, and hazardous materials.
2. Erosion and sediment to be controlled by methods and via entities described in Chapter 4.

Hazardous materials
1. Not to be disposed of on site.
2. Plan for use and disposition submitted to Design Review Committee and Kentucky Department for Environmental Protection. Reply from state agency submitted with Final Plans for approval.
Notification for Underground Storage Tanks

For Tanks in KY

RETURN COMPLETED FORM TO: Natural Resources Cabinet Division of Waste Management Attention: Vicki Pettus 18 Reilly Road Frankfort, KY 40601

GENERAL INFORMATION

Notification is required by Federal law for all underground storage tanks that have been used to store regulated substances since January 1, 1974, that are in the ground as of May 8, 1986, or that are brought into use after May 8, 1986. The information requested is required by Section 903 of the Resource Conservation and Recovery Act (RCRA), as amended.

The primary purpose of this notification program is to locate and evaluate underground tanks that store or have stored petroleum or hazardous substances. It is expected that the information you provide will be based on reasonably available records, or, in the absence of such records, your knowledge, belief, or recollection.

Who Must Notify? Section 9032 of RCRA, as amended, requires that, unless exempted, owners or operators of underground tanks that store regulated substances must notify the state or local agency of the existence of their tanks. Owners means:

(a) in the case of an underground storage tank in use on November 8, 1984, or brought into use after that date, any person who owns an underground storage tank used for the storage, use, or dispensing of regulated substances, and

(b) in the case of any underground storage tank in use before November 8, 1984, but not longer in use on that date, any person who owned such tank immediately before the discontinuance of its use.

What Tanks Are Included? Underground storage tank is defined as any one or combination of tanks that (1) is used to contain an accumulation of "regulated substances," and (2) whose volume (including connected underground piping) is 100 or more cubic feet. Some examples are underground tanks storing gasoline, used oil, or diesel fuel, and 2, industrial solvents, pesticides, herbicides, or fungicides.

What Tanks Are Excluded? Tanks removed from the ground are not subject to notification. Other tanks excluded from this program are:

1. Farm or residential tanks of 1,000 gallons or less capacity used for storing motor fuel for noncommercial purposes.
2. Tanks used for storing heating oil for consumptive use on the premises where stored.
3. Aquatic tanks.
4. Pipeline facilities (including gathering lines) regulated under the Natural Gas Pipeline Safety Act of 1968, or the Hazardous Liquid Pipeline Safety Act of 1978, or which are an intrastate pipeline facility regulated under State laws.
5. Surface impoundments, pits, ponds, or lagoons.
6. Storm water or waste water collection systems.
7. Floor-through process tanks.
8. Liquid traps or associated gathering lines directly related to oil or gas production and gathering operations.
9. Storage tanks located in an underground area (such as a basement, cellar, or tunnel) if the storage tank is situated upon or above the surface of the floor.

What Substances Are Covered? The notification requirements apply to underground storage tanks that contain regulated substances. This includes any substance defined as hazardous in section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), and with the exception of those substances regulated as hazardous waste under Subtitle C of RCRA. It also includes petroleum, e.g., crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute).

Where To Notify? Completed notification forms should be sent to the address given at the top of this page.

When To Notify? 1. Owners of underground storage tanks in use or that have been taken out of operation after January 1, 1974, but still in the ground, must notify by May 8, 1986. 2. Owners who bring underground storage tanks into use after May 8, 1986, must notify within 30 days of bringing the tanks into use.

Penalties: Any owner who knowingly fails to notify or submits false information shall be subject to a civil penalty not to exceed $10,000 for each tank for which notification is not given or for which false information is submitted.

INSTRUCTIONS

Please type or print in ink all items except "signature" in Section V. This form must be completed for each location containing underground storage tanks. If more than 5 tanks are owned at this location, photocopy the reverse side, and staple continuation sheets to this form.

Indicate number of continuation sheets attached

I. OWNERSHIP OF TANK(S)

Owner Name (Corporation, Individual, Public Agency, or Other Entity)

University of Kentucky, Lexington Campus

Street Address

Evans 215N Peterson Service Bldg.

County

Fayette

City

Lexington

State

Ky.

ZIP Code

40506

Area Code Phone Number

606-257-1012

Type of Owner (Mark all that apply)

☐ Current Owner
☐ State or Local Gov't
☐ Private or Commercial
☐ Former Owner
☐ Federal Gov't
☐ Ownership uncertain

INDICATE NUMBER OF TANKS AT THIS LOCATION

2

II. LOCATION OF TANK(S)

(Fill same as Section I, mark box here) Facility Name or Company Site Identifier, as applicable

Coldstream Farm Bldg. No. 3134

Street Address or State Road, as applicable

Newtown Rd.

County

Fayette

City (Nearest)

Lexington

State

Ky.

ZIP Code

IV. CONTACT PERSON AT TANK LOCATION

Name (If same as Section I, mark box here)

Dave Tyler

Job Title

Engineering Associate II

Area Code Phone Number

606-257-1012

V. TYPE OF NOTIFICATION

☐ Mark box here only if this is an amended or subsequent notification for this location.

V. CERTIFICATION (Read and sign after completing Section VII)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete.

Name and official title of owner or owner's authorized representative

Signature

Date Signed
### VI. DESCRIPTION OF UNDERGROUND STORAGE TANKS

Complete for each tank at this location.

<table>
<thead>
<tr>
<th>Tank Identification No. (e.g., ABC-123), or Arbitrarily Assigned Sequential Number (e.g., 1,2,3...)</th>
<th>Tank No. 1037</th>
<th>Tank No. 1038</th>
<th>Tank No.</th>
<th>Tank No.</th>
<th>Tank No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Status of Tank (Mark all that apply)</td>
<td>Currently in Use</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Temporarily Out of Use</td>
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<td></td>
<td>Permanently Out of Use</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Brought into Use after 5/8/86</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| 2. Estimated Age (Years) | 1971 | 1976 |

| 3. Estimated Total Capacity (Gallons) | 520 | 1000 |

| 4. Material of Construction (Mark one) | Steel | | | | |
| | Concrete | | | | |
| | Fiberglass Reinforced Plastic | | | | |
| | Unknown | | | | |
| | Other, Please Specify | | | | |

| 5. Internal Protection (Mark all that apply) | Cathodic Protection | | | | |
| | Interior Lining (e.g., epoxy resins) | | | | |
| | None | | | | |
| | Unknown | | | | |
| | Other, Please Specify | | | | |

| 6. External Protection (Mark all that apply) | Cathodic Protection | | | | |
| | Painted (e.g., asphaltic) | | | | |
| | Fiberglass Reinforced Plastic Coated | | | | |
| | None | | | | |
| | Unknown | | | | |
| | Other, Please Specify | | | | |

| 7. Piping (Mark all that apply) | Bare Steel | | | | |
| | Galvanized Steel | | | | |
| | Fiberglass Reinforced Plastic | | | | |
| | Cathodically Protected | | | | |
| | Unknown | | | | |
| | Other, Please Specify | | | | |

| 8. Substance Currently or Last Stored in Greatest Quantity by Volume (Mark all that apply) | a. Empty | | | | |
| | b. Petroleum | | | | |
| | | Diesel | | | |
| | | Kerosene | | | |
| | | Gasoline (including alcohol blends) | | | |
| | | Used Oil | | | |
| | Other, Please Specify | | | | |
| | c. Hazardous Substance | | | | |

