MARKIM HALL
SUSTAINABLE SITES CATEGORY
LEED FOR NEW CONSTRUCTION V2.2

<table>
<thead>
<tr>
<th>Possible Points:</th>
<th>14</th>
</tr>
</thead>
</table>

| Sustainable Sites                                                                 |       |
|-------|-----------------------------------|-------|
| Prereq 1 | Construction Activity Pollution Prevention |       |
| 1 Credit 1 | Site Selection | 1     |
| 1 Credit 2 | Development Density & Community Connectivity | 1     |
| Credit 3 | Brownfield Redevelopment | 1     |
| 1 Credit 4.1 | Alternative Transportation, Public Transportation Access | 1     |
| 1 Credit 4.2 | Alternative Transportation, Bicycle Storage & Changing Rooms | 1     |
| 1 Credit 4.3 | Alternative Transportation, Low-Emitting & Fuel-Efficient Vehicles | 1     |
| 1 Credit 4.4 | Alternative Transportation, Parking Capacity | 1     |
| 1 Credit 5.1 | Site Development, Protect or Restore Habitat | 1     |
| 1 Credit 5.2 | Site Development, Maximize Open Space | 1     |
| 1 Credit 6.1 | Stormwater Design, Quantity Control | 1     |
| 1 Credit 6.2 | Stormwater Design, Quality Control | 1     |
| Credit 7.1 | Heat Island Effect, Non-Roof | 1     |
| 1 Credit 7.2 | Heat Island Effect, Roof | 1     |
| Credit 8 | Light Pollution Reduction | 1     |
SUSTAINABLE SITES PREREQUISITE 1: CONSTRUCTION ACTIVITY POLLUTION PREVENTION
REQUIRED

Intent
Reduce pollution from construction activities by controlling soil erosion, waterway sedimentation and airborne dust generation.

Requirements
Create and implement an Erosion and Sedimentation Control (ESC) Plan for all construction activities associated with the project. The ESC Plan shall conform to the erosion and sedimentation requirements of the 2003 EPA Construction General Permit OR local erosion and sedimentation control standards and codes, whichever is more stringent. The Plan shall describe the measures implemented to accomplish the following objectives:

- Prevent loss of soil during construction by stormwater runoff and/or wind erosion, including protecting topsoil by stockpiling for reuse.
- Prevent sedimentation of storm sewer or receiving streams.
- Prevent polluting the air with dust and particulate matter.

The Construction General Permit (CGP) outlines the provisions necessary to comply with Phase I and Phase II of the National Pollutant Discharge Elimination System (NPDES) program. While the CGP only applies to construction sites greater than 1 acre, the requirements are applied to all projects for the purposes of this prerequisite.


Potential Technologies & Strategies
Create an Erosion and Sedimentation Control Plan during the design phase of the project. Consider employing strategies such as temporary and permanent seeding, mulching, earth dikes, silt fencing, sediment traps and sediment basins.

CREDIT COMPLIANCE
The project created and implemented an Erosion Control Plan.

Erosion Control Plan:
1. All erosion control facilities shall be installed prior to any site grading operations. The city engineer must be notified upon completion of the installation of the required erosion control facilities and prior to any grading operation being commenced. The contractor is responsible to schedule a pre-construction grading meeting on-site with the city engineer. If damaged or removed during construction, all erosion control facilities shall be restored and in place at the end of each day.

2. Any erosion control facilities deemed necessary by the city; before, during or after the grading activities, shall be installed at the request of the city.

3. No deviations shall be made from the elevations shown on the approved grading plan, without prior approval from the city.

4. Soils tracked from the site by motor vehicles or equipment shall be cleaned daily from paved roadway surfaces, or more frequently if requested by the city throughout the duration of construction.
5. Dust control measures shall be performed periodically when conditions require and/or as directed by the city.

6. All erosion control measures shall be used and maintained for the duration of site construction. If construction operations or natural events damage or interfere with these erosion control measures, they shall be restored to serve their intended function at the end of each day or as soon as field conditions allow access.

