CONSTRUCTION STANDARDS

Note: The buildings on the UCCS campus are divided into two categories: General Fund and Auxiliaries. General Fund Buildings include academic and administrative functions. Auxiliary buildings include residence halls, athletic, and dining facilities. In some cases, construction standards differ depending on the building category. Confirm building category with Facilities Services Project Manager.

DIVISION 31 – EARTHWORK

- **Earthwork & Site Clearing**
- **Riprap**
- **Detention and Water Quality Ponds**

A. EARTHWORK

1. MATERIALS

Embankment material shall consist of earth, sand or gravel free from organic matter, frozen soil, ice, snow, mud or other deleterious material. All fill material shall be approved by the Project Manager prior to placement.

2. LOCATES

At least 48 hours prior to starting any work disturbing, moving or penetrating the ground, contact the Utility Notification Center of Colorado (UNCC) 811 to locate, stake and identify depth of all buried utilities within the construction limits.

The existence and location of underground utilities and construction indicated as existing are not guaranteed. Excavate carefully so as to not damage uncharted utilities. The Contractor shall pothole to verify the horizontal and vertical location of all utilities in the area to be graded.

Should utilities be encountered, notify the UCCS Project Manager immediately.

Existing utility service shall not be interrupted without UCCS and the Utility Owner's consent. Utility interruptions shall be approved by the affected building users. Approval must be obtained at least 72 hours in advance.

3. CLEARING AND GRUBBING

All areas to be cleared for earthwork shall be stripped of all organic matter (grasses, weeds trees, roots, and any other vegetative material) prior to the start of excavation or embankment operations. The Project Manager shall flag any trees or shrubs to remain within the clearing limits. Protection out to the drip line of each tree within the construction limits must be in place prior to any work beginning. If stated on the drawings, the Contractor shall stockpile the stripped materials at a location designated by the Project Manager for future use. When a site is not designated, the Contractor must dispose of the material off-site. If shown on the

drawings, the stripped materials shall be placed along landscaped areas as directed by the Project Manager.

After clearing and grubbing is complete, the Contractor shall notify the Project Manager for his/her approval of the clearing and grubbing prior to subsequent earthwork operations.

4. DUST PREVENTION

During construction and until final acceptance by the University the Contractor shall be responsible for controlling dust emissions in the construction area. No earthwork activities shall be performed when the wind speed exceeds thirty miles per hour (30 MPH). Whenever conditions exist that create airborne soil particles, the Contractor shall at his expense, wet all disturbed areas as often as necessary to control the dust. All fill areas shall be compacted daily to the specified compaction. Any mud or dirt carry out onto paved surfaces shall be cleaned up daily and when directed by the Project Manager.

5. EROSION AND SEDIMENT CONTROL

The UCCS MS4 is committed to environmental stewardship and sustainability in all of its endeavors. As such, the UCCS MS4 participates in the Colorado Stormwater Excellence Program (CSEP), which is a voluntary construction stormwater permit compliance assistance and accountability program. The CSEP is a formally recognized "Stormwater Administrator Program" under the statutory authority of HB11-1026 and is administered by the AGC Colorado. All construction contractors/vendors who operate on the UCCS campus must abide by the CSEP policies and procedures as well as all applicable federal, state, and local environmental regulations. Nothing in this specification shall void any terms and conditions of any such permits or regulations. Should conflicts exist between the requirements of the UCCS MS4 and any state or federal requirements, the most stringent requirements shall apply.

A contractor/vendor's failure to comply with the CDPS Construction General Permit (CGP) while conducting work on the UCCS campus creates unacceptable environmental liability and regulatory risk for UCCS. UCCS will use the following enforcement methods on construction projects of any size that are determined to be in violation of stormwater regulations, with escalating actions ad determined necessary:

- Written notice of non-compliance.
- Retention of a third party contractor to correct at the contractor/vendor's expense, any instances of CDPS CGP non-compliance that UCCS believes, in its sole discretion, may put UCCS at any real or perceived risk for any harm, environmental damage, offsite discharge of pollutants, or any additional liability.
- Withholding of payment until corrective actions have been performed.
- Issuance of a stop work order with contractor responsible for all costs associated with the delay.
- Removal from preferred contractors list and restricted from future work on campus.
- Enforcement actions by outside regulatory agencies as applicable.