Please Indicate Name of Principal CERCLA Substance OR Chemical Abstract Service (CAS) No.
Mark box if tank stores a mixture of substances

| 9. Additional Information (for tanks permanently taken out of service) | a. Estimated date last used (mo/yr) | | | | |
| | b. Estimated quantity of substance remaining (gal.) | | | | |
| | c. Mark box if tank was filled with inert material (e.g., sand, concrete) | | | | |
### General Information

Notification is required by Federal law for all underground storage tanks that have been used to store regulated substances since January 1, 1974, that are in the ground as of May 8, 1984, or that are brought into use after May 8, 1984. The information requested is required by Section 9002 of the Resource Conservation and Recovery Act (RCRA), as amended.

The primary purpose of this notification program is to locate and evaluate underground tanks that store or have stored petroleum or hazardous substances. It is expected that the information you provide will be based on reasonably available records, or, in the absence of such records, your knowledge, belief, or recollection.

Who Must Notify? Section 9002 of RCRA, as amended, requires that, unless exempted, owners of underground tanks that store regulated substances must notify designated State or local agencies of the existence of their tanks. Owners must:

1. In the case of an underground storage tank in use on September 1, 1984, or that are brought into use after that date, any person who owns an underground storage tank used for the storage, use, or dispensing of regulated substances, and
2. In the case of any underground storage tank in use before September 1, 1984, but not longer in use on that date, any person who owned such tank immediately before the discontinuation of its use.

What Tanks Are Included? Underground storage tank is defined as any one or combination of tanks that (1) is used to contain an accumulation of "regulated substances", or (2) whose volume (including corrosion of underground piping) is 10% or more beneath the ground. Some examples are underground tanks storing 1. gasoline, used oil, or diesel fuel, and 2. industrial solvents, pesticides, herbicides or fungicides.

What Tanks Are Excluded? Tanks removed from the ground are not subject to notification. Other tanks excluded from notification are:

1. Farm or residential tanks of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes;
2. Tanks used for storing heating oil for consumptive use on the premises where stored;
3. Septic tanks;
4. Pipeline facilities (including gathering lines) regulated under the Natural Gas Pipeline Safety Act of 1968, or the Hazardous Liquid Pipeline Safety Act of 1979, or which are an intrastate pipeline facility regulated under State laws;
5. Surface impoundments, pits, ponds, or lagoons;
6. Storm water or waste water collection systems;
7. Flow-through process tanks;
8. Liquid traps associated with gathering lines directly related to oil or gas production and gathering operations;
9. Storage tanks situated in an underground area (such as a basement, cellar, mine workings, shaft, or tunnel) if the storage tank is situated upon or above the surface of the floor.

What Substances Are Covered? The notification requirements apply to underground storage tanks that contain regulated substances. This includes any substance identified as hazardous in sections 111 or 112 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), with the exception of those substances regulated as hazardous waste under Subtitle C of RCRA. It also includes petroleum, e.g., crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute).

Where To Notify? Complete notification form should be sent to the address given at the top of this page.

When To Notify? 1. Owners of underground storage tanks in use or that have been taken out of operation after January 1, 1974, but still in the ground, must notify by May 8, 1984. 2. Owners who bring underground storage tanks into use or that have been taken out of operation after May 8, 1986, must notify within 30 days of bringing the tanks into use.

Penalties: Any person who knowingly fails to notify or submits false information shall be subject to a civil penalty not to exceed $10,000 for each tank for which notification is not given or for which false information is submitted.

### Instructions

Please type or print all items except "signature" in Section V. This form must be completed for each location containing underground storage tanks. If more than 5 tanks are owned at this location, photocopy the reverse side, and staple continuation sheets to this form.

### I. Ownership of Tank(S)

<table>
<thead>
<tr>
<th>Owner Name (Corporation, Individual, Public Agency, or Other Entity)</th>
<th>University of Kentucky, Lexington Campus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Street Address</td>
<td>Rm. 215 N Peterson Service Bldg.</td>
</tr>
<tr>
<td>County</td>
<td>FAYETTE</td>
</tr>
<tr>
<td>City</td>
<td>LEXINGTON</td>
</tr>
<tr>
<td>Area Code</td>
<td>KY</td>
</tr>
<tr>
<td>Zip Code</td>
<td>40506</td>
</tr>
<tr>
<td>Type of Owner</td>
<td>Current, State or Local Govt. (GSA facility I.D. no.)</td>
</tr>
</tbody>
</table>

### II. Location of Tank(S)

<table>
<thead>
<tr>
<th>Facility Name or Company Site Identifier, as applicable</th>
<th>Coldstream Farm Bldg. No. 3122</th>
</tr>
</thead>
<tbody>
<tr>
<td>Street Address or State Road, as applicable</td>
<td>Newton Rd.</td>
</tr>
<tr>
<td>City (nearest)</td>
<td>LEXINGTON</td>
</tr>
<tr>
<td>State</td>
<td>KY</td>
</tr>
</tbody>
</table>

### III. Contact Person at Tank Location

<table>
<thead>
<tr>
<th>Name (if same as Section I, mark box here)</th>
<th>Job Title</th>
<th>Area Code</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAVID TYLER</td>
<td>ENGINEERING ASSOCIATE</td>
<td>606</td>
<td>257-1012</td>
</tr>
</tbody>
</table>

### V. Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information provided is true, accurate, and complete.

Name and official title of owner or owner's authorized representative: [Signature]

Date: [Data Signed]

[Continue on reverse side]
### VI. DESCRIPTION OF UNDERGROUND STORAGE TANKS

(Complete for each tank at this location.)

