

5.0 ENVIRONMENTAL REQUIREMENTS

This Section 5 includes the Environmental Requirements Work for the US 550/160 Connection South Design Build Project (Project). This Work shall be completed in accordance with the Contract Documents.

5.1 Administrative Requirements

5.1.1. Standards

The Contractor shall design and construct the Project in accordance with the requirements of the standards in the documents listed in Table 5-1 and those referenced in Book 3. The Contractor shall use the latest adopted edition at the time of the Proposal Due Date.

Table 5-1. Standards

Author or Agency	Title
Colorado Department of Transportation (CDOT)	<i>MS4 Construction Program Manual</i>
CDOT	<i>Standard Specifications for Road and Bridge Construction (CDOT Standard Specifications)</i>
CDOT	<i>M&S Standards</i>
CDOT	<i>Noise Analysis and Abatement Guidelines</i>
CDOT	<i>Roadway Design Guide</i>
Federal Highway Administration (FHWA)	<i>FHWA-CFL/TD-11-003 Wildlife Crossing Structure Handbook</i>

5.1.2. Environmental Laws, Regulations, and Governmental Approvals

The Contractor shall comply with all requirements of all applicable Local, State, and Federal Environmental Laws, Regulations, and Governmental Approvals issued thereunder, whether obtained by CDOT or the Contractor.

The following Federal Highway Administration (FHWA) National Environmental Policy Act (NEPA) approvals are contained in the Reference Documents:

1. *US 550 EA/FONSI* (December 2005)
2. *US 550 EA/FONSI Reevaluation* (May 2019)
3. *US 550 at US 160 South Connection Supplemental FEIS/ROD* (April 2015)
4. *US 550 at US 160 South Connection Supplemental FEIS/ROD Reevaluation* (May 2019)

The mitigation commitments identified in these NEPA documents have been consolidated, and in some instances revised, as part of a Reevaluation. The mitigation measures listed in the Environmental Mitigation Tracking Form in Exhibit 5-A supersede the mitigation measures listed in the NEPA documents listed above.

The Contractor shall be responsible for implementing required control measures, minimization of environmental impacts, and mitigation measures to minimize environmental harm from the Project. The Contractor shall minimize both environmental impacts and impacts to adjacent property owners as design decisions are made in task force meetings or milestone review meetings, and provide documentation of the decisions to CDOT as defined in Book 2, Section 3. Any RFC package submitted for Approval, shall

include the Environmental Tracking Form (Exhibit 5-A) that illustrates all mitigation requirements that are to be implemented with the construction.

5.1.3. Submittals

All submittals shall be prepared, reviewed, and submitted in accordance with the requirements set forth in Book 2, Section 3.

5.2 Environmental Management

5.2.1. Environmental Compliance Manager

The Contractor shall employ an Environmental Compliance Manager (ECM) on the Project who shall report directly to the Design Build Project Manager. The ECM shall have experience with environmental documentation and implementing requirements that result from Environmental Impact Statements, Environmental Assessments, Reevaluations, and all associated documents.

The ECM shall:

1. Monitor and ensure full Project compliance with all Environmental Laws, regulations, and Governmental Approvals, including Permits, design, construction, Technical Criteria, and operations.
2. Ensure the implementation of all the environmental, design, construction and operational commitments, and all conditions necessary to achieve the environmental approvals for the Project.
3. Perform formal reviews of changes, design changes, and field design changes to confirm compliance with all Environmental Requirements.
4. Serve as the primary liaison between the Contractor and CDOT on environmental issues during design and construction.
5. Be the lead responder to any noncompliance findings issued by CDOT, the Quality Manager, or the ECM in the case of self-reporting, for the construction Work.
6. Respond to all noncompliances to the Environmental Requirements regardless of severity.
7. Shall conduct final QA/QC reviews on all environmental submittals prior to submittal to CDOT.
8. Have the authority to stop construction if Work Activities violate Environmental Laws, regulations, or Permits; or if they potentially jeopardize human health and safety.
9. Implement quality improvement strategies to reduce the number and severity of noncompliance to the Environmental Requirements.
10. Plan and conduct the Environmental Compliance and Mitigation Training Program (ECMTP).
11. Lead a field review with CDOT to review the Project and environmental issues every month during the construction period.
12. Write and submit any updates to the Environmental Compliance Work Plan (ECWP) for Acceptance.
13. Provide a Mitigation Completion Report that documents and certifies the completion of all Environmental Requirements for Acceptance prior to Final Acceptance.

5.3 Environmental Compliance and Mitigation Training Program

The Contractor's ECM shall develop an Environmental Compliance and Mitigation Training Program (ECMTP) for Contractor and Subcontractor personnel who will be on Site to perform Work. The ECM shall submit the ECMTP for Acceptance prior to issuance of ENTP. Once the Training Program has been Accepted, the Contractor shall not allow any personnel to begin Work on the Site without completing the training.

The Contractor shall keep records of the number of ECMTP training sessions held, the personnel who have completed the ECMTP and report this information monthly in the Environmental Compliance Status Reports (ECSR).

The ECMTP shall cover the Environmental Requirements for the Project and train personnel on how to identify environmental concerns in the field, and comply with the Environmental Requirements. The ECMTP shall include the following elements, including the associated Permits and Environmental Requirements:

1. Water quality requirements, including those for stormwater.
2. Wetlands and waters of the U.S.
3. Maintaining approved limits of disturbance.
4. Avoidance and minimization of impact to waterways and stormwater conveyances.
5. Seasonal Work restrictions – trees, waterways, threatened and endangered species, and migratory birds.
6. Pumping and dewatering operations.
7. Discovery of Archaeological material or human remains.
8. Discovery of paleontological resources.
9. Hazardous substances.
10. Historic property protection requirements.
11. Construction noise mitigation.
12. Dust and construction emissions mitigation.
13. Maintaining a clean Work Site.
14. Concrete and asphalt waste material management.
15. Spill prevention, response, and cleanup.
16. Impacts and consequences for deviating from approved operating procedures.
17. Additional topics as needed to maintain compliance with the Environmental Requirements.
18. Environmental compliance responsibilities of production supervisors and inspectors.

The ECM shall revise the ECMTP regularly to reflect the most current policies, rules, and regulations. The Contractor shall provide updates to the ECMTP to CDOT for Acceptance 30 Days after the end of each year.

5.4 Environmental Compliance Documentation

5.4.1. Environmental Compliance Work Plans

The Contractor shall prepare an Environmental Compliance Work Plan (ECWP) for the Project that specifically identifies all of the Environmental Requirements for compliance on the Project and the Contractor's approach to ensure compliance.

5.4.1.1 Environmental Compliance Work Plan

The first ECWP shall be submitted to CDOT for Approval within 30 Days after First Notice to Proceed and prior to ENTP. At a minimum, the first ECWP shall include discussion on the following:

1. Environmental Compliance Team
 - A. Provide each team members names, title, contact information, and reporting structure.
 - B. Provide each team members description of role, responsibilities, education, certifications, and other qualifications.
2. Communication Protocol
 - A. Describe and provide an illustrative communication tree for environmental compliance team coordination responsibilities, including the following:
 - i. Design coordination
 - ii. Construction Inspection and coordination
 - iii. Owner controlled QA/QC coordination
 - iv. Environmental permitting and approvals coordination

This should demonstrate how each member of the environmental compliance team is integrated into the overall process and clarify communication protocol with the Contractor's team members; CDOT staff; Federal, State, and Local Agency representatives; and representatives of other relevant organizations.
3. Management Plans
 - A. Provide a list of plans incorporated by reference, including submittal schedule and approval process.
4. Environmental Information on Plans
 - A. Describe what environmental information will be included in the plan sets and/or map book and at what levels of design.
5. Environmental Compliance Plan
 - A. Identify and document all environmental requirements:
 - i. Contract requirements
 - ii. NEPA document requirements
 - iii. Permit requirements
 - B. Identify the applicable locations and phases for each Environmental Requirement.
 - C. For each Environmental Requirement applicable to design and preconstruction Activities, describe means and methods to achieve compliance.

- D. For all other Environmental Requirements (those applicable to construction or post-construction Activities), provide a list of alternative solutions to achieve compliance. This list of alternative solutions shall communicate standard practices, typical approaches, or options the Contractor is considering for implementation on the Project.
 - E. Describe how noncompliance issues, regardless of issuer, will be documented, reported, and tracked to resolution. This shall be consistent with the communication protocol and provide additional detail, including response times, reporting and tracking tools to be used, and documentation to be provided.
 - F. Describe the purpose of the environmental team field reviews.
 - G. Provide an outline of how the 90-Day Environmental Compliance Work Plans (ECWP) will address Site-specific construction Activities.
6. Environmental Compliance Tracking
- A. Identify how compliance with each Environmental Requirement will be achieved.
 - i. Verification method (design review, field review, etc.)
 - ii. Timing/frequency of verification
 - iii. Documentation of compliance
 - B. Describe when and how compliance documentation will be made available to CDOT for review.
 - C. Provide an outline for the ECSR

5.4.1.2 90-Day Environmental Compliance Work Plan

The first 90-Day ECWP shall be submitted to CDOT for Approval no later than 30 Days prior to ENTP. Approval of the 90-Day ECWP is a condition of issuance of ENTP. Once an ECWP has been Approved, the Contractor shall update the ECWP and submit for Acceptance every 90 Days until Project Completion. The 90-Day ECWP shall define how the Environmental Requirements shall be met for construction Activities planned for that 90 day period.

At a minimum, the 90-Day ECWP shall include the following:

- 1. Describe construction Activities for the next 90-Day period and how environmental compliance will be achieved.
 - A. Specify which options identified in the first ECWP will be applied to each Activity for compliance.
 - B. Provide means and methods to accommodate design changes/additions to previously submitted plans.

5.4.2. Environmental Compliance Work Plan Amendment

The Contractor shall monitor the effectiveness of the ECWP and resubmit the ECWP annually for Acceptance upon the anniversary of the first ECWP's Approval by CDOT. The plan should at a minimum be updated should any of the following conditions exist:

- 1. A plan or procedure no longer adequately addresses the matters it was originally intended to address.
- 2. A plan or procedure does not comply with the Environmental Requirements.

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

3. An audit by the Contractor or CDOT identifies a deficiency in the ECWP triggering an update.
4. Organizational structure changes.
5. The Contractor is undertaking, or about to undertake, Activities that are not covered within the current ECWP.

5.4.3. Final Environmental Compliance Work Plan

A Final ECWP shall be submitted to CDOT for Approval as a condition for Final Acceptance of the Project. This submittal is the ECWP as it exists at the time of Project Completion.

5.4.4. Environmental Compliance Status Reports (ECSR)

The Contractor shall report on the status of Activities undertaken in accordance with the Environmental Requirements, during the period beginning with ENTP through Project Completion. The ECM shall submit an ECSR monthly to CDOT for Acceptance, within 21 Days following the end of the reporting period (month).

The ECSR shall:

1. Include the current status of compliance with the Environmental Requirements as summarized using Exhibit 5-A, Environmental Mitigation Tracking Form.
2. Document any pertinent environmental issues and include a narrative of the compliance actions (i.e. avoidance, minimization, and mitigations) that have occurred during the reporting period.
3. Include a summary of any Stakeholder communications and Governmental communications that have occurred during the reporting period.
4. Include a summary that lists the plan sets and submittals that have undergone environmental cross-disciplinary review since the previous reporting period.
5. Include the summaries from field reviews performed during the reporting period.
6. Include dated photographs documenting environmental compliance, noncompliance, and Work Activities.
7. Document Activities performed by environmental professionals, including the resumes of the individuals performing the Work.
8. Include any audit information documenting the Environmental Compliance efforts within the reporting period.
9. Include all Activities related to the ECMTP, including documentation of the participants in attendance.
10. Include an action and decision log for the environmental task force as defined in Book 2, Section 3.

All narratives shall include enough detail to fully document the environmental Activities. The ECSR shall clearly identify, in a cover sheet, what changes were made in the plan update in order to expedite CDOT review.

5.5 Environmental Resources Requirements

5.5.1. Air Quality

The Contractor shall prepare and submit a Construction Air Quality Plan and Fugitive Dust Control Plan to CDOT for Acceptance prior to ENTP. The Contractor shall obtain an Air Pollution Emissions Notice (APEN), including the Fugitive Dust Control Plan, from the Colorado Department of Public Health and Environment (CDPHE) Air Pollution Control Division.

All non-road diesel-powered Equipment shall use ultra-low sulfur diesel fuel. The Contractor shall minimize excessive idling of inactive Equipment and other vehicles. If construction Equipment is creating excessive air quality emissions that have a potential to affect air quality for operators or persons working/living in the area, Equipment shall be taken out of operation until properly serviced, repaired, or replaced. The Contractor shall also locate stationary emissions producing Equipment with consideration of public health and environment, and staging areas shall not be located within 200 feet of residences.

5.5.2. Noise

5.5.2.1 Noise Technical Report

No permanent noise abatement mitigation measures (noise barriers) have been determined for the Project based on the design provided in the Reference Documents. If the Contractor's design varies from the design in the Reference Documents in a manner that results in the need for additional or revised noise mitigation measures, the Contractor shall be responsible for providing the necessary mitigation measures and shall obtain all required Approvals and Permits associated with the Work.

The Contractor shall perform a noise analysis based on its final design if design changes from the design warrant it. Design changes that could trigger a noise analysis include, but are not limited to, the following:

1. Change in vertical profile of 5 feet or more.
2. Change in horizontal alignment that halves horizontal distance between the nearest of travel lane and the existing sensitive receptors.

Preliminary and Final Noise Technical Reports shall document results of the noise analysis and be submitted for Acceptance prior to completing the Benefited Receptor Preference Survey. For information, the noise technical reports for the *US 550 EA/FONSI* (December 2005) and *US 550 at US 160 South Connection Supplemental FEIS/ROD* (April 2015) are provided in the Reference Documents.

For areas north of MP 14.9, the noise analysis shall utilize the same model used in the *US 550 at US 160 South Connection Supplemental FEIS/ROD*. For areas south of MP 14.9, a new noise model shall be created. All noise analysis shall be completed in accordance to the standards and procedures of the applicable CDOT *Noise Analysis and Abatement Guidelines*.

The Noise Technical Report shall determine and document the noise effects of any changes to the vertical and horizontal alignment, if they exceed the changes described above, from the Reference Documents. The noise analysis and Noise Technical Report shall include a detailed description of the locations where the horizontal and vertical Roadway elevations have changed from the Reference Drawings. The noise analysis and Noise Technical Report shall determine if any new receptors that have become eligible for noise abatement due to geometrical Roadway changes or changes that would affect line of sight between the noise source and the receptor via design. If any new receptors have become eligible for noise abatement because of changes in the vertical or horizontal alignment, the Contractor shall include that information in the analysis for recommended noise abatement and Noise Technical Report. The Contractor shall ensure proposed mitigation measures are consistent with mitigation

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

standards identified in the Environmental Mitigation Tracking Form in Exhibit 5-A and State and Federal guidelines.