7. All construction areas disturbed during construction shall be restored as soon as possible. Any areas which have been finished graded or areas that have been disturbed and for which grading or site building construction operations are not actively underway shall be seeded and mulched as set forth in the following paragraphs within 14 days:
   A. All seeded areas shall be either mulched and disc-anchored or covered by fibrous blankets to protect seeds and limit erosion. Temporary much shall be dish-anchored and applied at a uniform rate of not less than two tons per acre and not less than 80% coverage.
   B. If the graded area is anticipated to be re-disturbed/developed within six months, provide a temporary vegetative cover of Minnesota Department of Transportation (MNDOT) seed mixture 100 at a rate of 100 pounds per acre.
   C. If graded area will not be developed for a period greater than six months, provide permanent vegetative cover of seed mixture MNDOT 190 at a rate of 60 pounds per acre.
   D. Grading bods or the equivalent securities shall be retained until turf has germinated and survived a 6-day growing period.
   E. Whenever other erosion and sediment control practices are inadequate, temporary on-site sediment basins that conform to the criteria for on-site detention basins shall be provided.

8. Runoff shall be prevented from entering all storm sewer catch basins providing they are not needed during construction. Where storm sewer catch basins are necessary for site drainage during construction, a silt fence or sediment protection devices as detailed shall be installed and maintained around all catch basins until the area tributary to the catch basin is restored.

9. Grading activities proposed to begin after October 15 will require an approved phasing schedule. The area of land that the city will allow to be disturbed at this time of year will be severely limited. The city will also require additional erosion control devises i.e. temporary sediment basins, dormant seeding and high rates of application of booth seed and mulch.

10. Erosion control facilities shall be installed and maintained around area to be graded until the area tributary to the area is restored.

11. Accumulation of all sediment occurring in storm sewers shall be removed prior to, during and after completion of grading activities.

12. Erosion control items and devices should be removed only as directed by the city.

Grading Notes:
1. The contractor is to visit the site, review all construction documents and field verify the existing conditions prior to bidding. No additional compensation will be given for work that could have been identified by a site visit or construction document review.

2. The background information was prepared by Sunde Land Surveying. (952) 881-2455.

3. It is the contractor’s responsibility to ascertain the location of all existing utilities. The contractor shall verify the location, elevation and mark all existing utilities 48 hours before construction starts. the engineer, architect or owner does not guarantee that all utilities are mapped, or if mapped, are shown...
correctly. Contact Gopher One at 651-454-0002 for field locating existing utilities. Contact utility owner if damage occurs due to construction.

4. Protect all existing structures and utilities which are not scheduled for removal.

5. Notify city building inspector before trenching and excavation work commences. The contractor shall obtain all applicable permits prior to start of construction.

6. All spot elevations shown as 4.45, for example, are to be understood to mean 944.45.

7. No slopes are to exceed 3:1 (3 feet horizontal to 1 foot vertical) unless noted otherwise.

8. Provide positive drainage from buildings at all times.

9. Upon completion of the grading and utility work, the contractor shall certify that all grading and utility work was performed in accordance with the approved grading and utility permits. A record grading and utility plan shall be submitted to the city for review and distribution.

10. Prior to issuance of building permits, all necessary erosion control devices must be in place and function. The city will inspect the site to determine its suitability for building activities. If the public utilities have not been installed at this point, it may be necessary to withhold building permits for various lots to allow the contractor adequate space to perform this work.

11. All debris created in the process of clearing and grading the site shall be removed from the site. This includes trees and shrubs. Under no circumstances shall this type of material be buried or burned on the site.

12. All topsoil shall be stripped and salvaged for re-spreading on the site. Six inches of topsoil – after compaction- shall be re-spread prior to seeding and mulching. Excess topsoil may be removed from the site providing there is adequate topsoil remaining to properly finish the site as noted above. The topsoil stripping, stockpiling and re-spreading shall be done in accordance to, and noted on, the approved grading plan and specifications.