To offer all contractor/vendors the appropriate training, assistance and oversight needed to achieve the UCCS MS4 environmental program goals, all construction projects that operate within the UCCS MS4 jurisdiction will utilize the Uniform Stormwater Management System (USMS) method of CDPS CGP compliance and recordkeeping. The digital (paperless) version of the USMS compliance program, by ComplianceWise Technologies, LLC, is provided to contractors/vendors as part of the monthly CDPS CGP compliance assistance and oversight by Stormwater Risk Management (SRM). The pricing schedule for all SRM third-party stormwater consulting services has been pre-negotiated by the UCCS MS4 and applies equally to all contractor/vendors performing construction activities within the jurisdiction of the UCCS MS4.

As a condition of performing any activities within the UCCS MS4 that require a CDPS CGP, the following minimum contractor/vendor implementation and reporting requirements must be met:

A. Preparation and maintenance of a Stormwater Management Plan (SWMP)

A SWMP compliant with all CDPS CGP regulations and requirements must be prepared using the ComplianceWise digital SWMP system. Contractor/vendors may prepare the SWMP themselves for review by SRM or may contract with SRM to prepare the SWMP on the contractor/vendor's behalf. Costs for complete SRM SWMP preparation are the same as for SRM SWMP review, and follow the pre-negotiated UCCS MS4 pricing agreement.

Should the contractor/vendor choose to have SRM complete the SWMP, SRM will use the ComplianceWise digital software to prepare and then to electronically distribute the SWMP for review and contractor/vendor acceptance. **Project-specific information must be provided by the contractor/vendor to SRM at least 20 business days in advance of the date the contractor/vendor intends to begin any construction activities at the site.** Information required of the contractor/vendor will include, but may not be limited to; project team contact info, project master schedule, site staging plan (if available), soils report and grading plans.

Following receipt of all required information, SRM will complete the SWMP within 10 business days and prior to the contractor/vendor submitting their application for CDPS Stormwater Construction General Permit (CGP) coverage.

If the contractor/vendor chooses to prepare their SWMP in the ComplianceWise website, it must be complete and ready for SRM review at least 20 days prior to the construction start date.

The contractor/vendor will thereafter maintain and update the SWMP on the ComplianceWise website for the duration of the project. The SWMP and the Site Map shall be regularly updated (at a minimum every 7 calendar days) by the contractor/vendor to accurately reflect the current conditions of the project from the start of construction activities until CGP inactivation or transfer.

The contractor/vendor's SWMP and all related CDPS CGP-required documentation and records will be available to the UCCS MS4 for review through shared access in the ComplianceWise database. All records will remain available to the UCCS MS4 for 3 years following termination of the CDPS CGP.

B. Requirements for a SWMP Administrator

At least one qualified SWMP Administrator shall be assigned by the contractor/vendor to each UCCS project who shall be responsible for managing all aspects of the SWMP, including developing, implementing, maintaining, and revising the SWMP. The SWMP Administrator will be the UCCS MS4 contact for all SWMP related issues and is responsible for the accuracy, completeness, and implementation of the SWMP. The SWMP Administrator shall be on site and available during active construction. The SWMP Administrator shall be identified in the SWMP and listed on the CDPS CGP application before construction activities begin and shall be available to participate in all EPA, CDPHE or UCCS MS4 site inspections.

a. Certification and Training

The SWMP Administrator, at a minimum, shall be certified in the Uniform Stormwater Management System (USMS) Advanced Stormwater Manager course and be able to implement the principles and practices of the USMS, including use of the ComplianceWise digital recordkeeping database. Minimum training is available monthly through the AGC Colorado and is also offered periodically at the campus by the UCCS MS4. State of Colorado training scholarships are available to companies when funding such training places an extraordinary financial burden on the company.

b. Authority

The SWMP Administrator must have the authority to adequately manage and direct day-to-day stormwater quality management activities at the site, including stopping work until the site is in compliance with the CDPS CGP.

The UCCS MS4 may deem the SWMP Administrator unqualified if they are unable or unwilling to successfully implement or update the approved SWMP or keep the site in compliance. The UCCS MS4 shall require a new SWMP Administrator if the current SWMP Administrator is deemed unqualified.

C. Pre-construction Stormwater Meeting

Prior to the start of construction, the contractor/vendor shall initiate a meeting with the UCCS Principal Representative to review and discuss stormwater issues related to the project. Topics to be discussed may include, but are not limited to, the SWMP, initial control measures to protect entry/exits and perimeters, roles and responsibilities of the SWMP Administrator and roles and responsibilities of SRM acting on behalf of the UCCS MS4.