The Contractor shall submit documentation with the noise analysis and Noise Technical Report verifying the analysis was performed by a qualified individual with expertise in the field of highway noise analysis in Colorado. If additional noise abatement is required because of Contractor-initiated changes to the vertical or horizontal alignment, all costs for the additional noise abatement shall be included in the GMP.

5.5.2.2 New Noise Abatement

The following Reference Documents proposed no new noise abatement within the Project limits:

1. *US 550 EA/FONSI* (December 2005)
2. *US 550 EA/FONSI Reevaluation* (May 2019)
3. *US 550 at US 160 South Connection Supplemental FEIS/ROD* (April 2015)
4. *US 550 at US 160 South Connection Supplemental FEIS/ROD Reevaluation* (May 2019)

If final design of the Project results in the requirement for noise abatement infrastructure in additional locations, the Contractor shall provide this infrastructure to meet the requirements of CDOT and FHWA guidelines. Additional new noise abatement analysis shall be required if changes to the final vertical or horizontal alignment, or any new Type I action, trigger eligibility as referenced in the noise analysis and Noise Technical Reports referenced above. New noise abatement infrastructure requirements triggered by changes to the Roadway geometry or surrounding geometries between the noise source and receptors shall be the responsibility of the Contractor.

The Contractor shall submit a Preliminary Noise Technical Report that contains the location and design of the proposed noise abatement in the affected area. CDOT Acceptance of the Preliminary Noise Technical Report is required before the Benefited Receptor Preference Survey can be completed.

When the Preliminary Noise Technical Report has been Accepted, the Contractor shall conduct the Benefited Receptor Preference Survey, as described in the current CDOT *Noise Analysis and Abatement Guidelines*. The Contractor shall provide all material necessary to conduct the survey, including exhibits, flyers, door hangers, ballots and return mail envelopes. The Contractor shall conduct a public meeting on the proposed noise abatement design. The Contractor shall allow CDOT the opportunity for ongoing over-the-shoulder review of all planning Activities associated with the Benefited Receptor Preference Survey. The Contractor shall submit the plan of the Benefited Receptor Preference Survey for Acceptance at least 14 Days before initiating the survey, including the geographic limits of the survey, procedures for conducting the survey, procedures for analyzing the results, and printed material and other media to be used for the survey.

After the Benefited Receptor Preference Survey is completed, a final Noise Technical Report shall be completed to document the final design noise analysis, final geometry, and details of the noise barriers. This report shall be submitted to CDOT for Acceptance as part of the RFC Documents submittal.

Noise abatement structures shall be designed and constructed in accordance with Chapter 18 of CDOT's *Roadway Design Guide*. Barriers shall be built without open joints or gaps. Joints between noise barrier elements shall be minimized. Where joints are necessary, they shall be designed in such a way that no light can pass through them.

Proposed noise walls if required shall be placed in locations that will accommodate the Project. Noise abatement structures shall be constructed to the Structural and Aesthetic requirements in Book 2, Section 15.

5.5.2.3 Construction Noise and Vibration

The Contractor shall comply with all applicable La Plata County noise ordinances and regulations, unless the Contractor secures a variance. The Contractor shall acquire the variance prior to the start of any associated construction Activities and be solely responsible for compliance with the Permit requirements.

Prior to the start of construction, the Contractor shall prepare and submit a Noise and Vibration Mitigation Plan for Acceptance to CDOT prior to ENTP. The Noise and Vibration Mitigation Plan shall outline allowable daytime and allowable nighttime Work, projected noise levels, and locations and types of noise and vibration abatement measures for the associated construction Activities.

5.5.3. Cultural/Historical Resources, Archaeological Resources, and Historic Section 4(f) Resources

All areas of existing ROW have been surveyed, and the Project, as described in Book 2, Section 1, requires no further survey for cultural resources. If the area of construction disturbance increases in culturally/Archeologically sensitive areas, the ultimate extent of construction shall be submitted for Approval. If modifications to the Project cause new impacts and/or require mitigation. The Contractor shall be responsible for coordinating the new impacts and/or required mitigation with CDOT to obtain the State Historic Preservation Office (SHPO) approval. The cost of the new impacts and/or required mitigation shall be included in the GMP.

The Contractor shall notify CDOT of any previously unidentified historic, eligible for listing on the National Register of Historic Places, or Archaeological resources encountered or unearthed during construction. Upon discovery of any historic or Archaeological resources, the Contractor shall immediately cease Work in the vicinity of the discovery, fence off the area, and notify the CDOT archaeologist or cultural resource staff by calling the Cultural Resource Program Manager at 303-757-9631. CDOT will determine the resource mitigation requirements the Contractor shall implement. The Contractor shall not resume Work in the area until receiving formal notification from CDOT allowing Work to recommence.

Book 2, Section 11, includes a Project Special Provision related to encountering Archeological resources during earthwork Activities.

The Contractor shall clearly delineate environmentally sensitive areas on all RFC Documents, these areas will be shown as “No Parking and No Staging Areas”. This includes areas located outside the limits of disturbance, as well as areas within the construction limits that require construction monitoring.

5.5.4. Paleontology

All areas of existing ROW have been surveyed, and the Project, as described in Book 2, Section 1, requires no further survey for paleontological resources. The Contractor shall provide RFC Documents to the CDOT paleontologist for review at least 14 Days prior to associated construction Activities to determine the extent of impact beyond (if any) areas previously surveyed. If modifications to the Project cause new impacts and/or require mitigation, the Contractor shall be responsible for coordinating the new impacts and/or required mitigation with CDOT, who will coordinate with the State Historic Preservation Office (SHPO) for approval. The cost of the new impacts and/or required mitigation shall be included in the Upset Amount (UA).

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

If paleontological resources are uncovered during Project construction, the Contractor shall immediately notify CDOT paleontological staff by calling the Cultural Resource Program Manager at 303-757-9631 and follow procedures in Section 107.23 of the CDOT *Standard Specifications*.

5.5.5. Trails, Parks, and Recreation

These resources will not be impacted or require mitigation by the Project. If the Contractor causes impact to this environmental resources, the Contractor shall be responsible for the Work needed to obtain clearance from CDOT, any mitigation required as a result of the impact, and any Permits necessary to complete the Work.

5.5.6. Vegetation

5.5.6.1 Disturbance Areas

The Contractor shall reseed and protect temporary disturbance areas with approved control measures to avoid disturbance to existing vegetation. See Book 2, Section 17 for the seeding requirements.

5.5.6.2 Temporary Construction Access Plan

The Contractor shall provide a Temporary Construction Access Plan for CDOT Approval at least 14 Days prior to ENTP. The development of the plan shall include a Site visit with the CDOT Environmental Manager, who will provide direction on what resources shall be avoided, the plan shall also specifically address access to Gulch A and Gulch B during construction. The Contractor shall comply with the requirements of Book 2, Section 11, and Book 2, Section 17. The Contractor shall notify CDOT of the Site visit 2 weeks prior to the date of the Site visit.

5.5.6.3 Weed Management

The Contractor shall take actions necessary to control all State listed noxious weeds within the Project limits. Prior to construction, the Contractor shall perform an initial noxious weed survey, and prepare a current Integrated Noxious Weed Management Plan for inclusion in the Final ECWP. The Integrated Noxious Weed Management Plan shall be submitted for Acceptance prior to ENTP.

The plan shall include a variety of species-specific control methods based on the size of the weed populations and the surrounding landscape. Weed mitigation efforts shall take place at a minimum twice per year (spring and fall). The plan shall be implemented throughout Project construction as appropriate. The plan shall include monthly noxious weed surveys during the growing season, March through October, to identify and treat noxious weeds. Weed-infested staging areas shall not be allowed. Staging areas shall be mowed and cleared of noxious weeds and sprayed with the appropriate herbicide, or as referenced in the Colorado Department of Agriculture species fact sheets. Topsoil salvaged from the Site and stockpiled for reuse on the Site shall be treated in accordance with the methodology described in the first ECWP to eliminate noxious weeds prior to salvage. Topsoil stockpiles shall be monitored during the monthly noxious weed Surveys and treatment shall be implemented as needed. If imported topsoil is used for any part of the Project, the topsoil shall be inspected and certified noxious weed free. Mitigated sites shall be monitored at least twice over the first growing season following construction, and follow-up weed control shall be provided where needed.

5.5.7. Wildlife

The installation of under crossings, game ramps, and fencing. Design, at a minimum, shall include the following:

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

1. Game ramps shall be placed at intervals of 4 ramps total per mile, 2 ramps each side of US 550, and per CDOT Standard M-607-4. The locations of game ramps shall be submitted to CDOT for Approval.

Requirements for design and location of game ramps shall include the following: ROW impacts, long-term maintenance access, egress and ingress considerations, ramp height, flat landings and areas that are not developed (i.e., commercial or fenced residential properties).

2. Small mammal crossings shall be located, on average, every 750 feet, and shall be sized between 3 feet and 5 feet in diameter, with an average of 4 feet in diameter in total along the Project. The locations of small mammal crossings shall be submitted to CDOT for Approval. Distance between these crossings will be influenced by topography and impacts to the Roadway elevations.

Requirements for design and location of small mammal crossing ramps shall include the following: natural substrate floor, mostly dry -not intended to convey roadway or storm drainage (they shall not be permitted to be placed in intermittent or perennial drainages, ROW impacts, long-term maintenance access. The wildlife fencing shall be continuous and cross above the opening on the wingwalls and headwalls of the undercrossing so the terminus is within ROW. Flared end sections will not be allowed.

3. Wildlife underpass(s) shall be provide a minimum opening of 32-feet wide by 13-feet tall and must have a natural substrate bottom of a minimum of 1-foot in depth.
4. A wildlife underpass shall be placed at station 958+. Barrier and/or guardrail shall not be placed along the Frontage Road in this location. A 10-foot flat area shall be provided at the openings of the underpass with a maximum slope of 10:1. Grading between the Frontage Road and the underpass shall not exceed 4:1.

An additional wildlife underpass is included with the AREs as defined in Book 2, Section 1. The underpass shall be placed a minimum distance of one mile south from the underpass at station 958+. The location of the second wildlife underpass shall be submitted to CDOT for Approval if placed as part of an ARE. The approval process will include CDOT's coordination with Colorado Parks and Wildlife (CPW).

5. Deer guards shall be placed at the ends of all curb return radii at all private and County Road accesses off of mainline US 550. Deer guards shall be designed per the details found in the Contract Documents. See Book 2, Section 13, for additional requirements.
6. Wildlife fencing shall be installed in accordance with Book 2, Section 1.

Refer to Book 2, Section 13, for additional requirements and the FHWA-CFL/TD-11-003 *Wildlife Crossing Structure Handbook* for additional design criteria for wildlife undercrossing, fencing, and game ramps.

5.5.7.2 Federally Listed Species

The Project, as described in Book 2, Section 1, requires no further coordination with the U.S. Fish and Wildlife Service (USFWS). If modifications to the Project cause new impacts and/or require mitigation, the Contractor shall be responsible for coordination with CDOT for USFWS concurrence, including preparation of a revised Biological Assessment for CDOT Approval and USFWS concurrence. The cost of the impacts and/or mitigation due to the new impacts and/or required mitigation shall be included in the GMP.

The primary area of concern for threatened and endangered species is Wilson Gulch. The Project, as described in Book 2, Section 1, results in a direct impact to habitat in Wilson Gulch, from construction noise and activity for the Wilson Gulch Roundabout Bypass Lane. Should modifications to the Project result in additional direct impacts, such as tree and shrub removal, USFWS coordination shall be

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

required. The potential for design modifications to effect federally listed species decreases at 0.25 mile from Wilson Gulch. CDOT has performed several southwestern willow flycatcher surveys along Wilson Gulch with negative results (no birds detected).

Pre-construction surveys shall be required by the Contractor to determine presence or absence of southwestern willow flycatchers when construction activities occur within 0.25 mile of suitable willow habitat. However, surveys are not required if construction within 0.25 mile of the Wilson Gulch area commences prior to May 1, 2020, and there is continual construction activity. If Work in this area commences between May 1 and August 15, the Contractor shall be required to perform surveys.

See Exhibit 5-A for all a mitigation commitments associated with federally listed species.

5.5.7.3 Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act

The Contractor shall comply with the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act at all times, including conducting preconstruction surveys for nesting birds set forth by USFWS, CPW, and Project Special Provision Revision of Section 240.

The Contractor shall schedule Work to avoid taking (pursue, hunt, take, capture or kill; attempt to take, capture, kill or possess) migratory birds protected by the MBTA. The incidental taking of a migratory bird shall be reported to CDOT. The Contractor shall be responsible for all penalties levied by the USFWS for the taking of a migratory bird.

The Contractor shall retain a qualified wildlife biologist, with a minimum of 3 years of experience conducting migratory bird and raptor surveys, to implement the requirements of the MBTA. The Contractor shall submit documentation of the biologist's education and experience to CDOT for Acceptance prior to commencement of any associated Work.

To the extent possible, vegetation removal Activities will be timed to avoid the migratory bird breeding season (April 1 through August 31). Areas that must be scheduled for vegetation removal between April 1 and August 31 shall be surveyed for nests, and a Migratory Bird Nest Survey Memorandum shall be submitted to CDOT for Acceptance prior to removing vegetation. Work buffers and Work exclusion zones shall be implemented as necessary to avoid impacts to nesting birds. Appropriate inactive nest removal and hazing/exclusion measures shall be incorporated into the Work to avoid the need to disturb active migratory bird nests.

The Contractor shall complete raptor nest surveys to evaluate for the presence of active raptor nests within 0.5 mile of the Project area. This survey shall be completed between February 1 through July 15. Raptor nest surveys shall be conducted no more than 7 Days prior to starting construction of the Project. Surveys for nocturnal bald eagle roosts shall be conducted between November 15 and March 15 prior to starting construction. If an active nest or roost is located in or near the Project area, the Contractor shall contact CDOT regarding use of seasonal buffers to prevent disturbance to nesting birds during construction. A Raptor Survey Memorandum shall be submitted to CDOT for Acceptance prior to construction occurring within 0.5-mile of a raptor nest.