13. All grading operations shall be conducted in a manner to minimize the potential for site erosion. Erosion control measures shall be installed to prevent sediment from running off onto adjacent properties. Any damage to adjacent properties must be corrected and restored as soon as permission is granted from the adjacent property owner(s).

14. If construction of the site work proceeds through the winter months, any disturbed areas outside the building footprint are to be minimally stabilized prior to March 1, as follows: Areas planned to receive pavements are to have Class 5 base installed, all other disturbed areas are to be seeded, straw mulch placed, and disc-mulched.

15. The contractor shall limit the disturbed area as much as possible.
SUSTAINABLE SITES CREDIT 1: SITE SELECTION
1 POINT

Intent
Avoid development of inappropriate sites and reduce the environmental impact from the location of a building on a site.

Requirements
Do not develop buildings, hardscape, roads or parking areas on portions of sites that meet any one of the following criteria:

- Prime farmland as defined by the United States Department of Agriculture in the United States Code of Federal Regulations, Title 7, Volume 6, Parts 400 to 699, Section 657.5 (citation 7CFR657.5)
- Previously undeveloped land whose elevation is lower than 5 feet above the elevation of the 100-year flood as defined by FEMA (Federal Emergency Management Agency)
- Land that is specifically identified as habitat for any species on Federal or State threatened or endangered lists
- Within 100 feet of any wetlands as defined by United States Code of Federal Regulations 40 CFR, Parts 230-233 and Part 22, and isolated wetlands or areas of special concern identified by state or local rule, OR within setback distances from wetlands prescribed in state or local regulations, as defined by local or state rule or law, whichever is more stringent
- Previously undeveloped land that is within 50 feet of a water body, defined as seas, lakes, rivers, streams and tributaries which support or could support fish, recreation or industrial use, consistent with the terminology of the Clean Water Act
- Land which prior to acquisition for the project was public parkland, unless land of equal or greater value as parkland is accepted in trade by the public landowner (Park Authority projects are exempt)

Potential Technologies & Strategies
During the site selection process, give preference to those sites that do not include sensitive site elements and restrictive land types. Select a suitable building location and design the building with the minimal footprint to minimize site disruption of those environmentally sensitive areas identified above.

CREDIT COMPLIANCE
The project complied with all requirements.
SUSTAINABLE SITES CREDIT 2: DEVELOPMENT DENSITY & COMMUNITY CONNECTIVITY
1 POINT

Intent
Channel development to urban areas with existing infrastructure, protect greenfields and preserve habitat and natural resources.

Requirements
OPTION 1 — DEVELOPMENT DENSITY
Construct or renovate building on a previously developed site AND in a community with a minimum density of 60,000 square feet per acre net (Note: density calculation must include the area of the project being built and is based on a typical two-story downtown development).

OR

OPTION 2 — COMMUNITY CONNECTIVITY
Construct or renovate building on a previously developed site AND within 1/2 mile of a residential zone or neighborhood with an average density of 10 units per acre net AND within 1/2 mile of at least 10 Basic Services AND with pedestrian access between the building and the services.

Basic Services include, but are not limited to:
1) Bank; 2) Place of Worship; 3) Convenience Grocery; 4) Day Care; 5) Cleaners; 6) Fire Station; 7) Beauty; 8) Hardware; 9) Laundry; 10) Library; 11) Medical/Dental; 12) Senior Care Facility; 13) Park; 14) Pharmacy; 15) Post Office; 16) Restaurant; 17) School; 18) Supermarket; 19) Theater; 20) Community Center; 21) Fitness Center; 22) Museum. Proximity is determined by drawing a 1/2 mile radius around the main building entrance on a site map and counting the services within that radius.

Potential Technologies & Strategies
During the site selection process, give preference to urban sites with pedestrian access to a variety of services.