<table>
<thead>
<tr>
<th>Tank Identification No. (e.g., ABC-123), or Arbitrarily Assigned Sequential Number (e.g., 1,23...)</th>
<th>Tank No.</th>
<th>Tank No.</th>
<th>Tank No.</th>
<th>Tank No.</th>
<th>Tank No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status of Tank</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>(Mark all that apply)</td>
<td>Currently in Use</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Temporarily Out of Use</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Permanently Out of Use</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brought into Use after 5/8/88</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Estimated Age (Years)</td>
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<td>Unknown</td>
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<tr>
<td>Estimated Total Capacity (Gallons)</td>
<td></td>
<td>550</td>
<td>550</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Material of Construction</td>
<td>Steel</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>(Mark one ☑)</td>
<td>Concrete</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Fiberglass Reinforced Plastic</td>
<td></td>
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<td>Unknown</td>
<td></td>
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<tr>
<td></td>
<td>Other, Please Specify</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Internal Protection</td>
<td>Cathodic Protection</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Mark all that apply ☑)</td>
<td></td>
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<tr>
<td></td>
<td>Interior Lining (e.g., epoxy resins)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>None</td>
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<td>Unknown</td>
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<td>Other, Please Specify</td>
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<tr>
<td>External Protection</td>
<td>Cathodic Protection</td>
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</tr>
<tr>
<td></td>
<td>Painted (e.g., asphaltic)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fiberglass Reinforced Plastic Coated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>None</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Unknown</td>
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<tr>
<td></td>
<td>Other, Please Specify</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Piping</td>
<td>Bare Steel</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Mark all that apply ☑)</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>Galvanized Steel</td>
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<td></td>
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<td></td>
<td>Fiberglass Reinforced Plastic</td>
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<tr>
<td></td>
<td>Cathodically Protected</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unknown</td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td>Other, Please Specify</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Substance Currently or Last Stored</td>
<td>a. Empty</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In Greatest Quantity by Volume</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Mark all that apply ☑)</td>
<td>b. Petroleum</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diesel</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kerosene</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gasoline (including alcohol blends)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Used Oil</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other, Please Specify</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Hazardous Substance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please Indicate Name of Principal CERCLA Substance OR Chemical Abstract Service (CAS) No.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mark box ☑ if tank stores a mixture of substances</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Unknown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional information (for tanks permanently taken out of service)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Estimated date last used (mo/yr)</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>b. Estimated quantity of substance remaining (gal.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Mark box ☑ if tank was filled with inert material (e.g., sand, concrete)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
UNIVERSITY OF KENTUCKY
COLDSTREAM FARM
ENVIRONMENTAL PSA INTERVIEW QUESTIONNAIRE

April 18, 1991

1. Land Use
   a. What percent is grazing pastures?  60%
   b. What percent is crops?  30%
   c. What percent is residential?  3%
   e. Other uses (i.e. satellite dishes, Carnahan House, diagnostic lab)?

2. a. How long has U.K. been operating the farm?  39 years
   b. Have operations changed over time? Increased confinement of livestock
   c. What types of operations were conducted before?  Horse Farm
   d. Why did they change? Purchased by UK for use as a research farm

3. a. Has any particular area been determined as a non-productive area to grow crops? No, except for slopes
   b. Where?  streams, etc
   c. Why?
   d. When was this done?

4. a. Since UK acquired the farm has the farm ever been used by an entity other than the U.K. College of Agriculture? Satellite Station
b. For what type of activity? ____________________________

c. When? ____________________________

d. Name of other entity? ____________________________

5. a. How many known sinkholes are on the farm? 5
   b. Any trash disposal into sinkholes? Old hay until 1987
   c. Are items washed into the sinkholes? Creek debris
   b. How are these areas treated differently? ____________________________

6. a. Any garbage/trash disposal areas? Yes
   b. Where? Area around Poultry Center #3003
   c. What is in them? Assorted household trash, agricultural chemicals and containers, unknown materials
   d. What are they covered with? soil
   e. Are there any liners in the bottom? no

7. a. Types of animals on farm? Beef, sheep, dairy, swine
   b. How is manure disposed of (i.e. from barns)? Used to fertilize pasture and row crops

8. a. Is there any on-site treatment of water or waste before discharge? ____________________________
   b. How? Lagoon at dairy unit
   c. Where? ____________________________

9. a. Have chemicals or trash ever been washed into creek? Yes Motor Oil
   b. When? Jan., 1990

10. a. Is the creek used as a watering source for animals? No
b. Is the creek used for irrigation? No

11. a. Any awareness of contamination in the creek that came from upstream? Yes
b. When? During heavy rains
c. How long did it last? continues
d. What was the source? 
e. Any lasting affects, from the contaminations, to the farm? debris left along water ways

12. a. Types of chemicals used on the farm (i.e. fertilizer, pesticides, research related chemicals)? Fertilizers, Herbicides and Pesticides (all types)
b. Quantity of chemicals? Recommended rates
c. Where are chemicals stored? Chemicals bought and used as needed

13. a. Any chemical spills of any type? yes
b. Type(s) of chemicals spilled? Motor oil
c. When? Jan., 1990
d. Resulting contamination from spill? Oil film on stream behind BLD. #3134 (Cleaned up according to state regulations)

14. Have any spills run off of the property or were they all, if any, contained on site? Contained on site

15. What procedures are followed if a spill occurs? Contain spill and report to John Lowry (Environmental Health)
16. a. Have any vehicular accidents (from I-75, nearby roads, railroad . . . ) occurred, which caused contaminants to run onto the farm? Yes April, 1991

b. What type? Semi (Diesel fuels)
d. How was it handled? Contact John Lowry

17. a. Any underground storage tanks? Yes
b. Where? BLDG #3122, #3134 (underground)
c. What is in them? Fuel oil + water, gasoline + water, diesel + water
d. How old are they? unknown
e. Who owns the tanks? UK
f. What material are the tanks made of? metal (steel)

18. a. Any above ground tanks? Yes
b. Where? Dairy Center
c. What is in them? Diesel fuel
d. How old are they? unknown
e. Who owns the tanks? UK
e. Tank material? steel

19. Where are petroleum products stored? BLDG #3138

20. a. Has any antifreeze ever spilled or drained onto the ground? Yes
b. Approximate amount spilled? Very small quantities—less than 2 gal.
c. Where did it occur? Various locations associated with radiator leaks
d. Were clean-up procedures followed? No

21. Do any underground tanks have automatic shutoff? No
22. Are records kept concerning spills or accidents? Yes J. Lowry

23. Are underground tanks protected against corrosion? No

24. Are underground pipes protected against corrosion? No

25. Are there any leak detective devices currently in use for the tanks? No

26. a. Any septic tanks on site? Yes
   b. Where? At various residences and buildings - 18 systems
   c. For how long? unknown

27. a. Any known drums stock piled on site? No
   b. Where?
   c. Why?
   d. What is in them?

28. Are the tanks (above or below ground) registered with:
   a. LFUCG?
   b. Division of Underground Storage Tanks (Frankfort, KY)?
      Consult with David Tyler, Physical Plant, University of Kentucky

29. a. Have any tanks been removed? 
   b. Which ones?
   c. From where?
   d. For what reason?
   e. When?

30. a. Any evidence of PCB oil? No
   b. Are there any electric transformers buried or damaged on site?
   c. Where?
   d. When?
   e. How?
f. What was done?