5.5.7.4 Gunnison Prairie Dogs

The Project area is within the range and offers suitable habitat for occupation by Gunnison's prairie dog. Active prairie dog burrows may be present within the agricultural fields, grazed pastureland, vegetated ROW, as well as woodland edges and openings within the Project area. Prairie dogs may be present as a clan or single family group with several characteristic burrows and mounds marking their home territory, or several clans may reside adjacent to one another forming a larger colony displaying a complex of burrows. CDOT completed a prairie dog survey along the project area ROW for the Ultimate

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

Configuration on July 2nd, 2019. Active prairie dog colonies were identified and the mapping is provided in the reference documents. However, the area in the Wilson Gulch roundabout bypass lane Addendum was not included in this survey

The Contractor shall follow all applicable Local, State and Federal laws, policies and regulations including the *CDOT Impacted Black-Tailed Prairie Dog Policy* (CDOT, 2009), Project Special Provision Revision of Section 240, and the CPW regulations (*CPW General Provisions*). At no time shall earth-moving Activities be performed that result in the burial of living prairie dogs. To achieve this guideline the prioritization of prairie dog management is:

1. Avoidance and minimization of impacts.
2. Passive relocation.
3. Active relocation, although this may not be feasible as an appropriate relocation site may not be found.
4. Humanely euthanize in coordination with CPW.

The Contractor shall submit a Gunnison's Prairie Dog (GPD) Management Plan specifying and quantifying anticipated impacts to active prairie dog burrows and the proposed methods to be employed to ensure compliance with the GPD policies. The GPD plan will be submitted for Approval prior to ENTPE, additional approvals will be necessary by CPW and any other agencies as necessary. Approval is required before impacts to GPD habitat or species may occur.

The presence of active prairie dog burrows within 150 feet of the Project limits will necessitate pre-construction surveys for burrowing owl following guidelines developed by the CPW, *Recommended Survey Protocol and Actions to Protect Nesting Burrowing Owls When Conducting Prairie Dog Control*. Surveys shall be performed of active prairie dog burrows within 150 feet of the Project area between March 15 and October 31. Surveys shall be performed by the Contractor's biologist. Guidelines recommend a minimum of 3 surveys separated by approximately 1 week. If burrowing owls are detected during the survey effort, the CDOT regional biologist in coordination with the CPW, will determine if construction Activities need to be modified or limited in certain areas of the Project in order to comply with the CPW, *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* and the State of Colorado's Endangered-Threatened Species Conservation Act.

The Contractor shall submit a burrowing owl survey to CDOT for Acceptance within 7 Days prior to disturbance of GPD colonies. The Contractor shall submit burrowing owl survey documentation to CDOT for Acceptance prior to impacts to GPD habitat or species.

5.5.8. Visual Resources

Visual impacts associated with the Project, as described in Book 2 Section 1, were identified in the US 550 EA/FONSI Reevaluation (May 2019) and US 550 at US 160 South Connection Supplemental FEIS/ROD Reevaluation (May 2019).

If changes to the Project result in additional visual impacts, the Contractor shall be responsible for providing the necessary mitigation measures and obtain all required approvals, including a NEPA reevaluation(if necessary), associated with the Work.

5.5.9. Water Quality

Permanent water quality for the Project is not required. The Contractor shall prevent and/or minimize erosion, sedimentation and pollution of any State waters.

The Contractor shall comply with all aspects of:

Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements

1. The Colorado Discharge Permit System – Stormwater Construction Permit (CDPS-SCP) issued by CDPHE.
2. On lands owned by the Southern Ute Indian Tribe, the National Pollution Discharge Elimination System Permit (NPDES), issued by the U.S. Environmental Protection Agency (EPA).
3. CDOT's Water Quality Specifications CDOT *Standard Specifications* Subsection 107.25 and Sections 208, 213 and 216.
4. CDOT *M&S Standards* M-208-1 and M-216-1.

The Contractor shall comply with the following additional requirements.

1. The Contractor shall have a CDOT-certified Stormwater Management Plan (SWMP) Preparer design the Project's complete SWMP per *MS4 Construction Program Manual*, Standard Operating Procedure [SOP] D5: SWMP Design and Review. (MS4 Permit, Part I.E.1.a.iv(A)). The SWMP shall be developed to meet the needs of both the CDPS-SCP and the NPDES Permit.
2. The Contractor shall notify CDOT for inspection of Initial Control Measure installation for conformance with the Project's SWMP and CDOT's Water Quality Specifications and State and Federal Regulatory Requirements. The Contractor shall not open ground until the Initial Control Measure installation inspection has occurred and CDOT, through the Region Water Pollution Control Manager (RWPCM), has confirmed the installation conforms to the Project SWMP and CDOT's Water Quality Specifications and State and Federal Regulatory Requirements.
3. Each TECS [Transportation Erosion Control Supervisor]-certified Erosion Control Inspector (ECI) shall inspect no more than 40 acres of active Project area. Additional TECS-certified ECI staff are required for each additional 40 acres of active Project area.
4. During active construction, the Project's SWMP must be evaluated for conformance with CDOT's Water Quality Specifications and State and Federal Regulatory Requirements by a CDOT-certified SWMP Reviewer before the Contractor shall be allowed to open new ground, amend the SCP, apply for a new SCP, or implement other major modifications to the SWMP identified in CDOT's *MS4 Construction Program Manual*, SOP C1 (SWMP Design Modifications During Construction).
5. During active construction, CDOT will evaluate minor modifications to the Project's SWMP for conformance with CDOT's Water Quality Specifications and State and Federal Regulatory Requirements prior to issuance of CDOT issuing corrective action as per *MS4 Construction Program Manual*, SOP C1: SWMP Design Modifications During Construction.
6. The Contractor shall complete an After Action Review (AAR) after every reportable noncompliance, as defined in the CDPS-SCP or NPDES Permit. The AAR will identify control measure and SWMP failures and how and when these will be resolved. The Contractor shall submit each AAR to the CDOT and file a copy in the SWMP notebook.
7. A summary of all water quality protection Activities that have occurred during the reporting period shall be included in ECSRs, as outlined in Section 5.4.
8. The Contractor shall inform the CDOT Project Engineer and, if necessary, the Region Water Pollution Control Manager of all water quality and erosion control-related communication with Local, State, and Federal regulatory agencies.

Refer to Section 5.5.10 for waters of the U.S. requirements; Book 2, Section 3, for quality requirements; Book 2, Section 12, for drainage requirements; and Book 2, Section 17, for Landscape stabilization and Warranty requirements.

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

The Contractor shall submit a SWMP Plan to CDOT for Review in accordance with the requirements above prior 30 Days prior ENTP.

5.5.9.1 CDPHE CDPS and NPDES System

CDOT will obtain the CDPS and NPDES permits from CDPHE and EPA. The Contractor shall submit the SWMP 30 days prior to ENTP. CDOT will obtain these permits a minimum of 10 Days prior to the start of construction and CDOT and the Contractor will be co-owners for the CDPS permit and CDOT will be the owner of the NPDES permit.

All stormwater requirements, including the Stormwater Management Plan (SWMP), shall be fulfilled in accordance with CDPS-SCP, Specification 208 of the CDOT *Standard Specifications*, and in accordance with the NPDES Permit. CDOT will perform monthly audits.

The Contractor shall have properly trained and certified staff on Site who will manage, administer and inspect the Project to ensure the construction control measures are adequate for the Site conditions of the Project and are in good working condition. The Contractor shall prevent the discharge of any sediment or pollutants from the construction Activity into any storm drains or receiving waters during the life of the CDPS-SCP and NPDES Permit.

5.5.9.2 Dewatering Permit

The Contractor shall obtain a Construction Dewatering, Remediation, or Individual Permit from the CDPHE for any dewatering of groundwater during construction in accordance with Water Quality Control Division (WQCD) requirements. The Permit shall be obtained prior to the start of discharge Activities. The Contractor shall provide all information needed to assist the WQCD in their evaluation and setting of a water quality standard for this Permit, which may include monitoring of the discharged water. If the Contractor's Activities require a permanent dewatering system, any such system will require the Approval of CDOT prior to submitting a Subterranean Dewatering Permit.

If the Contractor's Activities result in a consumptive use during construction, the Contractor shall obtain a Substitute Water Supply Plan from the Division of Water Resources. If any dewatering Activities are required after construction, the Contractor shall design, operate, and maintain the dewatering system so that no consumptive use of the water occurs.

The Contractor shall monitor for any settlement caused by dewatering. The Contractor shall conduct a preliminary survey of any private property or buildings that may be affected by dewatering to establish existing conditions. The Contractor shall repair any damage caused by dewatering operations.

5.5.10. Wetlands and Waters of the U.S.

CDOT has obtained the Section 404 Permit for the Project. The Contractor shall comply with the requirements and special conditions outlined in the Section 404 Permit. If the Contractor modifies the conditions set in the Project 404 Permit, the Contractor shall be responsible for preparing a Clean Water Act, Section 404 Permit Application for impacts to waters of the U.S., including wetlands.

5.5.10.1 Wetlands Field Identification

If the Contractor proposes to work in areas outside of the wetland delineation conducted for the *US 550 EA/FONSI* (December 2005), *US 550 EA/FONSI Reevaluation* (May 2019), *US 550 at US 160 South Connection Supplemental FEIS/ROD* (April 2015), and *US 550 at US 160 South Connection Supplemental FEIS/ROD Reevaluation* (May 2019); the Contractor shall delineate the additional Project area for waters of the U.S., including wetlands.

5.5.10.2 Section 404 Permit

The application shall be submitted to CDOT for Review and Approval before it is submitted to the U.S. Army Corps of Engineers (USACE). USACE typically takes 1 year to approve an Individual Permit and 2 months to approve a Nationwide Permit. Depending on the Project limits of the modifications, the issuance of a new Section 404 Permit may require Section 7 and Section 106 compliance.

If modifications to the Project, require a USACE Section 404 Individual Permit, the Contractor shall be responsible for obtaining the resulting Section 401 Water Quality Certification from CDPHE. This Section 401 Water Quality Certification would be separate from the one obtained in conjunction with the NPDES permit. This process can take 2 to 6 months, and shall be completed concurrent with the Section 404 Individual Permit application review by USACE.

The Contractor shall be responsible for submitting a Wetland Finding Report if impacts exceed the thresholds identified in the 2006 Memorandum of Agreement between FHWA and CDOT regarding the programmatic approval of Wetland Findings. The Wetland Finding Report shall be Accepted by CDOT. A Functional Assessment of Colorado Wetlands (FACWet) analysis shall be performed if permanent wetland impacts meet or exceed 0.10 acre.

5.5.10.3 Wetlands and Waters of the U.S. Mitigation

CDOT will be responsible for purchasing wetland mitigation bank credits for the Project. If the Contractor modifies the Project the Contractor shall be responsible for the purchase of additional mitigation credits at a 1:1 ratio.

5.5.10.4 Section 401 Water Quality Certification

CDOT obtained a Section 401 Water Quality Waiver from EPA for jurisdictional wetland and waters of the U.S. impacts within the external boundary of the Southern Ute Indian Tribe reservation. EPA confirmed a 401 permit is not warranted, due to there being a 404 permit already obtained by the USACE for the project. The contractor shall adhere to the terms and conditions of the Section 404 Water Quality Certification.

5.5.11. Other Permits

1. If necessary, the Contractor shall submit a Section 404 Individual or Nationwide Permit Application to CDOT for Review and Approval before it is submitted to the USACE.

5.6 Recognized Hazardous Materials

Recognized Hazardous Materials (RHM) are defined as the presence or suspected presence of Hazardous Substances which may require management and/or disposal. Hazardous Substances may exist on the surface, subsurface, in groundwater, or on structures to be demolished, and may be mixed with soil, water, and/or other waste materials.

RHMs have been identified at two locations adjacent to the Project. The Contractor's attention is directed to the following for information related to the RHMs:

1. *US 550 EA/FONSI* (December 2005)
2. *US 550 EA/FONSI Reevaluation* (May 2019)
3. *US 550 at US 160 South Connection Supplemental FEIS/ROD* (April 2015)
4. *US 550 at US 160 South Connection Supplemental FEIS/ROD Reevaluation* (May 2019)

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

The Contractor is advised to thoroughly read and understand the findings and requirements in the Environmental Site Assessments that have been prepared, for any RHMs within the Project limits.

As part of the ROW acquisition process, CDOT will be complete a Phase II investigation and remediation at Weaselskin Corporation 12995 South Highway 550.

5.7 Materials Management Plan

The Contractor shall develop a Materials Management Plan (MMP) to be submitted for Approval by CDOT prior to issuance of ENTP. The Contractor shall comply with all provisions set forth within the Approved MMP.

The MMP shall identify potential RHMs: locations, extent of impact, proposed Remediation Work, avoidance measures, investigation measures, as well as contingency planning for addressing unforeseen conditions. The plan shall identify the Contractor's representative responsible for environmental compliance, the proposed design and construction staff, and approach to implementation of the MMP. The plan should also include a narrative describing how the MMP will inform the design, and how the MMP will raise awareness during construction. In addition to meeting the requirements of Section 250 of the CDOT *Standard Specifications*.

The MMP shall include the following provisions:

1. The Contractor shall manage all RHMs including soils, groundwater, surface water, and other contaminated substances to prevent exposure to Project personnel and the public, and to prevent any contamination of non-contaminated areas.
2. Contractor shall manage the design such that RHM location avoidance is considered a primary consideration.
3. The Contractor shall classify such wastes according to one of the following categories:
 - A. Hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) requiring off Site disposal and/or treatment.
 - B. Contaminated soils requiring off Site disposal.
 - C. Soils to be stockpiled for further characterization.
 - D. Soils with concentrations of waste constituents below regulatory concern that can be reused without restriction.
 - E. Wastewater requiring off Site disposal and/or treatment.
 - F. Impacted water to be held for further characterization.
 - G. Asbestos containing material discovered during construction or demolition.
 - H. Lead-based paint associated with Structures, signage, light posts, etc.
 - I. Waste material to be contained for further characterization.
 - J. Contaminated groundwater requiring on Site treatment or off Site disposal.
4. Prior to commencing any Remediation Work, a scope of work shall be submitted to CDOT for Approval. The Contractor shall utilize the most cost-effective approach in the performance of any remedial action deemed necessary. Remediation Work shall not include sampling, characterization, stockpiling or disposal of materials that are determined not to require off Site disposal and/or treatment.

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

5. The Contractor shall not allow Hazardous Substances to be spilled or tracked off Site at any time during the Project.
6. The Contractor shall be responsible for locating storage facilities and disposal sites for RHMs that are to be removed from the Work Site.
7. The Contractor shall maintain documentation of completed waste profiles, manifest forms, and bill-of-lading forms for proper transportation and disposal of materials off Site. This information shall be available at all times for review by CDOT. The Contractor shall be held responsible for ensuring that all requirements of the transporter and receiving disposal facility and Federal, State, and Local statutes, rules, regulations and ordinances are complied with and properly documented.