CREDIT COMPLIANCE

The project met Option 2:

<table>
<thead>
<tr>
<th>Key #</th>
<th>Category</th>
<th>Business</th>
<th>Address</th>
<th>Distance (mi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bank</td>
<td>Wells Fargo</td>
<td>56 Snelling Ave. N.</td>
<td>0.3</td>
</tr>
<tr>
<td>2</td>
<td>Child Care</td>
<td>La Petite Academy</td>
<td>1770 Grand Ave.</td>
<td>0.4</td>
</tr>
<tr>
<td>3</td>
<td>Place of Worship</td>
<td>Immaculate Heart of Mary</td>
<td>1550 Summit Ave.</td>
<td>0.1</td>
</tr>
<tr>
<td>4</td>
<td>Cleaners</td>
<td>Grand Laundromat</td>
<td>1700 Grand Ave.</td>
<td>0.2</td>
</tr>
<tr>
<td>5</td>
<td>Supermarket</td>
<td>Whole Foods Market</td>
<td>30 Fairview Ave. S.</td>
<td>0.5</td>
</tr>
<tr>
<td>6</td>
<td>Library</td>
<td>Dewitt Wallace Library</td>
<td>1600 Grand Ave.</td>
<td>0.1</td>
</tr>
<tr>
<td>7</td>
<td>Dental</td>
<td>Kubes Dental Care</td>
<td>91 Snelling Ave. N.</td>
<td>0.3</td>
</tr>
<tr>
<td>8</td>
<td>Pharmacy</td>
<td>St. Paul Corner Drug</td>
<td>240 Snelling Ave. S.</td>
<td>0.4</td>
</tr>
<tr>
<td>9</td>
<td>Restaurant 1</td>
<td>Caribou Coffee</td>
<td>68 Snelling Ave. S.</td>
<td>0.1</td>
</tr>
<tr>
<td>10</td>
<td>Beauty</td>
<td>Grand Hair &amp; Beyond</td>
<td>1674 Grand Ave.</td>
<td>0.1</td>
</tr>
<tr>
<td>11</td>
<td>Restaurant 2</td>
<td>Carmelo’s Ristorante</td>
<td>238 Snelling Ave. S.</td>
<td>0.4</td>
</tr>
<tr>
<td>12</td>
<td>Convenience Grocery</td>
<td>Superamerica</td>
<td>56 Snelling Ave. N.</td>
<td>0.3</td>
</tr>
<tr>
<td>Key #</td>
<td>Category</td>
<td>Business</td>
<td>Address</td>
<td>Distance (mi)</td>
</tr>
<tr>
<td>-------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
<td>--------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>13</td>
<td>Fire Station</td>
<td>St. Paul Fire Department</td>
<td>111 Snelling Ave. N.</td>
<td>0.4</td>
</tr>
<tr>
<td>14</td>
<td>Hardware</td>
<td>Ace Hardware</td>
<td>1676 Grand Ave.</td>
<td>0.2</td>
</tr>
<tr>
<td>15</td>
<td>Senior Services</td>
<td>Rakhma Incorporated</td>
<td>123 Wheeler St. S.</td>
<td>0.5</td>
</tr>
<tr>
<td>16</td>
<td>K-12 School</td>
<td>Highland Park Montessori School</td>
<td>1550 Summit Ave.</td>
<td>0.2</td>
</tr>
<tr>
<td>17</td>
<td>Theater</td>
<td>Mann Grandview 2 Theater</td>
<td>1830 Grand Ave.</td>
<td>0.5</td>
</tr>
<tr>
<td>18</td>
<td>Fitness Center</td>
<td>Sweatshop Fitness Training Center</td>
<td>171 Snelling Ave. N.</td>
<td>0.4</td>
</tr>
</tbody>
</table>
SUSTAINABLE SITES CREDIT 4.1: ALTERNATIVE TRANSPORTATION: PUBLIC TRANSPORTATION ACCESS
1 POINT

Intent
Reduce pollution and land development impacts from automobile use.