31. a. Any evidence of asbestos?  Possibly
b. Where?  Building siding
c. When was it discovered?

d. What has been done about it?

32. a. Has EPA, LFUCG or any other agency investigated problems on the farm?  Yes
b. When?  Jan., 1990
c. Why?  See Question # 9
d. What was their conclusion?

33. a. Any known environmental problems from the nearby sewage treatment facility?  No
b. When?

c. What type?

d. Any lasting effects?

34. a. Has there been any potentially environmentally hazardous experiments or research on animals or crops conducted at the farm in the past history?  No
b. If yes, how have these experiments affected the farmland?

35. a. Any complaints from neighbors in industrial or residential areas?  Occasional complaints involving farm animal odors
b. Concerning what? Farm animal odors

---

c. What actions were taken by complainants and by U.K.? None

---

36. a. Have employees complained about allegedly hazardous conditions they work in? No

b. Why?

---

c. Did they suffer an illness as a result?

d. When?

---

37. a. Has any group of animals died suddenly or unexpectedly, due to suspected environmental causes? No

b. Reason?

---

38. Any utilities underground (gas ......) that may cross the farm? Yes (gas, water, electric and phone)

---

39. a. Have any fires occurred on the farm?

b. Where? Black Tobacco Barns (Beef & sheep areas)

BLDG #3131

---

c. When? Beef area barn- 1970's; Sheep area barn-early 1980's

House 3131 (fireplace) 1985; Dairy maternity barn, early 1970's

d. What damage? Barns destroyed

House had smoke and floor damage

---

*40. 3 sinkholes appear in the 1988 comprehensive plan (pg 49) for the farm.

*41. Look for stains on concrete and ground that may indicate spills of chemicals.

*42. Look around telephone poles for evidence of transformers leaking PCB oil?
Animal Diagnostics Lab

1. a. What is disposed of in the incinerator? Incineration of known toxic substance cases and rabies suspect cases.
   
b. How often? 1-2 times per week
   
c. Volume of material? an average of 500 pounds per burning.

2. a. How long are things stored before being incinerated? 1-3 days is possible. Occasionally longer than 3 days if we are short staffed.

3. a. Have any leaks occurred from stored chemicals? NO
   
b. How? ---
   
c. When? ---
   
d. What was done to correct it? ---
   
e. Where did the leaks flow to? ---

4. How many animals per day are processed? 15

5. a. Are all animals dead when they come to the facility? NO
   
b. What anti-contamination measures followed by employees? Cleaning of dock cooler and necropsy laboratory, instruments and equipment with appropriate disinfectant solution.

6. a. Have there been any hazardous material violations in the past? NO
   
b. Reported to which agency? ---
   
c. When? ---
   
d. Why? ---
e. What remediation efforts were performed? ---

7. a. Have there been any hazardous material violations in the past? ---
b. Reported to which agency? ---
c. When? ---
d. Why? ---
e. What remediation efforts were performed? ---

8. a. Are there discharge treatments of waste products? ---
b. How? Dilution by water

9. Any evidence of employees being affected by diseases? NO

10. a. Are hazardous materials and/or chemicals used? YES
    b. If yes, what are the procedures for safe handling? OSHA standards
    c. If yes, what are the procedures for proper disposal? OSHA standards

11. How long has this facility been in operation at this site? Since 1971

12. a. Any discharge of hazardous materials into creek? NO
    b. When? ---
    c. Why? ---
    d. Results? ---

13. a. How is hazardous materials disposed of? N/A
    b. By Whom? Human Safety and Environmental Health-Med Ctr/UK
    c. How often are the hazardous materials hauled off? As needed (approximately once per month)
d. How are they stored prior to being hauled off? In approved containers- stored in unused room.

14. a. How are incinerated ashes disposed of? They are put into the dumpster.

b. By whom? Necropsy staff or students.
Environmental Site Assessment
Phase One

Coldstream Farm
Lexington, Kentucky

July 1991

Prepared for:
University of Kentucky

PEH
ENGINEERS
PARROTT, ELY & HURT
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<table>
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<td>Appendices</td>
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</table>
SECTION I

INTRODUCTION
I. Introduction

PEH Engineers has completed a Phase I environmental site assessment of Coldstream Farm located in northern Fayette County, Lexington, Kentucky.

The objective of this assessment is to characterize the current and previous uses of the site with respect to the existence of environmental hazards and corresponding federal, state and local regulations. This scope of work provides for the following:

1. Regulatory file review to determine the site’s present regulatory compliance status.

2. Regulatory file review to determine regulatory compliance status of selected adjoining or nearby properties.

3. Review of available aerial photographs to view any visual evidence of past disposal activity.

4. Site inspection to look for evidence of environmental contamination.


This report represents the completion of the aforementioned tasks. This study was conducted for the University of Kentucky under contract with PEH Engineers, Inc. for the above stated purpose within the limitations of the scope. This report, therefore, may not contain sufficient information for other purposes or parties.
SECTION II

SOURCES OF INFORMATION
II. Sources of Information

Several sources of information were utilized to develop the conclusions arrived at in this report. Persons contacted and the entities they represent are as follows:

<table>
<thead>
<tr>
<th>NAME</th>
<th>TITLE AND AFFILIATION</th>
<th>MEANS OF CONTACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pat Dugger</td>
<td>Division of Environmental and Energy Management - LFUCG</td>
<td>Office Visit Concerning UST (Underground Storage Tank)</td>
</tr>
<tr>
<td>Bill Burger</td>
<td>Division of Water - Frankfort Kentucky Department of Environmental Protection</td>
<td>Telephone Conversation Concerning UST</td>
</tr>
<tr>
<td>Dr. John Thrailkill</td>
<td>Professor of Hydrology University of Kentucky</td>
<td>Telephone Conversation Concerning Landfills Nearby</td>
</tr>
<tr>
<td>Theresa McGinnis</td>
<td>State Fire Marshall's Office LFUCG</td>
<td>Telephone Conversation Concerning Environmental Hazards</td>
</tr>
<tr>
<td>Charles Richie</td>
<td>Division of Waste Management Kentucky Department of Environmental Protection</td>
<td>Telephone Conversation Concerning UST</td>
</tr>
<tr>
<td>Dr. Jack Hiatt</td>
<td>Dean and Director of College of Agriculture - University of Kentucky</td>
<td>Collaboration With Questionnaire and On-Site Investigation</td>
</tr>
<tr>
<td>Dr. William Moody</td>
<td>Professor of Animal Science University of Kentucky</td>
<td>Preliminary Meeting Concerning Study</td>
</tr>
<tr>
<td>Dr. Peter Timoney</td>
<td>Professor of Animal Science University of Kentucky</td>
<td>Preliminary Meeting Concerning Study</td>
</tr>
<tr>
<td>Bill Peterson</td>
<td>Management Operations for University of Kentucky</td>
<td>Collaboration With On-Site Investigation</td>
</tr>
<tr>
<td>Dave Smith</td>
<td>Manager of Coldstream Farm</td>
<td>Collaboration With On-Site Investigation</td>
</tr>
<tr>
<td>NAME</td>
<td>TITLE AND AFFILIATION</td>
<td>MEANS OF CONTACT</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------------------------------------------------</td>
<td>-------------------------------------------------------</td>
</tr>
<tr>
<td>David Tyler</td>
<td>UST Manager for University of Kentucky</td>
<td>On-Site Meeting Concerning UST</td>
</tr>
<tr>
<td>Ken Boll</td>
<td>Animal Diagnostic Lab Center Employee</td>
<td>Collaboration With On-Site Investigation</td>
</tr>
<tr>
<td>Theresa Abel</td>
<td>Animal Diagnostic Lab Center Employee</td>
<td>Collaboration With On-Site Investigation</td>
</tr>
<tr>
<td>George Gilbert</td>
<td>Division of Waste Management Kentucky Department of Environmental Protection</td>
<td>Telephone Conversation Concerning UST and Environmental Hazards</td>
</tr>
<tr>
<td>Linda Nutgrass</td>
<td>Division of Waste Management Kentucky Department of Environmental Protection</td>
<td>Collaboration Concerning Environmental Records</td>
</tr>
</tbody>
</table>