At the conclusion of the implementation of the MMP and Voluntary Cleanup Program (VCUP) Activities, a No Further Action Determination (NAD) petition for each of the properties where residual or unknown contamination is encountered within the Project shall be prepared by the Contractor and submitted to CDOT for Approval. Once approved the NAD will then be submitted to CDPHE for review and approval. If no residual or unknown contamination is encountered a NAD will not be required.

The NAD Petition shall include the following sections and appendices:

1. Project Background
2. Waste Management During Demolition
3. Characterization Sampling Data
 - A. Soil Management and Disposal Data
 - B. Waste Streams Disposed Off Site
4. Wastes Managed On-Site
5. ROW Maps
6. Groundwater Management and Disposal Data
7. Property Use Restrictions, Restrictions on Groundwater Use
8. Summary of Variances of Regulatory Standards
9. Qualified Environmental Professional Certification
10. Appendices
 - A. Photographs, Figures, and Tables
 - B. Analytical Results
 - C. VCUP addendums and copies of correspondence with CDPHE and Colorado Division of Oil and Public Safety (OPS)
 - D. Waste Manifests

5.7.2. Sampling and Analysis Plan

The Contractor shall develop a Sampling and Analysis Plan (SAP) to identify and characterize potential RHMs that may be encountered during the Work that have not been adequately characterized in existing reports and based on the Contractor's construction or design. The SAP shall also provide for monitoring/screening during construction Activities to provide safety controls in areas previously not

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

identified. In addition to complying with Section 250 of the CDOT *Standard Specifications*, the SAP shall include:

1. Data quality objectives.
2. Sample collection procedures (field screening, borehole drilling, monitoring well construction, soil sampling and/or groundwater sampling methods, and decontamination).
3. Quality control.
4. Field equipment calibration procedures/frequency.
5. Quality assurance objectives (data).
6. Provisions for corrective action, if needed.

The final SAP shall be submitted to CDOT for Acceptance no later than 30 Days prior to ENTP. Acceptance of this plan shall be a condition for issuance of ENTP.

5.7.3. Health and Safety Plan

The Contractor shall develop a Health and Safety Plan (HASP) for the Work, as required by Section 250.03 of the 2017 CDOT *Standard Specifications*, CDOT MMP, and the CDOT Asbestos-Contaminated Soil Management SOP, as appropriate. The HASP shall be submitted to CDOT for Acceptance prior to ENTP.

The Contractor shall distribute the HASP to all employees that could be potentially exposed to RHMs. The HASP shall be displayed or made available on Site at all times. The Contractor shall develop and maintain all industrial hygiene information on Site, including “right-to-know” information. In addition to meeting the requirements of Section 250 of the CDOT *Standard Specifications*, the HASP shall include the following provision:

“The Contractor shall maintain documentation and provide information to CDOT, as requested, regarding potential or actual exposure to the public. The Contractor shall maintain records of all related incidents and notify CDOT and appropriate State authorities immediately.”

The Contractor shall provide to CDOT identification of all Subcontractors to be used in the performance of Work required within this Section prior to performing any such Work. The Contractor shall maintain documentation of all pertinent certifications of all subcontractors and make it available to CDOT upon request.

5.7.4. Spill Response Plan

The Contractor shall develop a Spill Response Plan (SRP) for the Work, as required by Section 208 of the CDOT *Standard Specifications*, CDOT MMP, and the CDOT Asbestos-Contaminated Soil Management SOP as appropriate. The SRP shall be submitted to CDOT for Acceptance prior to ENTP.

The SRP shall establish operating procedures for handling pollutants and preventing spills. Pollutant sources include, but are not limited to, exposed and stored soils, paints, solvents, fertilizers or chemicals, vehicle tracking, management of contaminated soils, loading and unloading operations, outdoor storage, vehicle/Equipment maintenance and fueling, significant dust or particulate generation, on Site waste management practices, concrete truck/Equipment washing, dedicated asphalt and concrete batch plants, and non-industrial waste sources that may be significant, such as trash and portable toilets.

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

During the environmental task force meetings, the Contractor shall discuss the submittals of the MMP, SAP, HASP, and SRP. The Contractor's ECM and the Contractor's Safety Manager shall be present at the meeting. The Contractor shall incorporate comments into the submitted MMP, SAP, HASP, and SRP as agreed to during this meeting.

The Contractor shall comply with all provisions set forth in the Approved MMP, SAP, HASP, and SRP and shall maintain documentation of all pertinent certifications of all Subcontractors, which shall be available upon request by CDOT. The Contractor shall comply with all applicable requirements, including, but not limited to, all Federal, State, and Local Environmental Laws and regulations and CDOT *Standard Specifications*, Section 250, Environmental, Health and Safety Management; Section 208, Erosion Control; and any Project Special Revisions for the management and disposal of the RHMs. The Contractor shall notify CDOT within 24 hours if contacted by any regulatory agencies or Third Parties concerning RHMs associated or potentially associated with the Contract requirements. The Contractor shall coordinate all Work with CDOT and shall not discuss or negotiate with any regulatory agencies or Third Parties on behalf of CDOT. The Contractor shall support CDOT with necessary information, data and exhibits if any discussions or negotiations with any regulatory agencies or Third Parties are necessary.

5.7.5. Monthly Statement of Regulated Hazardous Materials Management

The Contractor shall submit a monthly statement of RHM Management reports to CDOT for Review on all Activities associated with the Contract. The Contractor shall coordinate with CDOT to determine the format of the reports prior to conducting the associated construction Activities.

5.7.6. Quarterly Summary of Hazardous Materials Management

The Contractor shall submit quarterly reports to CDOT for Review and then subsequent submittal to CDPHE. The reports shall contain "Tasks/Activities Completed," "Tasks Expected for Next Reporting Quarter," "Percent Complete," and "Issues to be Resolved."

Prior to demolition Work on any ROW of any Structures, or removal of Utility lines, the Contractor shall determine the presence or absence of lead- or asbestos-containing materials. If lead or asbestos is present, the Contractor shall conduct abatement in accordance with Section 250.

See Book 1 for payment of Hazardous Substances Management.

The Contractor shall be responsible for identification and performance of all Activities required within this Section associated with Utility Work being performed for the Project.

The Contractor shall be responsible for removal of any facilities and equipment installed within the Project limits related to performance of the Work under this Section prior to completion of the Project.

5.8 NEPA Reevaluation and Environmental Certification

5.8.1. NEPA Reevaluation

If the Contractor proposes or creates a design change beyond the Project, as described in Book 2, Section 1, these changes shall be tracked, documented, and assessed as to whether or not they have resulted in a new impact or changed the impact to an already accounted for environmental resource. The changes shall be assessed per policies, procedures, guidelines, or regulatory requirements specific to that resource. If necessary, per input from CDOT, the Contractor shall be responsible for documenting that change through the requirements and conditions of CDOT Reevaluation Form (#1399). The

**Request for Proposal
 US 550 / 160 Connection South Design Build
 NHPP 5501-029, Sub Account: 22420
 Book 2 – Technical Requirements
 Section 5 – Environmental Requirements**

Reevaluation Form (#1399) shall be submitted to CDOT for Approval documenting any other Work that was not included in one of the following NEPA documents:

1. *US 550 EA/FONSI* (December 2005)
2. *US 550 EA/FONSI Reevaluation* (May 2019)
3. *US 550 at US 160 South Connection Supplemental FEIS/ROD* (April 2015)
4. *US 550 at US 160 South Connection Supplemental FEIS/ROD* (May 2019)

Ten business Days are required for CDOT Approval. CDOT will then submit to FHWA for approval of the Reevaluation Form (#1399), which requires 4 weeks. Upon receipt of FHWA’s approval CDOT will authorize the Contractor to perform the Work.

In addition, the Contractor shall be responsible for additional environmental documentation, Permits, and mitigation resulting from impacts associated with any Project change at the Contractor’s expense. The Contractor shall accept responsibility for any additional schedule impacts required to obtain the appropriate approvals and regulatory clearances throughout the Project.

5.8.2. Environmental Certification

Even if there are no changes or a reevaluation, the Contractor shall complete a final environmental certification prior to the Work. This certification is documented via the CDOT Form #128. While CDOT is responsible to populate the form, the Contractor shall be responsible to submit all documentation and obtain all necessary Approvals that support this certification.

5.9 Environmental Permits

The Contractor shall be responsible for obtaining all governmental and agency Permits required for the Work, not otherwise obtained by CDOT, including, but not limited to, the Permits in Table 5-2.

Permits that have been obtained by CDOT during the development of the Project, as described in Book 2, Section 1, are included in Book 3. Permits are subject to final review and approval by the appropriate Permitting Agency.

Table 5-2 Required Environmental Permits

Permits/Approvals	Permitting Agency	Permit Responsibility (CDOT or Contractor)
Colorado Discharge Permit System (CDPS - SCP) Stormwater Construction Permit	Colorado Department of Public Health and Environment – Water Quality Control Division	CDOT/Contractor (co-owners)
NPDES Permit	U.S. Environmental Protection Agency	CDOT
Clean Water Act, Section 404 Permit	U.S. Army Corps of Engineers	CDOT – for the Project
Clean Water Act, Section 404 Permit	U.S. Army Corps of Engineers	Contractor – if modifications to the Project
Section 401 Water Quality Certification	Colorado Department of Public Health and Environment	Contractor – if modifications to the Project
Section 401 Water Quality Certification	U.S. Environmental Protection Agency	CDOT

**Request for Proposal
 US 550 / 160 Connection South Design Build
 NHPP 5501-029, Sub Account: 22420
 Book 2 – Technical Requirements
 Section 5 – Environmental Requirements**

Permits/Approvals	Permitting Agency	Permit Responsibility (CDOT or Contractor)
Clean Water Act Section 402 Construction Dewatering Permit, Remediation, or Individual Construction Dewatering Permit, if contaminated groundwater is expected to be encountered.	Colorado Department of Public Health and Environment – Water Quality Control Division	Contractor
Subterranean Groundwater Permit	Colorado Department of Public Health and Environment – Water Quality Control Division	Contractor
Non-Extractive Industries Storm Water Permit	Colorado Department of Public Health and Environment – Water Quality Control Division	Contractor
Remediation Activities Discharging to Surface Water Permit	Colorado Department of Public Health and Environment – Water Quality Control Division	Contractor
Remediation Activities Discharging to Groundwater Permit	Colorado Department of Public Health and Environment – Water Quality Control Division	Contractor
Notification as Resource Conservation and Recovery Act (RCRA) hazardous waste generator	Colorado Department of Public Health and Environment – Hazardous Materials and Waste Management Division	Contractor
Air Pollution Emission Notice (APEN) and Construction Permit	Colorado Department of Health and Environment – Air Pollution Control Division	Contractor
Stationary Source Air Quality Permit (Emissions from portable units, such as rock crushers, generators, asphalt plants, and concrete plants, used during construction)	Colorado Department of Health and Environment – Air Pollution Control Division	Contractor
Noise Variance (as needed)	Local Agencies	Contractor

5.10 Deliverables

The Contractor shall submit the following to CDOT for Review, Acceptance, or Approval:

Table 5-1 Deliverables

Deliverable	Review Acceptance or Approval	Schedule
Environmental Compliance Work Plan (ECWP)*	Approval	Within 30 Days after NTP1 and prior to ENTP
90-Day Environmental Compliance Work Plan (ECWP)*	Approval	No later than 30 Days prior to ENTP, and every 90 Days until Final Acceptance

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

Deliverable	Review Acceptance or Approval	Schedule
Environmental Compliance Work Plan (ECWP) Amendment	Acceptance	Annually upon the anniversary of the first Approval of the ECWP
Environmental Compliance Status Reports	Acceptance	Monthly
Final Environmental Compliance Work Plan	Approval	Required for Final Acceptance of the Project
Environmental Compliance Mitigation Training Program (ECMTP)*	Acceptance	Prior to ENTP
Environmental Compliance Mitigation Training Program (ECMTP) updates	Acceptance	30 Days after the end of each year
Construction Air Quality Plan and Fugitive Dust Control Plan*	Acceptance	Prior to ENTP
Preliminary Noise Technical Reports (as needed)	Acceptance	Prior to completing the Benefited Receptor Preference Survey
Planning Activities for the Benefited Receptor Preference Survey (as needed)	Acceptance	14 Days before initiating the survey
Final Noise Technical Report (as needed)	Acceptance	As part of the RFC Documents submittal
Construction Noise and Vibration Mitigation Plan*	Acceptance	Prior to ENTP
Integrated Noxious Weed Management Plan*	Acceptance	Prior to ENTP
Temporary Construction Access Plan*	Approval	At least 14 Days prior to ENTP
Game ramp locations (RFC Documents)	Approval	Prior to issuance of RFC Documents
Small mammal crossing locations (RFC Documents)	Approval	Prior to issuance of RFC Documents
Wildlife underpass location, per ARE (RFC Documents)	Approval	Prior to issuance of RFC Documents
Migratory Bird Nest Survey Memorandum	Acceptance	No more than 7 Days prior to vegetation removal occurring between April 1 and August 31
Raptor Survey Memorandum	Acceptance	Prior to impacts to habitat.
Burrowing owl survey	Acceptance	Within 7 Days Prior to disturbance of GPD colonies
Burrowing owl survey documentation	Acceptance	Prior to impacts to GPD habitat or species.

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

Deliverable	Review Acceptance or Approval	Schedule
GPD Management Plan*	Approval	Prior to ENTP and/or before impacts to GPD habitat or species.
Revised Biological Assessment and/or Biological Assessment Addendum (as needed)	Approval	If modifications to the Project cause new impacts
Wetland Finding Report	Acceptance	If thresholds exceed programmatic approval
SWMP Plan*	Review	30 Days prior to ENTP
Section 404 Permit (as needed)	Approval	If the conditions set in the Project 404 Permit are modified
Materials Management Plan (MMP)*	Approval	Prior to ENTP
Sampling Analysis Plan (SAP)*	Acceptance	30 Days prior to ENTP
Health and Safety Management Plan (HASP)*	Acceptance	Prior to ENTP
Spill Response Plan (SRP)*	Acceptance	Prior to ENTP
Remediation Work scope of work	Approval	Prior to commencing Remediation Work
Monthly statement of Regulated Hazardous Materials (RHM) Management	Review	Monthly
Quarterly summary of Hazardous Materials Management	Review	Quarterly
No Action Determination (NAD) (if under the Voluntary Cleanup Program)	Approval	Within 60 Days of completing Voluntary Cleanup Program Activities
Form 1399 – CDOT Reevaluation Form (as needed)	Approval	If the Contractor proposes or creates a design change beyond the limits identified in the Project
Mitigation Completion Report	Acceptance	Prior to Final Acceptance

*If the Contractor elects to utilize Earthwork NTP (ENTP), the deliverables identified for ENTP shall be submitted to CDOT for Review, Acceptance, or Approval prior to CDOT issuing ENTP. If the Contractor elects not to use ENTP, those deliverables identified shall be submitted to CDOT for Review, Acceptance, or Approval prior to CDOT issuing Second Notice to Proceed (NTP2).