Requirements
Locate project within 1/2 mile of an existing, or planned and funded, commuter rail, light rail or subway station.

OR

Locate project within 1/4 mile of one or more stops for two or more public or campus bus lines usable by building occupants.

Potential Technologies & Strategies
Perform a transportation survey of future building occupants to identify transportation needs. Site the building near mass transit.

CREDIT COMPLIANCE
Three public bus stops are within ½ mile from the project:

<table>
<thead>
<tr>
<th>Distance to Station/Stop (mi)</th>
<th>Line Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>Route 84/From Roseville to St. Paul and S. Minneapolis</td>
</tr>
<tr>
<td>0.5</td>
<td>Route 64/ From Grand Ave. to Lower Afton Rd. and McKnight Rd. via downtown St. Paul</td>
</tr>
<tr>
<td>0.5</td>
<td>Route 144/ From Highland Park to Minneapolis via Snelling, I-94 and U of M.</td>
</tr>
</tbody>
</table>
SUSTAINABLE SITES CREDIT 4.2: ALTERNATIVE TRANSPORTATION: BICYCLE STORAGE & CHANGING ROOMS
1 POINT

Intent
Reduce pollution and land development impacts from automobile use.

Requirements
For commercial or institutional buildings, provide secure bicycle racks and/or storage (within 200 yards of a building entrance) for 5% or more of all building users (measured at peak periods), AND, provide shower and changing facilities in the building, or within 200 yards of a building entrance, for 0.5% of Full-Time Equivalent (FTE) occupants.

OR

For residential buildings, provide covered storage facilities for securing bicycles for 15% or more of building occupants in lieu of changing/shower facilities.

Potential Technologies & Strategies
Design the building with transportation amenities such as bicycle racks and showering/changing facilities.

CREDIT COMPLIANCE
The building contains one shower and six outdoor bicycle racks.
SUSTAINABLE SITES CREDIT 4.3: ALTERNATIVE TRANSPORTATION: LOW EMITTING & FUEL EFFICIENT VEHICLES
1 POINT

Intent
Reduce pollution and land development impacts from automobile use.

Requirements
OPTION 1
Provide low-emitting and fuel-efficient vehicles for 3% of Full-Time Equivalent (FTE) occupants AND provide preferred parking for these vehicles.

OR

OPTION 2
Provide preferred parking for low-emitting and fuel-efficient vehicles for 5% of the total vehicle parking capacity of the site.

OR

OPTION 3
Install alternative-fuel refueling stations for 3% of the total vehicle parking capacity of the site (liquid or gaseous fueling facilities must be separately ventilated or located outdoors).

For the purposes of this credit, low-emitting and fuel-efficient vehicles are defined as vehicles that are either classified as Zero Emission Vehicles (ZEV) by the California Air Resources Board or have achieved a minimum green score of 40 on the American Council for an Energy Efficient Economy (ACEEE) annual vehicle rating guide. “Preferred parking” refers to the parking spots that are closest to the main entrance of the project (exclusive of spaces designated for handicapped) or parking passes provided at a discounted price.

Potential Technologies & Strategies
Provide transportation amenities such as alternative

CREDIT COMPLIANCE
The project met Option 3.

Credit Narrative:
Zero parking spaces are associated specifically with the IGC project. The College intends to implement a Preferred Parking Program on a campus-wide basis, beginning July 1, 2008. At least 5% of the campus’s total parking spaces may be designated for this purpose. Drivers of vehicles that meet the definition of "Low-Emitting" or "Fuel-Efficient" will be provided with a reserved parking space in an appropriate location (based on need) upon request. Signage will be placed at the designated spaces. The program will be advertised on the Macalester College Parking webpage, and in the Bulletin. Drivers may apply for a Preferred Parking Space through the Facilities Management Office.
SSc4.3: Alternative Transportation, Low-Emitting & Fuel-Efficient Vehicles

Zero parking spaces are associated specifically with the IGC project. The College intends to implement a Preferred Parking Program on a campus-wide basis, beginning July 1, 2008. This program will be available for the life of the building, at a minimum.