Work will not commence until the UCCS MS4 provides the contractor/vendor approval of the project specific SWMP and written approval of the initial control measures.

D. Use of the Standardized, Digital SWMP Documentation System

A standardized digital SWMP and inspection documentation system, ComplianceWise, will be set up by SRM as outlined in (1.) above for each permitted project on the UCCS campus. Following the initial setup by SRM, and prior to CDPS CGP application by the contractor/vendor, the contractor/vendor will review the contents of the SWMP, make any changes as required, and accept full responsibility for its contents. **Once CDPS CGP certification is issued by the CDPHE, the contractor/vendor accepts full liability for the adequacy of the digital SWMP and all future updates.**

SRM will provide the contractor/vendor extensive ComplianceWise system usage guidance and assistance as part of the mandatory monthly services, and anytime upon request. The contractor/vendor will perform all CDPS CGP required inspections and recordkeeping using the ComplianceWise documentation system and reporting website. No special equipment or computer hardware is required to use ComplianceWise.

E. Requirement for Minimum Implementation of the Uniform Stormwater Management System (USMS)

Full implementation of the USMS equals full minimum compliance with all requirements of the CDPS CGP. The ComplianceWise software and database system provides a standardized structure and methodology that assists contractors/vendors with meeting all USMS requirements. **Contractor/vendors must maintain at least 70% compliance with the USMS based on the monthly site audits conducted by SRM.** Failure to achieve better than 70% will expose the contractor/vendor and the UCCS MS4 to potential regulatory enforcement and will be cause for disciplinary action, including back charges to bring the site into compliance and denial of any future work opportunities on the UCCS campus.

Monthly USMS compliance percentages will be based on the standard evaluation criteria and weighting factors as used for the CSEP. Major evaluation and assessment categories are generally as follows:

a) Corporate Support
b) Stormwater Plan Management / Upkeep
c) Pre-Inspection Activity Planning / Controlling the Site
d) Proper and Thorough Self-Inspections
e) Corrective Actions
f) Additional Documentation Requirements

The UCCS MS4 will provide and review the detailed USMS scoring criteria upon request. Detailed descriptions are also provided within the ComplianceWise software and on the CSEP website.

6. BURNING

Burning to remove or dispose of materials will not be permitted.

7. REMOVAL OF STRUCTURES AND OBSTRUCTIONS

All existing physical features which conflict with the new construction shall be removed by the Contractor and disposed of properly. These shall include but not be limited to: asphalt or concrete paving, base course, miscellaneous concrete flatwork, curb and gutter, sidewalk, foundations, culverts and headwalls, fences, abandoned utilities, and any other items not intended to remain. Where required to obtain a straight line without jagged edges, the removal shall require sawcutting. Sawcuts shall be beveled edges with a minimum of 1/4 the thickness of material (or deeper) to obtain a clean straight face.

Unless specifically noted otherwise on the drawings or in the Special Provisions, sawcuts shall be considered subsidiary to the removal item and will not be paid for separately. If any items are removed or damaged by the Contractor beyond the limits of demolition shown on the drawings or as marked in the field, they shall be replaced by the Contractor at no expense to the University.

8. EXCAVATION

Excavation shall consist of the excavation of all materials of whatever character. All excavation shall be made to the elevations and lines shown on the drawings and as directed by the Project Manager.

No excavation shall be made below subgrade elevation except to remove any soft or saturated soils, organic material or other unsuitable materials as ordered by the Project Manager. Any over excavation not ordered by the Project Manager shall be replaced with suitable material and compacted by the Contractor at no cost to the University.

Whenever excavation is necessary to remove unsuitable material, it shall be replaced with material acceptable to the Project Manager.

Owner wishes to stockpile all native, sandstone boulders that are greater than 12” in diameter. Contractor shall coordinate stockpile location with Project Manager prior to excavation.

If excavation is necessary within tree drip lines, hand excavation is required.

Where debris may have accumulated in storm sewers, water-jet and video to provide clear evidence of a clean system

9. ROCK OR MAN-MADE OBSTRUCTION EXCAVATION

Rock will be defined as any naturally occurring or man-made material in such a form that it cannot be readily removed using a track-type tractor (bulldozer) with a ripper or a hydraulic

excavator (crawler mounted backhoe) with “rock teeth” without a significant loss of production. It also includes boulders exceeding one-half (1/2) cubic yard in volume.

When rock material is encountered during excavation, the Contractor shall immediately notify the Project Manager for field verification. The Project Manager shall measure and document the limits of the rock prior to excavation. Any rock removed prior to notification will not be considered for payment.