5.11 Exhibits

Exhibit 5-A Environmental Mitigation Tracking Form

5.12 Project Special Provisions

The following Project Special Provisions supplement or modify the CDOT *Standard Specifications* and take precedence over the CDOT *Standard Specifications* and plans. The Contractor is responsible to have a copy of the CDOT *Standard Specifications* at all times on the Project Site.

Index of Project Special Provisions

Revision of Section 107	Water Quality Control
Revision of Section 208	Erosion Control
Revision of Section 208	Erosion Control Greater than 40 Acres
Revision of Section 208	Construction Mats
Revision of Section 240	Protection of Migratory Birds

REVISION OF SECTION 107 WATER QUALITY CONTROL

Section 107 of the Standard Specifications is hereby revised for this project as follows:

Subsection 107.25(a) shall include the following:

8. Owner. The party that has overall control of the activities and that has funded the implementation of the construction plans and specifications. This is the party with ownership of, a long term lease of, or easements on the property on which the construction Activity is occurring (e.g., CDOT).
9. Operator. The party that has operational control over day-to-day activities at a project site which are necessary to ensure compliance with the permit. This party is authorized to direct individuals at a site to carry out activities required by the permit (e.g. the general contractor).

Delete subsection 107.25(c) and replace with the following:

- (c) *Stormwater Construction Permit.* A Colorado Discharge Permit System Stormwater Construction Permit (CDPS-SCP) will be obtained from CDPHE by CDOT. The Contract will clearly indicate that the Contractor and CDOT will be co-permittees.

The Contractor shall be legally required to obtain all other permits associated with specific activities within or outside of the right of way, such as borrow pits, concrete or asphalt plant sites, waste disposal sites, or other facilities. Staging areas within a ¼ mile, but not within CDOT ROW shall be considered a common plan of development and permits for these facilities require permitting in the Contractor's name as Owner and Operator. These permits include Local Agency, Federal, or other stormwater permits. It is the Contractor's responsibility to obtain these permits. The Contractor shall consult with CDOT and contact the CDPHE or other appropriate Federal, State, or Local Agency to determine the need for any permit.

The Contractor and CDOT shall be co-permittees in the CDPS-SCP for any project work that disturbs at least 1 acre of land. CDOT will apply for and obtain the permit. The Contractor shall coordinate with CDOT on transferring the Operator section of the respective Permit to the Contractor upon award of the Contract. The Contractor shall provide a copy of permit certification as the Operator to the Engineer prior to or at the Pre-construction Conference. No work shall begin until the CDPS-SCP permit with Owner and Operator has been approved by CDPHE, unless otherwise directed by the Engineer. A copy of the permit and application to obtain a permit shall be placed in the project SWMP notebook.

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

If a Utility Company has obtained a permit for the development area prior to the Contractor being on-site, then the Contractor shall coordinate with the Utility Company to transfer those permits to the Contractor prior to work commencing. The Contractor shall not commence construction until the CDPHE “Application for Transfer of Ownership for All Permits, Certifications and Authorizations”, other than the CDPS-SCP where the Contractor shall be a co-permittee as the Operator, has been approved by CDPHE and submitted to the Engineer.

To initiate partial acceptance of the stormwater construction work (including seeding and planting required for erosion control), the Contractor shall request in writing a Stormwater Completion Walkthrough. The Engineer will set up the walkthrough and will include: the Engineer or designated representative, Superintendent or designated representative, Stormwater Management Plan (SWMP) Administrator, Region Water Pollution Control Manager (RWPCM), and Landscape Architect representing the region. Unsatisfactory and incomplete erosion control work will be identified in this walkthrough, and will be summarized by the Engineer in a punch list. The Water Quality Permit Transfer to Maintenance Punch List may be used as a template in creating the Engineer’s punch list.

The Engineer will coordinate with CDOT Maintenance on regular inspections of the corrective work. The completed action items associated with the corrective work shall be shown as completed on the Punch List. Upon completion of all items shown, the Contractor shall submit the completed Punch List to the Engineer for review. Upon written approval of the Punch List, the Contractor shall submit the “Application for Transfer of Ownership for All Permits, Certifications and Authorizations” to the CDPHE requesting transfer of Operator permittee of the CDPS-SCP to CDOT Maintenance. When requested by CDOT Maintenance and approved by the Engineer, the Permit may be transferred by the Contractor to the Resident Engineer instead of CDOT Maintenance.

Until the transfer of the permit has been approved by the CDPHE, the Contractor shall continue to adhere to all permit requirements. Requirements shall include erosion control inspections, Control Measure installation, Control Measure maintenance, Control Measure repair, including seeded areas, and temporary Control Measure removal. All documentation shall be submitted to the Engineer and placed in the SWMP notebook.

All costs associated with the Contractor applying for, holding, and transferring the CDPS-SCP permit between parties will not be measured and paid for separately, but shall be included in the work in accordance with subsection 107.02.

**REVISION OF SECTION 208
EROSION CONTROL**

Section 208 of the Standard Specifications is hereby deleted for this project and replaced with the following:

DESCRIPTION

208.01 This work consists of constructing, installing, maintaining, and removing when required, control measures during the life of the Contract to prevent or minimize erosion, sedimentation, and pollution of any State waters as defined in subsection 107.25, including wetlands.

Stormwater runoff from all disturbed areas and soil storage areas for which permanent or interim stabilization is not implemented, must flow to at least one control measure to minimize sediment in the discharge. This shall be accomplished through filtering, settling, or straining. The control measure shall be selected, designed, installed, and adequately sized in accordance with good engineering, hydrologic,

**Request for Proposal
 US 550 / 160 Connection South Design Build
 NHPP 5501-029, Sub Account: 22420
 Book 2 – Technical Requirements
 Section 5 – Environmental Requirements**

and pollution control practices. The control measures shall contain or filter flows in order to prevent the bypass of flows without treatment and shall be appropriate for stormwater runoff from disturbed areas and for the expected flow rate, duration, and flow conditions (i.e., sheet or concentrated flow).

The Contractor shall coordinate the construction of temporary control measures with the construction of permanent control measures to assure economical, effective, and continuous erosion and sediment control throughout the construction period.

When a provision of Section 208 or an order by the Engineer requires that an action be immediate or taken immediately, it shall be understood that the Contractor shall at once begin affecting completion of the action and pursue it to completion in a manner acceptable to the Engineer, and in accordance with the Colorado Discharge Permit System Stormwater Construction Permit (CDPS-SCP) requirements.

MATERIALS

208.02 Erosion control materials are subject to acceptance in accordance with subsection 106.01. Erosion control materials shall be subject to the following approval process:

Material	Approval Process	Notes:
Erosion Bales (Weed Free)	COC	The Contractor shall provide a transit certificate number or a copy of the transit certificate as supplied from the producer.
Silt Fence	COC	
Silt Berm	APL	
Erosion Log (Type 1, Type 2, and Type 3)	COC	
Silt Dikes	COC	
Pre-fabricated Concrete Washout Structures (above ground)	APL	
Pre-fabricated Vehicle Tracking Pad	APL	
Aggregate Bag	COC	
Storm Drain Inlet Protection (Type I, II, and III)	APL	
COC = Certificate of Compliance; APL= Approved Product List		

The material for control measures shall conform to the following:

- (a) *Erosion Bales.* Material for erosion bales shall consist of Certified Weed Free hay or straw. The hay or straw shall be certified under the Colorado Department of Agriculture Weed Free Forage Certification Program and inspected as regulated by the Weed Free Forage Act, Title 35, Article 27.5, CRS. Each certified weed free erosion bale shall be identified by blue and orange twine binding the bales.

The Contractor shall not place certified weed free erosion bales or remove their identifying twine until the Engineer has inspected them.

The Contractor may obtain a current list of Colorado Weed Free Forage Crop Producers who have

**Request for Proposal
 US 550 / 160 Connection South Design Build
 NHPP 5501-029, Sub Account: 22420
 Book 2 – Technical Requirements
 Section 5 – Environmental Requirements**

completed certification by contacting the Colorado Department of Agriculture, Weed Free Forage Program, 305 Interlocken Pkwy, Broomfield, CO 80021. Contact the Weed Free Forage Coordinator at (303) 869-9038. Also available at www.colorado.gov/ag/csd. Bales shall be approximately 5 cubic feet of material and weigh at least 35 pounds. Stakes shall be wood and shall be 2 inch by 2 inch nominal.

- (b) *Silt Fence*. Silt fence posts shall be wood with a minimum length of 46 inches. Wood posts shall be 1.5 inch width by 1.5 inch thickness actual dimensions with 1/8 inch tolerance. Geotextile shall be attached to wood posts with three or more staples per post.

Silt fence geotextile shall conform to the following requirements:

Physical Requirements for Silt Fence Geotextiles

Property	Wire Fence Supported Requirements	Self-Supported Requirements Geotextile Elongation <50%	Test Method
Grab Strength, lbs	90 minimum	124 minimum	ASTM D4632
Permittivity sec-1	0.05	0.05	ASTM D4491
Ultraviolet Stability	Minimum 70% Strength Retained	Minimum 70% Strength Retained	ASTM D4355

Silt Fence (Reinforced). Silt fence posts shall be metal "studded tee" T-post with a minimum length of 66 inches. Metal posts shall be "studded tee" with 0.095 inch minimum wall thickness. Wire fabric reinforcement for the silt fence geotextile shall be a minimum of 14 gauge with a maximum mesh spacing of 6 inches. Geotextile shall be attached to welded wire fabric with ties or nylon cable ties at 12 inches on center at top, middle and bottom wire. Welded wire fabric shall be attached to the post with a minimum three 12 gauge wire ties per post. Vinyl or rubber safety caps shall be installed on all T-post.

- (c) *Temporary Berms*. Temporary berms shall be constructed out of embankment (subsoil) and not out of salvaged topsoil.
- (d) *Temporary Slope Drains*. Temporary slope drains shall consist of fiber mats, plastic sheets, stone, concrete or asphalt gutters, half round pipe, metal or plastic pipe, wood flume, flexible rubber, or other materials suitable to carry accumulated water down the slopes. Outlet protection riprap shall conform to Section 506. Erosion control geotextile shall be a minimum Class 2, conforming to subsection 712.08.
- (e) *Silt Berm*. Silt berm shall consist of permeable multi-use material consisting of ultraviolet (UV) stabilized high-density polyethylene or other approved material effective in reducing water velocity. Designed and tested system shall be installed on a Turf Reinforcement Mat or Soil Retention Blanket in accordance with Section 216. The segment shall be secured to the ground with either metal or wood stakes. Minimum requirements for securing stakes shall be in accordance with the plans. Dimensions of individual segments shall meet the following criteria:

Width	6 - 11 inches
Height	6 - 10 inches
Weight	> 0.25 lbs./sq. ft.

**Request for Proposal
 US 550 / 160 Connection South Design Build
 NHPP 5501-029, Sub Account: 22420
 Book 2 – Technical Requirements
 Section 5 – Environmental Requirements**

Percent Open Area	20 – 50%
-------------------	----------

- (f) *Rock Check Dam.* Rock Check dams shall be constructed of stone. Stone shall meet the requirements of Section 506.
- (g) *Sediment Trap.* In constructing an excavated sediment trap, excavated soil may be used to construct the dam embankment, provided the soil meets the requirements of subsection 203.03. Outlet protection riprap shall be the size specified in the Contract and shall conform to Section 506. Erosion control geotextile shall be a minimum Class 1, conforming to subsection 712.08.
- (h) *Erosion Logs.* Erosion logs shall be one of the following types unless otherwise shown on the plans:
- (1) Erosion Log (Type 1) shall consist of cylinder casings filled with curled aspen wood excelsior with a consistent width of fibers evenly distributed throughout the log. The casing shall be seamless, photo-degradable tube netting. The curled aspen wood excelsior shall be fungus free, resin free, and free of growth or germination inhibiting substances.
 - (2) Erosion Log (Type 2) shall consist of cylinder casings filled with Erosion Log (Type 2) Compost in accordance with subsection 212.02. The compost-wood chip blend may be pneumatically shot into a geotextile cylindrical casing or be pre-manufactured. The geotextile casing shall consist of HDPE or polypropylene mesh (knitted, not extruded) with openings of 1/8 to 3/8 inch and contain the compost-wood chip material while not limiting water infiltration.
 - (3) Erosion Log (Type 3) shall consist of cylinder casings filled with curled aspen wood excelsior with a consistent width of fibers evenly distributed throughout the log. The casing shall be seamless, 100 percent natural fiber cylinder netting (compostable) and shall have minimum dimensions as shown in Table 208-1, based on the diameter of the log shown on the plans. Netting shall be a woven cotton or cellulose base mesh that has an approval to compost certification with a maximum mesh size of 0.075 inches and index values as shown in Table 208-2. The curled aspen wood excelsior shall be fungus free, resin free, and free of growth or germination inhibiting substances.

Natural compostable fiber netting shall not contain any synthetic material woven into the netting such as polypropylene, nylon, polyethylene, or polyester dyes. Oxo-degradable or oxo-biodegradable petrochemical-based fiber shall not be part of the netting material. Burlap netting material shall not be used for Erosion Log (Type 3).

Erosion Log (Type 1, Type 2, and Type 3) shall have minimum dimensions as shown in Table 208-1, based on the specified diameter of the log.

**Table 208-1
 Dimensions of Erosion Logs**

Diameter Type 1 & 3 (Inches)	Diameter Type 2 (Inches)	Length (feet)		Weight (minimum) (pounds/fo ot)	Stake Dimensions (Inches)
		Min.	Max.		
9	8	10	180	1.6	3/4 thickness by 3/4 width by 18 long
12	12	10	180	2.5	1.5 thickness by 1.25 width by 24 long
20	18	10	100	4.0	1.5 thickness by 1.25 width by 30 long

Wood stake acceptable tolerance +/- 1/8 inch.