Because convenience is relative to the building that the driver occupies, parking spaces will be designated on an on-request basis. At least 5% of the campus's total parking spaces may be designated for this purpose, and at least 3% of the campus's total parking spaces may be designated for qualified occupants of the IGC.

Drivers of vehicles that meet the definition of "Low-Emitting" or "Fuel-Efficient" will be provided with a reserved parking space in an appropriate location (based on need) upon request. Signage will be placed at the designated spaces upon assignment. The program will be advertised on the Macalester College Parking webpage, and in the Bulletin. Drivers may apply for a Preferred Parking Space through the Facilities Management Office.

David Wheaton
Vice President for Administration and Finance
SUSTAINABLE SITES CREDIT 4.4: ALTERNATIVE TRANSPORTATION: PARKING CAPACITY

1 POINT

Intent
Reduce pollution and land development impacts from single occupancy vehicle use.

Requirements
OPTION 1 — NON-RESIDENTIAL
☑ Size parking capacity to meet, but not exceed, minimum local zoning requirements, AND, provide preferred parking for carpools or vanpools for 5% of the total provided parking spaces.

OR

OPTION 2 — NON-RESIDENTIAL
For projects that provide parking for less than 5% of FTE building occupants:
☑ Provide preferred parking for carpools or vanpools, marked as such, for 5% of total provided parking spaces.

OR

OPTION 3 — RESIDENTIAL
☑ Size parking capacity to not exceed minimum local zoning requirements, AND, provide infrastructure and support programs to facilitate shared vehicle usage such as carpool drop-off areas, designated parking for vanpools, or car-share services, ride boards, and shuttle services to mass transit.

OR

OPTION 4 — ALL
Provide no new parking.

“Preferred parking” refers to the parking spots that are closest to the main entrance of the project (exclusive of spaces designated for handicapped) or parking passes provided at a discounted price.

Potential Technologies & Strategies
Minimize parking lot/garage size. Consider sharing parking facilities with adjacent buildings. Consider alternatives that will limit the use of single occupancy vehicles.

CREDIT COMPLIANCE
The project followed Option 4 – No new parking is provided (Residential OR Non-Residential)
SUSTAINABLE SITES CREDIT 5.2: SITE DEVELOPMENT: MAXIMIZE OPEN SPACE
1 POINT

Intent
Provide a high ratio of open space to development footprint to promote biodiversity.

Requirements
OPTION 1
Reduce the development footprint (defined as the total area of the building footprint, hardscape, access roads and parking) and/or provide vegetated open space within the project boundary to exceed the local zoning’s open space requirement for the site by 25%.

OR

OPTION 2
For areas with no local zoning requirements (e.g., some university campuses, military bases), provide vegetated open space area adjacent to the building that is equal to the building footprint.

OR

OPTION 3
Where a zoning ordinance exists, but there is no requirement for open space (zero), provide vegetated open space equal to 20% of the project’s site area.

ALL OPTIONS:
❑ For projects located in urban areas that earn SS Credit 2, vegetated roof areas can contribute to credit compliance.
❑ For projects located in urban areas that earn SS Credit 2, pedestrian oriented hardscape areas can contribute to credit compliance. For such projects, a minimum of 25% of the open space counted must be vegetated.
❑ Wetlands or naturally designed ponds may count as open space if the side slope gradients average 1:4 (vertical: horizontal) or less and are vegetated.

Potential Technologies & Strategies
Perform a site survey to identify site elements and adopt a master plan for development of the project site. Select a suitable building location and design the building with a minimal footprint to minimize site disruption. Strategies include stacking the building program, tuck-under parking and sharing facilities with neighbors to maximize open space on the site.