Aerial photographs from 1974 and 1986 were obtained from the Kentucky Department of Transportation and Highways in Lexington, Kentucky. These photographs were reviewed as part of the previous land use determination. The details of the study as well as findings and conclusions are presented in the following sections of this report.
SECTION III
SITE CHARACTERISTICS
III. SITE CHARACTERISTICS

Coldstream Farm, owned by the University of Kentucky, is a 1000± acre agricultural research farm situated in northern Fayette County near the junction of Interstates 64 and 75, extending eastward to Newtown Pike, and is bounded in part by Georgetown Road and Belmont Farm. A portion of the subject property lies north of the interstate and outside the Urban Service Boundary for Fayette County, Lexington, Kentucky and was not part of this study.

The agricultural research farm houses several different species of farm animals. There are several barns located on the farm in which animals, equipment, tools, feed and other supplies are kept. Approximately 60 percent of the farmland is used for grazing and approximately 30 percent for growing crops. The remaining 10% is occupied with structures. The property can be described as gently rolling hills with small outcrops of limestone, typical of Central Kentucky. It is located in area of karst topography, which allows the rapid movement of groundwater through channels in the rock layers. Numerous springs outcrop when the groundwater table is high.

In general, the property is surrounded by open farmland to the north and east, and light industrial and residential sites to the south and west. The farm is traversed by Cane Run Creek, which serves as a drainage outlet for a large portion of northern Lexington. Cane Run Creek flows from southeast to northwest across the farm.

Coldstream Farm serves host to the University of Kentucky Animal Diagnostic Center Laboratory located along Newtown Pike. The farm is situated immediately north of Melbourne Industrial Park, which is occupied by the following industries:

1. Kentucky Freightliner
2. Perennial Pools
3. Contract Machining
4. Barnes Trucking Company
Lexmark Incorporated, formerly International Business Machines (IBM) is nearby situated upstream on Cane Run Creek of Coldstream Farm. Information obtained and all future references made in this report concerning current Lexmark, Inc. facility, will be referred to as IBM.

The drainage basin for Coldstream Farm, which lies within the North Elkhorn Watershed, consists of approximately 5720 acres at its confluence of I-64 and I-75. The drainage basin can be divided into four (4) primary drainage subbasins, three (3) of which are relatively small in comparison to the principal tributary, Cane Run. Cane Run Creek drains approximately 3000 acres, most of which is currently in operations within the LFUCG sewer system.

<table>
<thead>
<tr>
<th>LAND USE</th>
<th>AREA (ac)</th>
<th>% of TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial &amp; Commercial</td>
<td>770</td>
<td>15%</td>
</tr>
<tr>
<td>Residential</td>
<td>2015</td>
<td>35%</td>
</tr>
<tr>
<td>Pasture land &amp; Open Space</td>
<td>2935</td>
<td>50%</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>5720</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
An abandoned wastewater treatment facility is located near Cane Run Creek adjacent to Coldstream Farm. This facility is situated near Highlands Subdivision which sits on the southwesterly side of Coldstream Farm. The sewage disposal plant was abandoned in June 11, 1990. The plant served Highlands Subdivision and treated influent before discharging into Cane Run Creek. The plant has been converted to a pumping station and is currently in operation within the LFUCG sewer system.
SECTION IV
PREVIOUS AND CURRENT USES OF
SUBJECT PROPERTY AND
SELECTED ADJOINERS
IV. PREVIOUS AND CURRENT USES OF SUBJECT PROPERTY AND SELECTED ADJOINERS

Aerial photographs of Coldstream Farm indicate very little additional development has occurred in the area over the past fifteen years. The subject property has been utilized by University of Kentucky as farm land since 1952, according to Dr. Hiatt. Most of the adjacent lands to the north and west are open with little development. Highlands Subdivision located on the southwesterly side began development in the late 1950’s. Melbourne Industrial Park to the south, was primarily developed in the 1960’s. The IBM plant situated to the southeast was established at the location upstream of Coldstream Farm in 1956.

The aerial photographs show no indication of any disposal activity occurring at the subject site. A review of National Priorities List in 40 CFR 302 Appendix B reveals no listed "Superfund" sites in the vicinity of the subject properties.

The predominant land use of Coldstream Farm as well as surrounding areas has been consistent within the past 15 years. Coldstream Farm was purchased by the University of Kentucky for the purpose of the research operations in 1952 from Henry Knight who operated a horse farm. Very little change has taken place on the farm, with increased confinement with the livestock. The farm serves host to an educational broadcasting satellite station located on the southern portion of the property.

A review of pertinent documents from the Division of Environmental and Energy Management department of the Lexington-Fayette Urban County Government, reveals that no previous disposal activities of hazardous materials are on file or known to have taken place. The one and only entry within the University of Kentucky Coldstream Farm’s file was an action taken by the Kentucky State Highway Patrol. On March 9, 1987, six (6) sticks of dynamite were taken to the farm from a nearby resident upon confiscation, and disposed of
via detonation. Three pounds of Picric acid, generated by the University of Kentucky, were also disposed of at the same time. No other governing agencies listed in Section II revealed any environmental hazards occurring on the farm. None of the uncontrolled hazardous sites presently identified by the Environmental Protection Agency for the State of Kentucky appears to be located in the proximity of the subject property.

