City Campus Watershed: Storm water drains into Antelope Creek which subsequently drains into Salt Creek.

East Campus Watershed: Storm water drains into Dead Man's Run which subsequently drains into Salt Creek.

UNL Drainage Systems: Both City and East Campuses are served by a combination of UNL and City of Lincoln owned and maintained storm drainage systems. Those owned by UNL, serve only UNL facilities and property, whereas those owned by the City of Lincoln serve a combination of UNL and non UNL facilities.

Compliance: The design and construction of all storm water conveyance systems on City and East campuses shall strive to meet the objectives within the current revision of the City of Lincoln Department of Public Works – Drainage Criteria Manual found here: https://lincoln.ne.gov/city/ltu/watershed/dcm/

NPDES Storm Water Management Plan: All new development or significant redevelopment projects on the UNL City and East Campuses that disturb land in excess of one-half (0.5) acre in size must include Low Impact Development (LID) Best Management Practices (BMPs) to provide for post- construction storm water control as described below. BMPs shall conform to the most recent version of the City of Lincoln Drainage Criteria Manual, Chapter 8, Stormwater Best Management Practices and/or other applicable Regional Stormwater Design Manuals. More information about UNL's Stormwater Management Plan is located on the UNL EHS Website https://ehs.unl.edu/resources/stormwater-management/.

Stormwater Standards:

Water Quality: All new development or significant redevelopment projects on the UNL City and East Campuses that disturb land in excess of one-half (0.5) acre in size must include Low Impact Development (LID) Best Management Practices (BMPs) to provide no less than the water quality control volume of the first one-half (0.5) inch of stormwater runoff from the site.

Water Quantity: All new development or significant redevelopment projects on the UNL City and East Campuses that disturb land in excess of one-half (0.5) acre in size shall be designed in a manner that attempts to preserve or improve site hydrology when comparing pre- and post-development conditions to the maximum extent practicable. Consideration should be given to 2-, 10-, and 100- year storm events.

Stormwater Standard Details:

Calculations and Narrative: The Architect/Engineer (A/E) shall prepare and submit relevant stormwater calculations and narrative regarding proposed stormwater BMPs intended to satisfy UNL's water quality requirement at the schematic review stage.

1. **Water Quality:** Prepare and submit calculations and narrative of the amount of water captured and treated on-site by the specifically selected Low Impact Development method(s) at minimum using the water quality control volume (WQCV) equation found in the City of Lincoln Drainage Criteria Manual, Chapter 8, Stormwater Best Management Practices (other more technical methods/models may be used if approved by UNL). At a minimum the post-construction BMP(s) must capture and treat on-site the first one-half (0.5) inch of precipitation. The example equation below is the preferred method but not required.

   Minimum WQCV = (0.5) x (0.05 + 0.009 x **I**) x **A** x (1/12) x (43560)

   Where: Minimum WQCV = Water Quality Control Volume in Cubic Feet
   I = percent impervious of contributing drainage area
   A = contributing drainage area in acres

2. **Water Quantity:** Prepare and submit a narrative describing the key elements for flow control and any relevant data or calculations that compare and contrast pre- and post-development site hydrology characteristics (2-, 10- and 100-year storm events).

Post-Construction Stormwater Control UNL Review Form: The form is available online through the Facilities Planning and Capital Programs webpage, Capital Construction, Design Standards, and Forms tab (https://nebraska.edu/offices-policies/business-finance/facilities-planning-and-capital-programs/services/capital-construction/design-standards/forms/post-construction-stormwater-control-review-form). The form should be filled out by the Architect/Engineer (A/E) responsible for designing the stormwater BMP(s) that will satisfy the water quality and/or quantity requirements for the project. The A/E should provide or attach the necessary calculations and narratives on the form, reference or attach relevant construction drawings, describe any deviations from UNL's stormwater standards as stated above, supply any resulting design standard waivers, and attach any other relevant information necessary to ensure the BMP(s) is/are maintained in perpetuity. The A/E should submit the form either online or to Stormwater@unl.edu. The form will be approved after all comments and revisions are resolved. Alterations of the form may be necessary as the project matures and as conditions change during construction. Any alterations to an approved design must be documented and any major alterations during construction (including removal) must have departmental approval.

Technical Constraints: Examples of technical constraints related to water quality and quantity control are as follows: Retaining stormwater on-site would adversely impact receiving water flows; Site has shallow bedrock, contaminated soils, high groundwater table, underground facilities or utilities; Site is too small to infiltrate significant volume; Site is located in close proximity to receiving waters or within a flood plain; Site is constrained with space rendering a post construction stormwater control impractical/infeasible. If these or other technical constrains exist within the project footprint and prohibit achievement of the stormwater standards above then post-construction stormwater controls of comparable significance may be applied at nearby or other alternate locations on UNL property (e.g., downstream from the project). Any proposed post-construction stormwater control located outside of the original construction footprint will need departmental approval and must be discussed early in the design. Any technical constraints which prevent the project from achieving either water quality or quantity requirements must be identified and a design standard waiver describing the condition must be submitted and approved by the department.

Design Standard Waiver: If the project design calculations are unable to provide the required water quality control volume the A/E must submit a design standard waiver. The waiver must contain a detailed narrative describing why the project is unable to meet the provisions of the stormwater standards and yet still achieves a design that controls storm water runoff to the maximum extent practicable. The design standard must describe any technical constraints and how the site will maintain no detriment to the receiving water or nearby affected properties after development. Requests for Design Standard Waivers should be submitted by A/E's or the Project Manager on a project-by-project basis. Please contact FP&CP Engineering for the Design Standard Waiver Request Form.

Exceptions to Stormwater Standards: Linear utility projects are exempt from stormwater post-construction stormwater control design and installation when post-development drainage and runoff conditions resemble pre-development conditions. Projects that reduce imperviousness and return the site back to the original hydrology or better prior to development are exempt from installing regulated post-construction stormwater control features (i.e., demolition of pre-existing buildings, returning impervious area to pervious vegetated area, etc.).

Future Considerations: All storm drainage piping shall be sized and configured appropriately to serve the ultimate future need for drainage in the geographical area being served.

Manholes: A manhole shall be provided at each change in direction of the piping system as well as at not greater than 400 feet.

Storm Grates: All storm grates shall be “bicycle safe” in design and include an integrally cast label stating, “No Dumping – Drains to Stream”.

Surface Drainage: Positive surface drainage shall be provided such that storm water drains away from all structures. Surface runoff shall not be allowed to flow across pedestrian walkways, bicycle paths, drives or parking areas in a manner compatible with sustainable and low impact storm water management design.