CREDIT COMPLIANCE
The project met Option 2. The total building square footprint area is 4,930 ft² and the vegetated open space provided by the project is 9,856 ft². The full site plan can be found in the appendix.
SUSTAINABLE SITES CREDIT 6.1: STORMWATER DESIGN: QUANTITY CONTROL

1 POINT

Intent
Limit disruption of natural water hydrology by reducing impervious cover, increasing on-site infiltration, reducing or eliminating pollution from stormwater runoff, and eliminating contaminants.

Requirements
CASE 1 — EXISTING IMPERVIOUSNESS IS LESS THAN OR EQUAL TO 50%
Implement a stormwater management plan that prevents the post-development peak discharge rate and quantity from exceeding the pre-development peak discharge rate and quantity for the one- and two-year 24-hour design storms.

OR
Implement a stormwater management plan that protects receiving stream channels from excessive erosion by implementing a stream channel protection strategy and quantity control strategies.

OR
CASE 2 — EXISTING IMPERVIOUSNESS IS GREATER THAN 50%
Implement a stormwater management plan that results in a 25% decrease in the volume of stormwater runoff from the two-year 24-hour design storm.

Potential Technologies & Strategies
Design the project site to maintain natural stormwater flows by promoting infiltration. Specify vegetated roofs, pervious paving, and other measures to minimize impervious surfaces. Reuse stormwater volumes generated for non-potable uses such as landscape irrigation, toilet and urinal flushing and custodial uses.

CREDIT COMPLIANCE
The project met Case 1.

Credit Narrative:
The storm water runoff rate and quantity from the proposed conditions has been reduced from the existing conditions for the one and two year storm events with the use of permeable pavers and underground infiltration pipes. The one year storm event’s runoff rate was reduced from 0.75 cubic feet per second (cfs) to 0.23 cfs. The volume of the one year storm event was reduced from 1,612 cubic feet (cf) to 1,481 cubic feet.

2-year runoff rates:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-development Site Runoff Rate</td>
<td>0.930 cfs</td>
</tr>
<tr>
<td>Pre-development Site Runoff Quantity</td>
<td>2,004.000 cf</td>
</tr>
<tr>
<td>Post-development Site Runoff Rate</td>
<td>0.360 cfs</td>
</tr>
<tr>
<td>Post-development Site Runoff Quantity</td>
<td>1,917.00 cf</td>
</tr>
</tbody>
</table>

The full hydrology reports can be found in the appendix.
SUSTAINABLE SITES CREDIT 6.2: STORMWATER DESIGN: QUALITY CONTROL
1 POINT

Intent
Limit disruption and pollution of natural water flows by managing stormwater runoff.

Requirements
Implement a stormwater management plan that reduces impervious cover, promotes infiltration, and captures and treats the stormwater runoff from 90% of the average annual rainfall using acceptable best management practices (BMPs).

BMPs used to treat runoff must be capable of removing 80% of the average annual post development total suspended solids (TSS) load based on existing monitoring reports. BMPs are considered to meet these criteria if (1) they are designed in accordance with standards and specifications from a state or local program that has adopted these performance standards, or (2) there exists in-field performance monitoring data demonstrating compliance with the criteria. Data must conform to accepted protocol (e.g., Technology Acceptance Reciprocity Partnership [TARP], Washington State Department of Ecology) for BMP monitoring.

Potential Technologies & Strategies
Use alternative surfaces (e.g., vegetated roofs, pervious pavement or grid pavers) and nonstructural techniques (e.g., rain gardens, vegetated swales, disconnection of imperviousness, rainwater recycling) to reduce imperviousness and promote infiltration thereby reducing pollutant loadings. Use sustainable design strategies (e.g., Low Impact Development, Environmentally Sensitive Design) to design integrated natural and mechanical treatment systems such as constructed wetlands, vegetated filters, and open channels to treat stormwater runoff.

CREDIT COMPLIANCE
The stormwater run-off from 90% of the average annual rainfall is captured or treated such that 80% of the average annual post-development Total Suspended Solids (TSS) is removed.