A questionnaire was developed and given to the University of Kentucky containing pertinent environment concerns (included in appendices). University personnel listed one event where motor oil was washed into the nearby Cane Run Tributary in January, 1991. The substance was accidentally poured into a shop drain (quantity unknown). A new type of drain was installed to prevent future occurrences. The spill was cleaned up in accordance to state regulatory standards according to the questionnaire.

The questionnaire also indicates that in April 1991, a semi-tractor trailer spilled diesel fuel onto the farm. The location of the spill was on the northern side of I-75/I-64, outside the boundaries of the scope of this study.

The questionnaire reveals that antifreeze has been spilled in various locations across the farm from radiator leaks. The amount assumed to be less than two (2) gallons. No attempts of cleaning-up have taken place.
SECTION V
SURROUNDING INDUSTRIES
V. SURROUNDING INDUSTRIES

As previously discussed, Coldstream Farm is situated downstream along Cane Run Creek of several diverse industrial and commercial facilities. Refuse generated by these businesses appears to be contained and disposed of by approved methods.

One source of information (Division of Environmental and Emergency Management - LFUCG) reveals historical evidence of accidental spills and/or contaminations that have occurred within surrounding businesses. All of these facilities' tanks have been registered with the LFUCG. A review of the underground tank files revealed several tanks have been removed and sites properly closed. No tanks present are suspected of leaks, although some are scheduled for final closure in the near future.

Several spills have occurred in the area and reported to LFUCG. According to their records, in each case, procedures were followed to minimize any discharge into nearby Cane Run Creek. Clean-up was completed by removing contaminated materials and said materials are not considered a threat to neighboring properties.

The following information is on file with environmental agencies in Lexington and Frankfort, Kentucky and has been reported for the respective businesses listed in Section III of this report.

<table>
<thead>
<tr>
<th>Location</th>
<th>Date</th>
<th>Comments in Files</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM</td>
<td>12/24/86</td>
<td>20 gal. of No. 4 fuel oil leaked into the creek via storm sewers. Clean-up was rapid and successful with minimal environmental impact.</td>
</tr>
<tr>
<td>IBM</td>
<td>7/1/88</td>
<td>500 gal. of No. 2 diesel fuel discharged from an overflow of a small tank into the storm sewer system, then into Cane Run Creek Tributary. Indications are that the spill was confined to IBM property with minimal adverse environmental impact.</td>
</tr>
<tr>
<td>No.</td>
<td>Company</td>
<td>Date</td>
</tr>
<tr>
<td>-----</td>
<td>---------------</td>
<td>----------</td>
</tr>
<tr>
<td>3.</td>
<td>IBM</td>
<td>7/22/88</td>
</tr>
<tr>
<td>4.</td>
<td>IBM</td>
<td>9/4/88</td>
</tr>
<tr>
<td>5.</td>
<td>IBM</td>
<td>9/4/88</td>
</tr>
<tr>
<td>6.</td>
<td>IBM</td>
<td>12/1/88</td>
</tr>
<tr>
<td>7.</td>
<td>IBM</td>
<td>4/29/90</td>
</tr>
<tr>
<td>8.</td>
<td>IBM</td>
<td>5/29/90</td>
</tr>
<tr>
<td>9.</td>
<td>Perennial Pools</td>
<td>3/9/89</td>
</tr>
<tr>
<td>10.</td>
<td>KY Freightliner</td>
<td>10/23/90</td>
</tr>
</tbody>
</table>

The Underground Storage Tank Division of the Kentucky Department of Environmental Protection indicates that additional surrounding business upstream from Coldstream have existing underground tanks, although there are no current records of any reported spills or contaminations.
SECTION VI
SITE INSPECTION
VI. SITE INSPECTION OF COLDSTREAM FARM

A visual site inspection was conducted on May 16, 1991 to look for evidence of any environmental concerns. University of Kentucky personnel, Dr. Jack Hiatt, Bill Peterson and David Smith assisted with the inspection. Several animal barns and equipment storage facilities were observed along with two houses currently being utilized by the farm. None of the houses were inspected internally nor were any materials sampled for the presence of asbestos. Mr. David Tyler, an employee of the University of Kentucky, stated that asbestos studies have been completed for the on-site Diagnostic Laboratory and the Poultry Research Center in 1985-86. No evidence of asbestos was found at the Poultry Research Center, although some positive results were found for the Diagnostic Laboratory (i.e. floor tile, piping). The extent of the clean-up process or possible procedures taken for the Center is unknown.

Although Coldstream Farm functions as one operation, the farm is divided into specific individual operation (i.e. beef cattle, swine, dairy cattle, sheep, poultry, etc.). Each of the specific areas occupies its own facilities and typically is managed independently. Each has barns that are used for housing the animals, storing specific equipment, and feed. Although each barn was not inspected, a possibility remains that oil and/or fuel for the equipment could be mishandled and result in a spill. University personnel indicated that herbicides and pesticides are not stored on site and are purchased on an as-needed basis.

Cane Run Creek that flows in a northerly direction across the farm was found to be dry, with occasional small shallow pools along the creek bed. The creek bed was observed and revealed no indication of contamination, although samples were not analyzed to verify the absence of contaminants.

Several barns on the farm have concrete aprons that were inspected for evidence of chemical spills. The only stains observed were small and the source undetermined. Small
stains around the base of the gasoline and diesel pumps were assumed to have been a result of overfilling equipment tanks used on the farm. No sampling was conducted.

Evidence of nine (9) sinkholes was located during the field inspection of the farm, and is shown on Exhibit "A". According to Dr. Thrailkill, et. al., University of Kentucky Professor of Geology, Coldstream Farm is located above a portion of the Royal Spring Groundwater basin and within the catchment area of the basin. The catchment area of the basin is the area of the surface drainage that flows into openings in the groundwater basin (e.g. swallets, sinkholes). Groundwater basins are recharged by surface runoff that enters swallets and sinkholes or that infiltrates through soil and caprock. The sinkholes located on Coldstream Farm are of interest according to Dr. Thrailkill, et.al., because the entire drainage area of Cane Run in Fayette County, which includes the subject property, enters the Royal Spring groundwater basin through sinkholes and swallets, except for times of abnormally high flows.

Swallets, as defined by Dr. Thrailkill, et.al. (1982), are openings where surface water is diverted underground. Although the majority of the sinkholes observed on May 16, 1991, should show no evidence that any contaminants had ever been washed into or directly placed into them, this report will focus on specific sinkholes that are of specific interest due to nearby disposal areas and/or physical structures.

The sinkhole, listed as Number 5 on Exhibit "A", was filled by the University of Kentucky in 1991, when discovered due to soil collapsing around the surface. As of May 16, 1991, the fill appears to be stable. The significance of this sinkhole is its location relative to the recently abandoned sewage treatment facility nearby. The treatment facility was used specifically for Highland Subdivision adjacent to the facility. Neither infiltration of sewage into the sinkhole nor the effects that sinkholes may have on Highland Subdivision residences can be determined within the scope of this study.