Blasting for rock excavation will NOT be allowed, unless otherwise stated.

10. EMBANKMENT

Fill material shall be placed in uniform lifts having a maximum loose thickness of eight inches (8”). Fill shall be free from frozen soil, snow, ice, mud, rubbish, organic material, and large rock. Maximum rock size shall be limited to three inches (3”) for fills less than one foot (1’) thick and to a maximum size of eight inches (8” for deeper fills except that rock larger than three inches (3”) are not permitted within twelve inches (12”) of the finished subgrade. Areas to be landscaped shall be free from surface rock larger than one inch (1”).

11. COMPACTION

The Contractor shall employ whatever equipment and methods that are necessary to obtain the moisture and required density. All soils within the compaction limits beneath roadways, parking lots, sidewalks, etc. shall be compacted to either ninety-five percent (95%) of the maximum dry density as defined by AASHTO T99 (Standard Proctor) or ninety percent (90%) maximum dry density as defined by AASHTO T180 (Modified Proctor). Compaction limits are from finished subgrade to six inches (6”) below the base of cuts and fills (12” below full depth asphalt or concrete pavement). Moisture content for all compacted soils shall be within ±2% of optimum unless field observation verifies that the soils are unstable at lesser moisture contents. In those cases, the Engineer shall establish a minimum moisture content.

Field testing for moisture content and dry density of the compacted soil will be done by an independent testing laboratory under contract with UCCS. The Contractor may retain the services of an independent testing firm to perform the testing at his expense. Frequency and location for the tests will be at the University’s discretion. In general, a minimum of one test per foot of fill and/or along the bases of cuts and fills, will be taken for each 200 feet of roadway being constructed.

Any areas where the field test indicates that the soil does not meet the moisture or density specification shall be wetted or dried as necessary, and reworked until the requirements are satisfied.

12. BORROW

When the quantity of suitable excavated material required for the embankment and subgrade preparation is greater than the quantity that can be obtained from the excavation in the project, the Contractor shall make-up the deficiency from borrow pits. The borrow material shall be obtained from sources selected by the Contractor subject to approval by the University. All material shall be clean and free from any environmental hazards. The Contractor shall obtain the written permission from the Project Manager to procure borrow material, shall pay all royalty and other charges involved and shall bear all the expenses of developing the sources.

13. EXCESS MATERIAL

All excavated material not required for the construction of embankments or for backfilling, including unsuitable material that has been removed at the direction of the Project Manager, shall become the property of and be properly disposed of by the Contractor, unless otherwise stated.

14. PROOF ROLLING

Proof rolling with a rubber tired roller having an operating weight of at least 9 tons per axle (or comparable heavy equipment) will be required prior to the construction of the pavement and beneath curb and gutter. Proof rolling shall be done after the specified compaction has been obtained and verified by field testing. Areas found to be weak and those areas which failed shall be reworked to obtain the specified density at the Contractor's expense.

Following reworking, any areas that need to be removed because of soft soils below the compaction limits (from finished subgrade to six inches (6") below the base of cuts and fills or 12" for full depth asphalt paving) as evidenced through proof rolling will be replaced with suitable material as directed by the Project Manager.

15. REMOVAL OF UNSUITABLE MATERIAL

Whenever excavation below the specified elevation to remove soft or saturated soils, organic matter, or other unsuitable material is ordered by the Project Manager, the Contractor shall remove same and replace with material acceptable to the Project Manager. The replacement material shall be placed in layers not to exceed six inches (6") in thickness and shall be thoroughly compacted before the next layer is placed. The replacement material shall be retested.

16. GRADING

All areas within the project area, including excavated and fill sections, shall be finished to a smooth and uniform surface conforming to the typical sections specified. Spot checks of finish grades shall not be more than 0.10 foot above or below the plan grade. Where bituminous or concrete surfacing materials are to be placed directly on the subgrade, the subgrade shall not vary more than 0.05 foot from the plan grade and the arithmetic average of ten random spot

elevations taken along a 100 foot length of roadway shall be within ± 0.02 foot of the plan grades. Provide rounding at top and bottom of banks and at other breaks in grade.

B. RIPRAP

Riprap shall be sized by the Engineer and shall be tan in color. (Dellacrose Granite or an approved equal)

C. DETENTION/STORMWATER QUALITY POND

Detention/stormwater quality ponds shall have a maintenance road access.

Detention/stormwater quality ponds shall ensure complete drainage within 72 hours after a storm occurrence.