Non-Structural Controls:

<table>
<thead>
<tr>
<th>Best Management Practices (BMP)</th>
<th>Description of BMP’s Contribution to Stormwater Filtration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grassed Swales</td>
<td>Sidewalk areas on the west side of the site were graded to flow onto grass areas before entering the storm sewer system. There are existing storm sewer catch basins within the grassed areas. The TSS removed by grassed swales is 30%</td>
</tr>
</tbody>
</table>
### Structural Controls:

<table>
<thead>
<tr>
<th>Structural Control</th>
<th>Description of Structural Control’s Pollutant Removal Performance</th>
<th>% of Annual Rainfall Volume Treated by Structural Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permeable Pavers</td>
<td>Approximately 1,500 sf of permeable pavers will be installed in the plaza areas on the east and west sides of the building. Since all runoff on the permeable pavers in infiltrated, TSS removal is 100%</td>
<td>7.0</td>
</tr>
<tr>
<td>Underground Infiltration Pipes</td>
<td>184 feet of 36” perforated underground infiltration pipes which remove 100% of total suspended solids through infiltration. The tanks have been designed to capture and infiltrate a 1-inch storm event by setting the four inch outflow orifice six inches above the invert of the infiltration pipes. There are sandy soils present on-site so an infiltration rate of 0.6 inches per hour was used in designing the pipes.</td>
<td>71.0</td>
</tr>
</tbody>
</table>

An input and results table can be found in the appendix.
SUSTAINABLE SITES CREDIT 7.2: HEAT ISLAND EFFECT: ROOF

1 POINT

Intent
Reduce heat islands (thermal gradient differences between developed and undeveloped areas) to minimize impact on microclimate and human and wildlife habitat.

Requirements
OPTION 1
Use roofing materials having a Solar Reflectance Index (SRI) equal to or greater than the values in the table below for a minimum of 75% of the roof surface.

OR

OPTION 2
Install a vegetated roof for at least 50% of the roof area.

OR

OPTION 3
Install high albedo and vegetated roof surfaces that, in combination, meet the following criteria:

\[(\text{Area of SRI Roof} / 0.75) + (\text{Area of vegetated roof} / 0.5) \geq \text{Total Roof Area}\]

<table>
<thead>
<tr>
<th>Roof Type</th>
<th>Slope</th>
<th>SRI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-Sloped Roof</td>
<td>&lt;2:12</td>
<td>78</td>
</tr>
<tr>
<td>Steep-Sloped Roof</td>
<td>&gt;2:12</td>
<td>29</td>
</tr>
</tbody>
</table>

Potential Technologies & Strategies
Consider installing high-albedo and vegetated roofs to reduce heat absorption. SRI is calculated according to ASTM E 1980. Reflectance is measured according to ASTM E 903, ASTM E 1918, or ASTM C 1549. Emittance is measured according to ASTM E 408 or ASTM C 1371. Default values will be available in the LEED for New Construction v2.2 Reference Guide. Product information is available from the Cool Roof Rating Council website, at www.coolroofs.org.

CREDIT COMPLIANCE
The building contains 4,253 sf of roof. A Johns Manville GlasKap CR white roof with SRI of 92 was used. The GlasKap CR is a white mineral surfaced, white acrylic coated, fiber glass cap sheet of use in built-up roofing systems.

SRI = The Solar Reflectance Index (SRI) is a measure of the constructed surface’s ability to reflect solar heat, as shown by a small temperature rise. It is defined so that a standard black (reflectance 0.05, emittance 0.90) is 0 and a standard white (reflectance 0.80, emittance 0.90) is 100. To calculate the SRI for a given material, obtain the reflectance value and emittance value for the material. SRI is calculated according to ASTM E 1980. Reflectance is measured according to ASTM E 903, ASTM E 1918, or ASTM C 1549. Emittance is measured according to ASTM E 408 or ASTM C 1371.
The specification sheet for the roofing material can be found in the appendix.