Sinkhole listed as Number 8 on Exhibit "A" was also filled by the farm approximately 10 years ago and was used to dispose of animal waste (i.e. manure, straw) as well as burying swine carcasses. The location of the sinkhole is noted since Cane Run Creek flows nearby and the sinkhole contained no liner to prevent migration into the creek or underground
aquifers. Deceased animals currently are transported to the Animal Diagnostic Center Laboratory nearby for disposal. The manure taken from the barns primarily is liquified with the exception of waste from the poultry center which is in solidified form. The manure is used as fertilizer for crops as it is spread onto the fields.

Sinkhole listed as Number 11 of Exhibit "A" is an area where solidified ammonium nitrate (fertilizer) was buried and the sinkhole filled several years ago. No other activity has taken place at this location according to University personnel. Dr. Hiatt stated that this chemical would have dissolved long ago, due to the flow of groundwater through the area. The sinkhole fill appears to be stable with no evidence of soil erosion or structural collapse.

Sinkhole listed as Feature 12 is currently being used by the farm as a disposal dumping site. The materials entering this area were stated by UK personnel to be of only organic matter (wooden fencing, trees, tree stumps, etc.), although evidence of household items like bathroom fixtures and used automobile tires were present on the perimeter of the site. University personnel stated that when the site becomes filled with items, the farm manager coordinates with the local fire department to burn the stock piles and remove the tires and large household items.

An area approximately 10' x 15' located adjacent to and on the southern perimeter of the sinkhole Feature 12 was used one time to bury used chemical containers (metal, plastic, and glass). University personnel stated that approximately 20'-30' of earthen cover was placed on the disposal area. They stated that this disposal area has seen no other activity since.

Sinkhole numbered as Feature 13, on Exhibit "A" is an area of approximately 0.5± acres located adjacent to the Poultry Research Center and is perhaps of greatest concern from an environmental standpoint. This area was used last around 1983, prior to the construction of the Poultry Research Center, for disposal activity of used chemical containers (metal, plastic and glass) as well as serving as an organic disposal area similar to that of sinkhole feature number 12 currently. Household waste (type unknown) was also disposed of at this location. The site was used by the University of Kentucky's Chemistry department and
physical plant for disposal of waste (type unknown). The materials were buried approximately 4' - 6' deep and backfilled with earthen cover. University personnel feel that proper procedures were followed at the time to conform to environmental standards. It was stated that the possibility exists that all materials buried were not documented, thus the disposed matter is unknown. Geotextile liners were not utilized prior to filling the disposal "pits". It should be noted that the "pits" were thought to have been excavated to bedrock, apparently 4' - 6' below existing surface. During the construction of the Poultry Research Center at least two (2) "disposal pits" were relocated nearby. The actual extent of environmental contamination from this site or similar sites is undetermined for this study. Geotechnical subsurface investigation would be required and is recommended for these areas, to determine if any soil and/or groundwater sources have been adversely affected, prior to construction within or around this location.

Other sinkholes were located and are shown on Exhibit "A". Although all of the sinkholes were not discussed in this report, careful consideration should be given to determine soil characteristics as well as the extent of the sinkhole as it relates to underground aquifers and the water supply draining to Royal Spring.

Other physical features, shown on Exhibit A, consist of the Newtown swallet, marked animal graves, ponds, an abandoned rock quarry, outcropping springs, two (2) animal waste sedimentation lagoons and equipment storage facilities.

Dr. Hiatt said that environmental agencies have periodically tested the water flowing through Cane Run Creek and continue to do so. Dr. Hiatt concluded by stating that all tests have yielded acceptable results. The samples were mostly taken from Cane Run Creek as it flows under I-64 and I-75. These samples were of surface water and not from monitoring wells.

Small transformers were observed on utility poles located near several facilities throughout the farm. The transformers had identification plates on the sides but no PCB labels were observed. Whether or not the transformers contain PCB oil is undetermined. Evidence of leakage was not obvious although sampling was not conducted.
The dairy facility on the farm utilizes two (2) manure sedimentation lagoons that receive waste from nearby barns via concrete flumes extending from the barns. The lagoons are periodically cleaned and the manure spread onto the fields. The lagoons, Feature 19 on Exhibit "A" appeared to have no leaks around the perimeters. The lagoons appeared to be similar to a farm pond with no evidence of liners present.

An abandoned rock quarry as stated earlier and referenced as Feature 14 on Exhibit "A" has not been active for many years and is used by the farm occasionally to store crushed stone and other similar items, none of which are of apparent environmental concern.
Underground Storage Tanks

Four (4) underground storage tanks exist on Coldstream Farm and are located on Exhibit "B". During the on-site investigation these tank locations were observed and stated by University personnel to be in functional condition. University personnel indicated that some of these UST's are no longer being used but have not been closed out. These tanks and associated pipes are constructed from metal and believed to have no corrosion protection nor leak detectors.

Two (2) of the four (4) UST's consist of gasoline and diesel fuel tanks and were observed near an equipment storage facility (Feature 16 on Exhibit "A"). The contents of these tanks are dispensed via gasoline/diesel pumps and show evidence of small spills resulting most likely from overfilling. Although no sampling was conducted, it is recommended to determine if any adverse effects have resulted from these spills.

Although these four (4) UST's were not registered with LFUCG at the time of this investigation, Mr. David Tyler indicated that the registration process is underway. The "Notification of Underground Storage Tanks" applications for the referenced tanks have been supplied by the University of Kentucky and are included within the Appendix of this report.

Above Ground Storage Tank

A metal diesel fuel storage tank is in use near the dairy center. This tank, as all tanks on-site, is owned by the University of Kentucky. The age of the tank is unknown.
SECTION VII
SITE INSPECTION OF
THE ANIMAL DIAGNOSTIC CENTER LABORATORY
The Animal Diagnostic Center Laboratory is located at 1429 Newton Pike on Coldstream Farm. This operation deals with deceased animals. The facility is funded by the State of Kentucky through the University of Kentucky.

The services offered by the Center consist of determining the cause of death of various animals as well as conducting research on animals which have been introduced to specific known diseases. The Center is able to view the effects a particular disease has on the animal and use this information to control the spread of the disease.

The Center receives from ten (10) to fifty (50) various types and breeds of animals per day. Primarily the animals brought to the Center can be divided into three (3) categories: one-third (1/3) horses, one-third (1/3) cows and one-third (1/3) private household pets (dogs, cats, ...). Generally these animals come from within the State of Kentucky, although indications were made that animals from outside the State would be and have been received.