**Table 208-2
 Index Values for Natural Fiber Netting**

Property	Requirement	Test Method
Fabric Tensile Strength	>70 lbs.	ASTM D3822
Biodegradable	100%	ASTM D5988
Mesh Pattern	Rib	

Stakes to secure erosion logs shall consist of pinewood or hardwood.

- (i) *Silt Dikes*. Silt dikes shall be pre-manufactured flexible sediment barrier that will fully rebound when driven over by heavy equipment. Material shall consist of outer geotextile fabric covering closed cell urethane or polyethylene foam core. The geotextile fabric aprons shall extend beyond the foam core a minimum of 8 inches on both sides.

**Table 208-3
 Geotextile Requirements**

Property	Requirement	Test Method
Water Flow Rate	100-150 gallons per minute/square foot	ASTM D4491
Grab Breaking Load	200 lbs. minimum in each direction	ASTM D4632
Ultraviolet Degradation	70% of original unexposed grab breaking load after 500 hours	ASTM D4595

Each silt dike segment shall have the following dimensions:

Dimension	Length
Vertical height after installation	>5 inches
Geotextile sleeve section to interlock segments	>8 inches

Silt dike segments shall be anchored down using the minimum requirements shown in Table 208-4.

**Table 208-4
 Silt Dike Segment Requirements**

Surface	Nail	Washers
Soil Surface	Installed in 4 inch deep trench with 6 inch nails no more than 4 feet O.C. (on center)	1 inch washers
Hard Surface	1 inch concrete nails no more than 4 feet O.C.	1 inch washers and solvent-free adhesive

- (j) *Concrete Washout Structure*. The Contractor shall construct a washout structure that will contain washout from concrete placement, construction equipment cleaning operations, and residue from cutting, coring, grinding, grooving, and hydro-concrete demolition. Embankment required for the concrete washout structure may be excavated material, provided that this material meets the requirements of Section 203 for embankment. If the bottom of the excavated structure is within 5 feet

**Request for Proposal
 US 550 / 160 Connection South Design Build
 NHPP 5501-029, Sub Account: 22420
 Book 2 – Technical Requirements
 Section 5 – Environmental Requirements**

of anticipated high ground water elevation or the soil does not have adequate buffering capacity to meet water quality standards, an impermeable synthetic liner shall be installed with the minimum properties shown in Table 208-5.

**Table 208-5
 Impermeable Synthetic Liner Requirements**

Tested Property	Test Method	Units	Value
Thickness	ASTM D5199	mil	>30 +/- 1.5
Tear Strength	ASTM D1004	lbs	>8
Low Temperature Impact	ASTM D1790	°F	Pass at -20

(k) *Pre-Fabricated Concrete Washout Structure.* Pre-Fabricated Concrete Washout Structures shall be one of the following types unless otherwise shown on the plans:

- (1) Pre-Fabricated Concrete Washout Structure (Type 1). Type 1 portable bins shall be used only when specified in the Contract. It shall consist of a watertight multi-use container designed to contain liquid concrete washout wastewater, solid residual concrete waste from washout operations, and residue from saw cutting, coring, grinding, grooving, and hydro-concrete demolition. Minimum capacity including freeboard shall be 440 gallons.
- (2) Pre-Fabricated Concrete Washout Structure (Type 2). Type 2 portable bins shall be used only when specified in the Contract. It shall consist of a watertight one-time use container designed to contain liquid concrete washout wastewater, solid residual concrete waste from washout operations, and residue from saw cutting, coring, grinding, grooving, and hydro-concrete demolition. The structure shall have a system to secure to the ground. Minimum capacity including freeboard shall be 50 gallons.

(l) *Vehicle Tracking Pad (VTP).* Aggregate for the vehicle tracking pad shall be crushed natural aggregate with at least two fractured faces that meets the following gradation requirements:

Sieve size	Percent by weight Passing Square Mesh Sieves
75 mm (3 inch)	100
50 mm (2 inch)	0-25
19.0 mm (¾ inch)	0-15

Recycled crushed concrete or asphalt shall not be used for vehicle tracking pads.

Erosion control geotextile shall be a minimum Class 2, conforming to subsection 712.08.

Pre-Fabricated or manufactured vehicle tracking pads shall only be used if specified in the Contract. Multi-use pads shall consist of industrial grade materials and shall be designed to minimize sediment leaving the project.

Minimum dimensions of the modular systems shall be:

Width	12 feet
Length of pad	35 feet

To accommodate construction traffic turning radii between the tracking pad and a stabilized surface,

**Request for Proposal
 US 550 / 160 Connection South Design Build
 NHPP 5501-029, Sub Account: 22420
 Book 2 – Technical Requirements
 Section 5 – Environmental Requirements**

additional flared sections of approved pads or aggregate in accordance with this specification shall be used at no additional cost to CDOT.

Weight (min.) (lbs./sq. ft.)	8
Crush strength (min.) (psi)	400

If pads weigh less than 8 pounds per square foot, an anchoring system approved by the manufacturer shall be used for pads placed on soil and hard surfaces.

A thin layer of stone, geotextile, or other stable surface may be required to stop rutting under the pad or area where the vehicles mount or dismount the manufactured trackout control device.

- (m) *Aggregate Bag.* Aggregate bags shall consist of crushed stone or recycled rubber filled fabric with the following properties:

Diameter (inches)	Weight (minimum) (pounds per foot)
6-8	6
10	10
12	15

Rubber used in bags shall be clean, 95 percent free of metal and particulates.

Crushed stone contained in the aggregate bags shall conform to Table 703-1 for Coarse Aggregate No. 6.

The aggregate bag shall consist of a woven geotextile fabric with the following properties:

Property	Requirement	Test Method
Grab Tensile Strength	90 lbs. min.	ASTM D4632
Trapezoid Tear Strength	25 lbs. min.	ASTM D4533
Mullen Burst	300 psi	ASTM D3786
Ultraviolet Resistance	70%	ASTM D4355

- (n) *Storm Drain Inlet Protection.* Storm drain inlet protection shall consist of aggregate filled fabric with the following dimensions:

Storm Drain Inlet Protection Properties	Protection Types		
	Type I ¹	Type II ²	Type III ³
Diameter	4 in.	4 in.	N/A
Minimum Section Length	7 ft.	5 ft.	5 ft.
Apron Insert	---	30 in. or sized to grate	30 in or sized to grate
¹ Type I protection shall be used with Inlet Type R.			
² Type II protection shall be used with Combination Inlet. Option A or B			

**Request for Proposal
 US 550 / 160 Connection South Design Build
 NHPP 5501-029, Sub Account: 22420
 Book 2 – Technical Requirements
 Section 5 – Environmental Requirements**

³Type III protection shall be used with Vane Grate Inlet only. Option A or B
 Note: Options A and B are shown on Standard Plan M-208-1.

The Storm Drain Inlet Protection (Type I, II and III) shall consist of a woven geotextile fabric with the following properties:

Property	Test Method	Unit	Requirement
Grab tensile strength	ASTM D4632	lbs.	minimum 150X200
Mullen Burst Strength	ASTM D3786	lbs.	400
Trapezoid Tear Strength	ASTM D4533	lbs.	minimum 60X60
Percent Open Area	COE-22125-86	%	≥20
Water Flow Rate	ASTM D4491	gal./min./sq. ft.	≥100
Ultraviolet Resistance	ASTM D4355	%	≥70

Curb roll for Storm Drain Inlet Protection (Type I and II) shall have a weight >4 pounds per linear foot of device. The device shall be capable of conforming to the shape of the curb. Aggregate contained in the storm drain inlet device shall consist of gravel or crushed stone conforming Table 703-1 for Coarse Aggregate No. 6.

CONSTRUCTION REQUIREMENTS

208.03 Project Review, Schedule, and Erosion Control Management. Prior to construction, an on-site Environmental Pre-construction Conference shall be held. The Conference shall be attended by:

- (1) The Engineer.
- (2) The Superintendent.
- (3) The Contractor's Stormwater Management Plan (SWMP) Administrator. The SWMP Administrator is equivalent to the CDPS-SCP Qualified Stormwater Manager.
- (4) Supervisors or Foremen of subcontractors working on the project.
- (5) The Region Water Pollution Control Manager (RWPCM).
- (6) CDOT personnel (e.g., CDOT Landscape Architect) who prepared or reviewed the Stormwater Management Plan (SWMP).

At this Conference, the attendees shall discuss the SWMP, CDPS-SCP, sensitive habitats on-site, wetlands, other vegetation to be protected, and the enforcement mechanisms for not meeting the requirements of this specification.

Prior to beginning construction, the Contractor shall evaluate the project site for storm water draining into or through the site. When such drainage is identified, control measures shall be used if possible to divert stormwater from running on-site and becoming contaminated with sediment or other pollutants. The diversion may be accomplished with a temporary pipe or other conveyance to prevent water contamination or contact with pollutants. Run-on water that cannot be diverted shall be treated as

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

construction runoff and adequate control measures shall be employed.

The SWMP Administrator shall evaluate all non-stormwater coming onto the site, such as springs, seeps, and landscape irrigation return flow. If such flow is identified, control measures shall be used to protect off-site water from becoming contaminated with sediment or other pollutants.

The SWMP Administrator shall review existing inlets and culverts to determine if inlet protection is needed due to water flow patterns. Prior to beginning construction, inlets and culverts needing protection shall be protected and the location of the implemented control measure added to the SWMP site map.

Prior to construction, the Contractor shall implement appropriate control measures for protection of wetlands, sensitive habitat, and existing vegetation from ground disturbance and other pollutant sources, in accordance with the approved project schedule as described in subsection 208.03(b).

When additional control measures are required and approved by the Engineer, the Contractor shall implement the additional control measures and the SWMP Administrator shall record and describe them on the SWMP site map. The approved control measures will be measured and paid for in accordance with subsections 208.11 and 208.12.

(a) *Project Review.* The Contractor shall submit modifications to the Contractor's control measures or SWMP in a written proposal to the Engineer. The written proposal shall include the following information:

- (1) Reasons for changing the control measures.
- (2) Diagrams showing details and locations of all proposed changes.
- (3) List of appropriate pay items indicating new and revised quantities.
- (4) Schedules for accomplishing all erosion and sediment control work.
- (5) Effects on permits or certifications caused by the proposed changes.

The Engineer will approve or reject the written proposal in writing within seven days after receipt of the submittal. The Engineer may require additional control measures prior to approving the proposed modifications. Additional modifications and additional control measures will be paid for at the Contract Unit Price for the specific items involved. If no items exist, they will be paid for as extra work in accordance with subsection 109.04.

(b) *Erosion and Sediment Control Activities.* The erosion and sediment control activities shall be included in the weekly meeting update. The project schedule shall specifically indicate the sequence of clearing and grubbing, earthwork operations, and construction of temporary and permanent erosion control features and stabilization. The project schedule shall include erosion and sediment control work for haul roads, borrow pits, storage and asphalt or concrete batch sites, and all areas within the project limits. If during construction the Contractor proposes changes which would affect the Contractor's control measures, the Contractor shall propose revised control measures to the Engineer for approval in writing. If necessary, the SWMP Administrator shall update proposed sequencing of major activities in the SWMP. Revisions shall not be implemented until the proposed measures have been approved in writing by the Engineer.

(c) *Erosion Control Management (ECM).* Erosion Control Management for this project shall consist of SWMP Administration and Erosion Control Inspection. All ECM staff shall have working knowledge

Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements

and experience in construction, and shall have successfully completed the Transportation Erosion Control Supervisory Certificate Training (TECS) as provided by the Department. The Superintendent will not be permitted to serve in an ECM role. The Erosion Control Inspector (ECI) and the SWMP Administrator may be the same person in projects with not more than 40 acres of disturbed area. The ECI and the SWMP Administrator are equivalent to the CDPS-SCP Qualified Stormwater Manager.

1. SWMP Administration. The SWMP shall be maintained by a SWMP Administrator. The name of the SWMP Administrator shall be recorded on the SWMP Section 3.B. The SWMP Administrator shall have full responsibility to maintain and update the SWMP and identify to the Superintendent critical action items needed to conform to the CDPS-SCP as follows:
 - (1) Complete the SWMP as described in subsection 208.03(d).
 - (2) Participate in the Environmental Pre-construction Conference.
 - (3) Attend weekly erosion and sediment control meetings.
 - (4) Attend all Headquarters and Region water quality control inspections. The Contractor and the Contractor's SWMP Administrator will be notified a minimum of five days in advance of each inspection by Headquarters or Region water quality staff.
 - (5) Coordinate with the Superintendent to implement necessary actions to reduce anticipated or presently existing water quality or erosion problems resulting from construction activities.
 - (6) Coordinate with the Superintendent to ensure that all labor, material, and equipment needed to install, maintain, and remove control measures are available as needed.
 - (7) During construction, the SWMP site map shall be updated to reflect current field conditions and include, at a minimum, the following:
 - (i) Limits of Construction (LOC).
 - (ii) Areas of disturbance (AD), including areas of borrow and fill.
 - (iii) Limits of Disturbance (LDA).
 - (iv) Areas used for storage of construction materials, equipment, soils, or wastes.
 - (v) Location of dedicated asphalt, concrete batch plants, and masonry mixing stations.
 - (vi) Location of construction offices and staging areas.
 - (vii) Location of work access routes during construction.
 - (viii) Location of waste accumulation areas, including areas for liquid, concrete, masonry, and asphalt.
 - (ix) Location of temporary, interim and permanent stabilization.
 - (x) Location of outfalls.
 - (xi) Flow arrows that depict stormwater flow directions on-site and runoff direction.

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

- (xii) Location of structural and non-structural control measures.
 - (xiii) Location of springs, streams, wetlands, and other State waters, including areas that require pre-existing vegetation be maintained within 50 horizontal feet of a receiving water, unless infeasible.
 - (xiv) Location of stream crossings located within the construction site boundary.
- (8) The SWMP shall reflect the field conditions and shall be amended to reflect control measures.
- (i) A change in design, construction, operation, or maintenance of the site which would require the implementation of new or revised control measures; or
 - (ii) Changes when the SWMP proves to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with construction activity.
 - (iii) Changes when control measures are no longer necessary and are removed.
- (9) Complete vegetative survey transects when required in accordance with CDOT Erosion Control and Stormwater Quality Guide.
- (10) Start a new site map before the current one becomes illegible. All site maps shall remain as part of the SWMP.
- (11) Document all inspection and maintenance activities. The SWMP and documentation shall be kept on the project site.
- (12) When adding or revising control measures in the SWMP, add a narrative explaining what, when, where, why, and how the control measure is being used, and add a detail to the SWMP.
- (i) How to install and inspect the control measure.
 - (ii) Where to install the control measure.
 - (iii) When to maintain the control measure.
- (13) If using existing topography, vegetation, etc. as a control measure, label it as such on the SWMP site map; add a narrative as to when, where, why, and how the control measure is being used.
- (14) Indicate control measures in use or not in use by recording them on Standard Plans M-208-1, M-216-1, and M-615-1 in the SWMP.
- (15) Record on the SWMP, the approved Method Statement for Containing Pollutant Byproducts.
- (16) Update the Potential Pollutants list in the SWMP and Spill Response Plan throughout construction.
- 1.
- (17) Vegetative buffers shall not be used as a sole control measure. They shall only be used as

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

the final stage of a treatment train.