Animals are received by the Center through an unloading dock that leads directly into the observation room where the animals are autopsied. Larger animals are transported from the unloading dock to the observation room via an electric overhead crane/hoist.

Upon completion of the autopsy, and in some cases prior to the autopsy, the animals carcass and removed organs are stored in a walk-in cooler to await disposal. The cooler maintains an average temperature of 50°F to 55°F. The facility houses an incinerator that is periodically used (every 2 to 3 days) to dispose of diseased animals, organs, tissues and medical waste brought in from the University of Kentucky Medical Center and Gluck Equine Center. The incinerator enables the disposal of the animals and the associated diseases in a manner to prevent the diseases from re-entering the food chain. Large animals are again transported via an overhead crane/hoist from the cooler to the incinerator to minimize
human contact. Animals that are considered not to be of a threat to the food chain are hauled off-site for disposal by others.

During the on-site investigation a few flies were observed in and around the storage cooler. Laboratory personnel said that flies are a concern and are controlled to the best of their abilities. The first noticeable feature of the laboratory is the odor generated from the facility. Employees indicated that they strive to minimize the smell by keeping the outside doors closed. They followed by stating that to the best of their knowledge the surrounding neighbors had never complained about the noticeable odor before.

Ms. Theresa Abel and Mr. Ken Boll, employees of the laboratory who assisted with the on-site investigation, indicated that the tools used during an autopsy are autoclaved, which sterilizes them by subjecting them to super-heated steam under pressure. If for any reason the equipment is discarded after being autoclaved, it is thought to be acceptable for normal disposal and is not considered environmentally dangerous.

Replying to the question if any employee had ever been adversely affected from working at the laboratory with the various diseases, Ms. Abel stated that two (2) employees had contracted brucellosis, an infection or disease spread mainly by cattle. Ms. Abel went on to say that occasionally veterinarians bring blood samples to the laboratory in syringes that find their way into the trash. The two (2) employees, on different occasions, were pierced with such syringes which resulted in them contracting the disease. The employees are instructed to wear rubber gloves to minimize their exposure to other diseases.

The local health department monitors the processes in which the laboratory follows and according to Ms. Abel no violations have been issued to the Center. The health department has required specific maintenance associated with the incinerator (i.e. replacement parts such as liners, valves ...) and overall operations of the facility. Ms. Abel conveyed that the Center has had instances where chemicals (type unknown) had been washed down the drain into the sanitary sewer system. This action was followed by notifying the health department of this action. It should also be noted that although the diseased tissue is disposed of by
being incinerated or hauled off-site, blood and body fluids are washed into the sanitary sewer system. It was also noticed during the investigation that a delivery truck, delivering a deceased horse, washed out the truck bedliner onto the pavement, near the unloading dock, after the animal was taken inside.
SECTION VIII
CONCLUSIONS AND RECOMMENDATIONS
VIII. CONCLUSIONS AND RECOMMENDATIONS

PEH Engineers has completed an environmental site assessment of Coldstream Farm and the surrounding properties that potentially impact the farm. Upon completing the objectives, as stated earlier in this report, PEH Engineers concludes the following:

The regulatory file review revealed that Coldstream Farm had minimal information on file. The UST’s were not registered with LFUCG. (It should be noted that the size of the tanks were smaller than the minimum size required to be registered with regulatory agencies in Frankfort, Kentucky.) The University of Kentucky plans to register the UST’s with LFUCG in the very near future. The applications are included in the Appendices.

The regulatory file review of surrounding properties revealed numerous spills that had occurred upstream of the farm in Cane Run Creek and IBM Tributary. According to the reports on file, the spills were contained with minimal adverse environmental impact.

The review of the aerial photography showed little change in land usage and disclosed no evidence of past disposal activities on the farm.

The site investigation that PEH Engineers conducted on May 16-17, discovered several sinkholes and areas of concern as stated earlier in Sections VI and VII. These areas noted within this report should again be reviewed, especially the area adjacent to the Poultry Research Center. Given the unknown disposal activities in which this area has experienced in the past, it is recommended that additional subsurface and groundwater investigation be performed to determine the full impact this and other areas previously discussed have had on the environment.
Due to the elusive nature of hazardous and solid wastes, PEH cannot certify or guarantee that the site is free from contamination not delineated herein. This statement is not meant to compromise the findings of the report; rather, it is provided as a statement of limitations within the intended scope of the assessment as set forth by the University of Kentucky.
APPENDICES
The Coldstream Research Campus is the gateway to Lexington’s high-tech, higher education corridor with connections to downtown Lexington and the University of Kentucky. Located at the intersection of I-64 and I-75, the once-prominent horse farm has transformed into a 735-acre hub of innovation and creativity. Coldstream is the location of choice for locally grown research and development companies and contributes to the city of Lexington’s vibrant entrepreneurial community, educated workforce, low cost of living, and high quality of life.

Coldstream companies include those working in biotechnology, pharmaceuticals, equine health, and a variety of other business sectors. Many have ties to the University of Kentucky, including graduates of ASTeCC, UK’s high-tech business incubator. Others have licensed UK intellectual property or are clients of the UK Office of Technology Commercialization. Visit UKColdstream.com for information on the research campus and the companies that call it home.
**Ideal location**

- Intersection of I-75/I-64 at Exit 115
- Gateway to Lexington's high-tech, higher education corridor
  - 3 miles to downtown
  - 4.5 miles to University of Kentucky
  - 7.5 miles to Bluegrass Airport
- Convenient to lodging, dining, shopping, and entertainment
  - On-site Embassy Suites Hotel and Conference Center
  - On-site Paddock Bar and Grill
  - 1,400 hotel rooms, 9 restaurants at Exit 115
- 735 total acres including a 225-acre park
  - Pedestrian/bicycle trails
  - Large fenced in dog park
- Top 10 educated workforce
- Vibrant entrepreneurial community
- Low cost of living and high quality of life

**The Coldstream Community**

- 50+ companies in biotech, animal health, pharmaceutical, and service industries
- Headquarter and regional facilities for: Tempur Sealy, Komatsu, Piramal, Open Text, and A&W Restaurants
- 2,250+ employee population
- 1.3 million square feet under roof
- Office and lab space available for lease
- Development ready land with utilities, roads, redundant electrical power, and high-speed data connections

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City Park Trail System
- 225 acres within darker green border

Tempur Sealy

High-tech Class A Office
- A&W Restaurants, Komatsu, and Tops Products

Embassy Suites
- Hotel, Conference Center, Paddock Grille and Lounge

Piramal Healthcare
- Sterile Pharma Manufacturing

High-tech Class A Office
- Open Text
- Software and Cloud Computing

Coldstream Center
- 160K sf high-tech / laboratories

Kentucky Technology Center
- Biotech cluster

UK Veterinary Diagnostic Laboratory

Covetrus

Eastern State Hospital
- operated by UK HealthCare