2. Erosion Control Inspector.

One ECI is required for every 40 acres of total disturbed area which is currently receiving temporary and interim stabilization measures as defined in subsection 208.04(e). An ECI shall not be responsible for more than 40 acres in the project. Accepted permanent stabilization methods as defined in subsection 208.04(e) will not be included in the 40 acres.

(1) ECI duties shall be as follows:

- (i) Coordinate with the SWMP Administrator on reporting the results of inspections. How to install and inspect the control measure.
- (ii) Review the construction site for compliance with the Stormwater Construction Permit.
- 2.
- (iii) Inspect with the Superintendent and the Engineer (or their designated representatives) the stormwater management system at least every seven days. Post-storm event inspections shall be conducted within 24 hours after the end of any precipitation or snow melt event that may cause surface erosion. If no construction activities will occur following a storm event, post-storm event inspections shall be conducted prior to commencing construction activities, but no later than 72 hours following the storm event. The occurrence of delay in inspections shall be documented in the inspection report. Form 1176 (Stormwater Field Inspection Report – Active Construction) shall be used for all seven-day inspections and inspections following storm events. The Contractor shall notify the ECI when a storm event occurs.

Inspections are not required at sites when construction activities are temporarily halted, when snow cover exists over the entire site for an extended period and melting conditions do not pose a risk of surface erosion. This exception shall be applicable only during the period where melting conditions do not exist, and applies to the routine seven-day, Headquarters and Region inspections, as well as the post-storm event inspections. The following information shall be documented on Form 1176 for use of this exclusion: dates when snow cover occurred, date when construction activities ceased, and date melting conditions began.

(2) The order of precedence for required inspections shall be as follows:

- (i) Headquarters or Region water quality routine audits
- (ii) Post-storm event inspections
- (iii) Seven-day inspections

When one of the listed inspections is performed, the inspections listed below it need not be performed on that day if the required CDOT and Contractor personnel participated in the inspection.

A seven-day inspection is not required on the same day a Headquarters or Region water quality routine audit is conducted, as long as all of the inspection scope requirements for a seven-day and post-storm event inspection are met. A sheet shall be placed in the inspections area of the SWMP to refer to the date the inspection was performed.

(3) Seven-day inspections and post-storm inspections shall include inspection of the following

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

areas, if applicable, for evidence of, or the potential for, pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to State waters:

- (i) Construction site perimeter
 - (ii) Disturbed areas
 - (iii) Designated haul routes
 - (iv) Material and waste storage areas exposed to precipitation
 - (v) Locations where stormwater has the potential to discharge offsite
 - (vi) Locations where vehicles exit the site
- (4) Inspections shall include the following:
- (i) Visually verify whether all implemented control measures are in effective operational condition and are working as designed in their specifications to minimize pollutant discharges.
 - (ii) Determine if there are new potential sources of pollutants.
 - (iii) Assess the adequacy of control measures at the site to identify areas requiring new or modified control measures to minimize pollutant discharges.
 - (iv) Identify all areas of non-compliance with the permit requirements and, if necessary, implement corrective action in accordance with the CDPS-SCP.

Follow all other agency Stormwater requirements and inspections unless a waiver or other agreement has been made.

- (5) The Contractor shall report the following circumstances orally to CDOT, CDPHE, the Contractor's Superintendent, and the SWMP Administrator within 24 hours from the time the permittee becomes aware of the circumstances, and shall mail to the Division a written report containing the information requested within five working days after becoming aware of the following circumstances:
- (i) Noncompliance which may endanger health or the environment, regardless of the cause of the incident.
 - (ii) Unanticipated bypass which exceeds any effluent limitations in accordance with the CDPS-SCP.
 - (iii) Upset conditions which causes an exceedance of any effluent limitation in accordance with the CDPS-SCP.
 - (iv) Daily maximum violations for any of the pollutants limited by the permit. This includes any toxic pollutant or hazardous substance or any pollutant specifically identified as the method to control any toxic pollutant or hazardous substance.
- (6) Document spills, leaks, or overflows that result in the discharge of pollutants on the Form

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

1176. The ECI shall record the time and date, weather conditions, reasons for spill, and how it was remediated.

- (d) *Documentation Available on the Project.* The following Contract documents and references will be made available for reference at the CDOT field office during construction:
1. SWMP. The Engineer will provide an approved SWMP design at the Pre-construction Conference, which is and shall remain the property of CDOT. Prior to construction, CDOT will provide the documentation for items (1) through (4), and (18) as listed below, when available. The Contractor shall provide the contents required for items (5) through (17). The SWMP shall be stored in the CDOT field office or at another on-site location approved by the Division. The SWMP Administrator shall modify and update the SWMP as needed to reflect actual site conditions prior to the change or as soon as practicable, but in no case more than 72 hours after the change. The following Contract documents and reports shall be kept, maintained, and updated in the SWMP under the appropriate items by the SWMP Administrator:
 - (1) SWMP Plan Sheets – Notes, tabulation, site description. The SWMP shall include a site description which includes, at a minimum, the following:
 - (i) The nature of the construction activity at the site.
 - (ii) The proposed schedule for the sequence for major construction activities and the planned implementation of control measures for each phase. (e.g. clearing, grading, utilities, vertical, etc.)
 - (iii) Estimates of the total acreage of the site, and the acreage expected to be disturbed by clearing, excavation, grading, or any other construction activities.
 - (iv) A summary of any existing data used in the development of the construction site plans or SWMP that describe the soil or existing potential for soil erosion.
 - (v) A description of the percent of existing vegetative ground cover relative to the entire site and the method for determining the percentage, in accordance with CDOT Erosion Control and Stormwater Quality Guide.
 - (vi) A description of any allowable non-stormwater discharges at the site, including those being discharged under a division low risk discharge guidance policy.
 - (vii) A description of areas receiving discharge from the site. Including a description of the immediate source receiving the discharge. If the stormwater discharge is to a municipal separate storm sewer system, the name of the entity owning the system, the location of the storm sewer discharge, and the ultimate receiving water(s).
 - (viii) A description of all stream crossings located within the construction site boundary.
 - (2) SWMP Site Maps and Project Plan Title Sheet
 - (3) Specifications – Standard and project special provisions related to stormwater and erosion control.
 - (4) Standard Plans M-208-1, M-216-1 and M-615-1.

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

- (5) Control measure Details not in Standard Plan M-208-1 – Non-standard details.
- (6) Weekly meeting sign in sheet and weekly meeting notes.
- (7) Calendar of Inspections – Calendar of inspections marking when all inspections take place.
- (8) Contractor Stormwater Field Inspection Reports (Forms 1176, 1177, 1388).
- (9) All Water Quality Audit Reports and Form 105(s) relating to Water Quality.
- (10) Description of Inspection and Maintenance Methods – Description of inspection and maintenance methods implemented at the site to maintain all control measures identified in the SWMP and items not addressed in the design.
- (11) Spill Response Plan – Reports of reportable spills submitted to CDPHE.
- (12) List and Evaluation of Potential Pollutants – List of potential pollutants as described in subsection 107.25 and approved Method Statement for Containing Pollutant Byproducts.
- (13) Other Correspondence including agreements with other MS4s, approved deferral request, CDPHE audit documentation, Water Quality Permit Transfer to Maintenance Punch List, and other miscellaneous documentation such as documented use agreements for areas outside of the permitted area.
- (14) TECS Certifications of the SWMP Administrator and all ECIs, kept current through the life of the project.
- (15) Environmental Pre-construction Conference – Conference agenda with a certification of understanding of the terms and conditions of the CDPS-SCP and SWMP. The certification shall be signed by all attendees. A certification shall also be signed by all attendees of meetings held for new subcontractors beginning work on the project that could adversely affect water quality after the Environmental Pre-construction Conference has been held.
- (16) All Project Environmental Permits – All project environmental permits and associated applications and certifications, including, CDPS-SCP, Senate Bill 40, USACE 404, temporary stream crossings, dewatering, biological opinions, and all other permits applicable to the project, including any separate CDPS-SCP obtained by the Contractor for staging area on private property, asphalt or concrete batch plant, etc.
- (17) Photographs Documenting Existing Vegetation – Project photographs shall include the following information with the record: project number, project code, name of the person who took the picture, date and time the picture was taken, and location and approximate station number or mile marker. The Contractor shall submit photographs documenting existing vegetation, prior to construction commencing, on paper with a maximum of four colored images per side of 8 ½ inch by 11 inch sheet or a digital copy on CD-ROM/Flash Drive (JPG format) as directed by the Engineer.
- (18) Permanent Water Quality Plan Sheets – Plan sheets and specifications for permanent water quality structures and riprap.

The Engineer will incorporate the documents and reports available at the time of award. The Contractor shall provide and insert all other documents and reports as they become available

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

during construction.

The SWMP Administrator shall finalize the SWMP for CDOT Maintenance use upon completion of the project. SWMP completeness shall be approved by the Engineer. Corrections to the SWMP shall be made at the Contractor's expense.

2. Reference Materials. The following Reference materials shall be used:

- (1) CDOT Erosion Control and Stormwater Quality Guide.
- (2) CDOT Erosion Control and Stormwater Quality Field Guide.

(e) *Weekly Meetings*: The Engineer, the Superintendent, and the SWMP Administrator shall conduct a weekly meeting with supervisors involved in construction activities that could adversely affect water quality. The meeting shall follow an agenda prepared by the Engineer, or a designated representative, and have a sign in sheet on which the names of all attendees shall be recorded. The SWMP Administrator shall take notes of water quality comments and action items at each weekly meeting, and place the agenda and sign in sheet in the SWMP. At this meeting the following shall be discussed and recorded in tab 6 of the SWMP:

- (1) Recalcitrant, chronic, and severe inspection findings.
- (2) Unresolved issues from previous inspections.
- (3) Requirements of the SWMP.
- (4) Problems that may have arisen in implementing the site specific SWMP or maintaining control measures.
- (5) Control measures that are to be installed, removed, modified, or maintained, and associated SWMP modifications.
- (6) Planned activities that will affect stormwater in order to proactively phase control measures.

All subcontractors not in attendance at the Environment Pre-construction Conference shall be briefed on the project by the Engineer, Superintendent, and the SWMP Administrator prior to start of work. The SWMP Administrator shall record the names of these subcontractors as an addendum to the list of attendees, and add it to the SWMP.

208.04 Control Measures for Stormwater.

The SWMP Administrator shall modify the SWMP to clearly describe and locate all control measures implemented at the site to control potential sediment discharges.

Vehicle tracking pads shall be used at all vehicle and equipment exit points from the site to prevent sediment exiting the limits of construction (LOC) of the project site. Access shall be provided only at locations approved by the Engineer. The SWMP Administrator shall record vehicle tracking pad locations on the SWMP site map.

New inlets and culverts shall be protected during their construction. Appropriate protection of each culvert and inlet shall be installed immediately. When riprap is called for at the outlet of a culvert, it shall be installed within 24 hours of completion of each pipe. The Contractor shall remove sediment, millings, debris, and other pollutants from within the newly constructed drainage system in accordance with the

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

CDPS-SCP, prior to use, at the Contractor's expense. All removed sediment shall be disposed of outside the project limits in accordance with all applicable regulations.

Concrete products wasted on the ground during construction including, but not limited to, excess concrete removed from forms, spills, slop, and all other unused concrete are potential pollutants that shall be removed from the site or contained at a pre-approved containment area that has been identified in the SWMP. The concrete shall be picked up and recycled in accordance with 6 CCR 1007-2 (CDPHE Regulations Pertaining to Solid Waste Sites and Facilities) at regular intervals, as needed, or as directed by the Engineer. The uses of recycled concrete from permitted recycling facilities shall be in accordance with Section 203.

- (a) *Unforeseen Conditions.* The Contractor shall design and implement erosion and sediment control measures for correcting conditions unforeseen during the design of the project, or for emergency situations, that develop during construction. The Department's Erosion Control and Stormwater Quality Guide shall be used as a reference document for the purpose of designing erosion and sediment control measures. Measures and methods proposed by the Contractor shall be reviewed and approved in writing by the Engineer prior to installation.
- (b) *Other Agencies.* If CDPHE, US Army Corps of Engineers (USACE), the Environmental Protection Agency (EPA), or a Local Agency reviews the project site and requires additional measures to prevent and control erosion, sediment, or pollutants, the Contractor shall cease and desist activities resulting in pollutant discharge and immediately implement these measures. If the work may negatively affect another MS4, the Contractor shall cease and desist activities resulting in the discharge and shall implement appropriate measures to protect the neighboring MS4, including installing additional measures. Implementation of these additional measures will be paid for at contract unit prices.
- (c) *Work Outside the Right of Way.* Disturbed areas, including staging areas, which are outside CDOT ROW and outside easements acquired by CDOT for construction, are the responsibility of the Contractor. These areas shall be subject to a separate CDPS-SCP and all other necessary permits, as they are considered a common plan of development if within a ¼ mile of the construction site. The Contractor shall acquire these permits and submit copies to the Engineer prior to any disturbance. These permits, shall be acquired and all erosion and sediment control work performed at the Contractor's expense. These areas are subject to inspections by CDOT or any other agency, as agreed upon in writing. A documented use agreement between the permittee and the owner or operator of any control measures located outside of the permitted area that are utilized by the permittee's construction site for compliance with the CDPS-SCP, but not under the direct control of the permittee shall be placed in the project's SWMP.
- (d) *Construction Implementation.* The Contractor shall incorporate control measures into the project as outlined in the accepted schedule.
- (e) *Stabilization.* Once earthwork has started, the Contractor shall maintain erosion control measures until permanent stabilization of the area has been completed and accepted. Clearing, grubbing and slope stabilization measures shall be performed regularly to ensure final stabilization. Failure to properly maintain erosion control and stabilization methods, either through improper phasing or sequencing will require the Contractor to repair or replace sections of earthwork at the Contractor's expense. The Contractor shall schedule and implement the following stabilization measures during the course of the project:
 - 1. *Temporary Stabilization.* At the end of each day, the Contractor shall stabilize disturbed areas by surface roughening, vertical tracking, or a combination thereof. Disturbed areas are locations

Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements

where actions have been taken to alter the existing vegetation or underlying soil of a site, such as clearing, grading, road bed preparation, soil compaction, and movement and stockpiling of sediment and materials. Designated topsoil distributed on the surface or in stockpiles shall not receive temporary stabilization. Other stabilization measures may be implemented, as approved. The maximum area of temporary stabilization (excluding areas of designated topsoil) shall not exceed 20 acres.

2. **Interim Stabilization.** As soon as it is known with reasonable certainty that work will be temporarily halted for 14 days or more, sediment and material stockpiles and disturbed areas shall be stabilized using one or more of the specified following methods:
 - (1) Application of 1.5 tons per acres of mechanically crimped certified weed free hay or straw in combination with an approved organic mulch tackifier.
 - (2) Placement of bonded fiber matrix in accordance with Section 213.
 - (3) Placement of mulching (hydraulic) wood cellulose fiber mulch with tackifier, in accordance with Section 213.
 - (4) Application of spray-on mulch blanket in accordance with Section 213. Magnesium Chloride, Potassium Chloride and Sodium Chloride, or other salt products, shall not be used as a stabilization method.
 - (5) Topsoil stockpiles shall receive interim stabilization unless specified in accordance with Section 207 as a different material than the other disturbed areas on-site.
 3. **Summer and Winter Stabilization.** Summer and winter stabilization is defined as stabilization during months when seeding will not be permitted. As soon as the Contractor knows shutdown is to occur, interim stabilization shall be applied to the disturbed area. Protection of the interim stabilization method is required. Reapplication of interim stabilization may be required as directed.
 4. **Permanent Stabilization.** Permanent stabilization is defined as the covering of disturbed areas with topsoil, seeding, mulching with tackifier, soil retention coverings, and such non-erodible methods as riprap, road shouldering, etc., or a combination thereof as required by the Contract. Other permanent stabilization techniques may be proposed by the Contractor, in writing, and shall be used when approved in writing by the Engineer. All permanent stabilization requirements shown on the plans shall be completed within four working days of the placement of the topsoil in accordance with Section 207.
 5. **Final Stabilization.** Final stabilization is achieved when all ground disturbing activities at the site have been completed, and uniform vegetative cover has been established with an individual plant density of at least 70 percent of pre-disturbance levels, or equivalent permanent physical erosion reduction methods have been employed.
- (f) *Maintenance.* Erosion and sediment control practices and other protective measures identified in the SWMP as control measures for stormwater pollution prevention shall be maintained in effective operating condition until the CDPS-SCP has been transferred to CDOT. Control measures shall be continuously maintained in accordance with good engineering, hydrologic, and pollution control practices, including removal of collected sediment when silt depth is 50 percent or more of the effective height of the erosion control device. When possible, the Contractor shall use equipment with an operator rather than labor alone to remove the sediment.

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

Maintenance of erosion and sediment control devices shall include replacement of such devices upon the end of their useful service life as recommended by the Contractor and approved by the Engineer. Maintenance of rock check dams and vehicle tracking pads shall be limited to removal and disposal of sediment or addition of aggregate. Damages resulting from failure to maintain control measures shall be repaired at the Contractor's expense.

Complete site assessment shall be performed as part of comprehensive inspection and maintenance procedures to assess the adequacy of control measures at the site and the necessity of changes to those control measures to ensure continued effective performance. Where site assessment results in the determination that new or replacement control measures are necessary, the control measures shall be installed to ensure continuous effectiveness. When identified, control measures shall be maintained, added, modified or replaced as soon as possible, immediately in most cases.

Approved new or replaced control measures will be measured and paid for in accordance with subsections 208.11 and 208.12. Devices damaged due to the Contractor's negligence shall be replaced at the Contractor's expense.

From the time seeding and mulching work begins until project acceptance the Contractor shall maintain all seeded areas. Damage to seeded areas or to mulch materials shall be immediately restored. Damage to seeded areas or to mulch materials due to Contractor negligence shall be immediately restored at the Contractor's expense. Restoration of other damaged areas will be measured and paid for under the appropriate bid item.

Temporary control measures may be removed upon completion of the project, as determined by the Water Quality Partial Acceptance walk-through. If removed, the area in which these control measures were constructed shall be returned to a condition similar to that which existed prior to its disturbance. Removed control measures shall become the property of the Contractor.

If the Contractor fails to complete construction within the approved contract time, the Contractor shall continue erosion and sediment control operations at its expense until acceptance of the work.

Sediment removed during maintenance of control measures and material from street sweeping may be used in or on embankment, provided it meets the requirements of Section 203 and is distributed evenly across the embankment.

Whenever sediment collects on the paved surface, the surface shall be cleaned. Street washing will not be allowed. Storm drain inlet protection shall be in place prior to shoveling, sweeping, or vacuuming. Sweeping shall be completed with a pickup broom or equipment capable of collecting sediment. Sweeping with a kick broom will not be allowed.

Material from pavement saw cutting operations shall be cleaned from the roadway surface during operations using a vacuum. A control measure, such as a berm, shall be placed to contain slurry from joint flushing operations until the residue can be removed from the soil surface. Aggregate bags, erosion logs or other permeable control measures shall not be used. Residue shall not flow into driving lanes. It shall be removed and disposed of in accordance with subsection 107.25(b). Material containment and removal will not be paid for separately, but shall be included in the work.

208.05 Construction of Control Measures. Control measures shall be constructed in accordance with Standard Plans M-208-1 and M-216-1, and with the following:

(a) *Seeding, Mulching, Sodding, Soil Retention Blanket.* Seeding, mulching, sodding, and soil retention

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

blanket installation shall be performed in accordance with Sections 212, 213, and 216.

- (b) *Erosion Bales.* The bales shall be anchored securely to the ground with wood stakes.
- (c) *Silt Fence.* Silt fence shall be installed in locations specified in the Contract.
- (d) *Temporary Berms.* Berms shall be constructed to the dimensions shown in the Contract, and sufficiently compacted to prevent erosion or failure. If the berm erodes or fails, it shall be immediately repaired or replaced at the Contractor's expense.
- (e) *Temporary Diversion.* Diversions shall be constructed to the dimensions shown in the Contract and graded to drain to a designated outlet. The berm shall be sufficiently compacted to prevent erosion or failure. If the diversion erodes or fails, it shall be immediately repaired or replaced at the Contractor's expense.
- (f) *Temporary Slope Drains.* Temporary slope drains shall be installed prior to installation of permanent facilities or growth of adequate ground cover on the slopes. All temporary slope drains shall be securely anchored to the slope. The inlets and outlets of temporary slope drains shall be protected to prevent erosion.
- (g) *Silt Berm.* Prior to installation of silt berms, the Contractor shall prepare the surface of the areas in which the berms are to be installed such that they are free of materials greater than 2 inches in diameter and are suitably smooth for the installation of the silt berms, as approved. Silt berms shall be secured with spikes. The Contractor shall install the silt berm in a manner that will prevent water from going around or under the silt berm. Silt berms shall be installed on top of soil retention blanket or turf reinforcement blanket.
- (h) *Rock Check Dam.* Rock shall be installed at locations shown on the plans. Rock check dams shall conform to the dimensions shown on the plans.
- (i) *Rip rap Outlet Protection.* Geotextile used shall be protected from cutting or tearing. Overlaps between two pieces of geotextile shall be 1 foot minimum. Riprap size shall be as shown on the plans.
- (j) *Storm Drain Inlet Protection.* Prior to installation, the Contractor shall sweep the surface of the area in which the storm drain inlet protection devices are to be installed such that the pavement is free of sediment and debris. The ends of the inlet protection Type 1 and Type 2 shall extend a minimum of 1 foot past each end of the inlet.

The Contractor shall remove all accumulated sediment and debris from the surface surrounding all storm drain inlet protection devices after each rain event or as directed. The Contractor shall remove accumulated sediment from each Type II and III containment area when it is more than one third full of sediment, or as directed.

The Contractor shall protect storm drain facilities adjacent to locations where pavement cutting operations involving wheel cutting, saw cutting, sand blasting, or abrasive water jet blasting are to take place.

- (k) *Sediment Trap.* Sediment traps shall be installed to collect sediment laden water and to minimize the potential of pollutants leaving the project site. Locations shall be as shown on the plans or as directed.

Sediment traps shall be constructed prior to disturbance of upslope areas and shall be placed in

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

locations where runoff from disturbed areas can be diverted into the trap.

The area under the embankment shall be cleared, grubbed, and stripped of any vegetation and roots. Fill material for the embankment shall be free of roots or other vegetation, organic material, large stones, and other objectionable material.

Sediment shall be removed from the trap when it has accumulated to one half of the wet storage depth of the trap and shall be disposed of in accordance with subsection 208.04(f).

- (l) *Erosion Logs.* Erosion logs shall be embedded 2 inches into the soil. Stakes shall be embedded so that the top of the stake does not extend past the top erosion log more than 2 inches, at the discretion of the Engineer, a shallower stake depth may be permitted if adverse site conditions are encountered, e.g. rock or frozen ground.

The Contractor shall maintain the erosion logs during construction to prevent sediment from passing over or under the logs.

- (m) *Silt Dikes.* Prior to installation of silt dikes, the Contractor shall prepare the surface of the areas in which the silt dikes are to be installed such that they are free of materials greater than two inches in diameter and are suitably smooth for the installation of the silt dikes, as approved by the Engineer.
- (n) *Concrete Washout Structure.* The concrete washout structure shall meet or exceed the dimensions shown on the plans. Work on this structure shall not begin until written acceptance of location is provided by the Engineer.

Control measures designed for concrete washout waste shall be implemented. If the bottom of the excavated structure is within 5 feet of anticipated high ground water elevation or the soil does not have adequate buffering capacity to meet water quality standards, an impermeable synthetic liner shall be installed with the minimum properties shown in Table 208-5 or use a prefabricated washout.

The following requirements shall be met:

- (1) The structure shall contain all washout water.
- (2) Stormwater shall not carry wastes from washout and disposal locations.
- (3) The site shall be located a minimum of 50 horizontal feet away from State waters and shall meet all requirements for containment and disposal as defined in subsection 107.25.
- (4) The site shall be signed as "Concrete Washout".
- (5) The site shall be accessible to appropriate vehicles.
- (6) Freeboard capacity shall be included in the structure design to reasonably ensure the structure will not overtop during or because of a precipitation event.
- (7) The Contractor shall prevent tracking of washout material out of the washout structure.
- (8) Solvents, flocculants, and acid shall not be added to wash water.
- (9) The structure shall be surrounded on three sides by a compacted berm.

Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements

(10) The structure shall be fenced with orange plastic construction fencing to provide a barrier to construction equipment and to aid in identification of the concrete washout area.

(11) Concrete waste, liquid and solid, shall not exceed $\frac{2}{3}$ the storage capacity of the washout structure.

(o) *Pre-fabricated concrete washout structures (Type 1 and Type 2)*. Structures and sites shall meet the following requirements:

(1) Structure shall contain all washout water. If bins are determined to be leaking, the Contractor shall replace the bin on-site and clean up the spilled material.

(2) Structure shall be located a minimum of 50 horizontal feet away from State waters, and shall be confined so that no potential pollutants will enter State waters and other sensitive areas as defined in the Contract. Locations shall be as approved by the Engineer. The pre-fabricated structure shall be signed as "Concrete Washout". Sign can be on portable bin.

(3) The site shall be accessible to appropriate vehicles.

(4) Washout bins shall be covered with a tarp tied down to the structure or staked to the ground when a storm event is anticipated.

(5) Solvents, flocculants, and acid shall not be added to wash water.

(6) Concrete waste, liquid and solid, shall not exceed $\frac{2}{3}$ the storage capacity of the washout structure.

(7) Prefabricated structures cannot be moved when they contain liquid, unless otherwise approved.

(8) The concrete washout structure shall be installed and ready for use prior to concrete placement operations.

(9) Washout areas shall be checked and maintained as required. On site permanent disposal of concrete washout waste is not allowed.

All liquid and solid wastes, including contaminated sediment and soils generated from concrete washout shall be hauled away from the site and disposed of properly at the Contractor's expense.

Delivery to the site shall not occur until written acceptance is provided by the Engineer for both the product and the concrete waste disposal facility.

(p) *Vehicle Tracking Pad (VTP)*. Vehicle tracking pads shall be constructed to the minimum dimensions shown in the Contract, unless otherwise directed by the Engineer. Construction of approved vehicle tracking pads shall be completed before any disturbance of the area.

The Contractor shall maintain each vehicle tracking pad during the entire time that it is in use for the project. The vehicle tracking pad shall be removed at the completion of the project unless otherwise directed by the Engineer. Additional aggregate may be required for maintenance and will be paid for under Pay Item, Maintenance Aggregate (Vehicle Tracking Pad).

(q) *Detention Pond*. Permanent detention ponds shown on the construction plans may be used as temporary control measures if all the following conditions are met:

Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements

- (1) The pond is designated as a construction control measure in the SWMP.
 - (2) The pond outfall and outlet are designed and implemented for use as a control measure during construction in accordance with good engineering, hydrologic, and pollution control practices. The stormwater discharges from the outfall shall not cause degradation or pollution of State waters, and shall have control measures, as appropriate.
 - (3) All silt shall be removed and the pond returned to the design grade and contour prior to project acceptance.
- (r) *Aggregate Bag.* Aggregate bags shall be placed on a stable surface, consisting of hardscape or compacted gravel. If approved by the Engineer, the aggregate bag may be placed on compacted dirt areas, where bags conform to the surface and can effectively minimize sediment transport. Aggregate bags shall not be placed in concentrated flow areas. Aggregate bags shall be placed to conform to the surface without gaps to ensure that discharge water does not cause erosion.
- (s) *Surface roughening.* Surface roughening creates horizontal grooves along the contour of the slope. Roughening may be accomplished by furrowing, scarifying, ripping, or disking the soil surface to create a 2 to 4 inch minimum variation in soil surface.
- (t) *Vertical Tracking.* Vertical tracking involves driving a tracked vehicle up and down the soil surface and creating horizontal grooves and ridges along the contour of the slope. Sandy soils or soils that are primarily rock need not be tracked.

208.06 Materials Handling and Spill Prevention. The SWMP Administrator shall clearly describe and record on the SWMP, all practices implemented at the site to minimize impacts from procedures or significant material that could contribute pollutants to runoff. Areas or procedures where potential spills can occur shall have a Spill Response Plan in place as specified in subsections 107.25(b) or 208.06(c). Construction equipment, fuels, lubricants, and other petroleum distillates shall not be stored or stockpiled within 50 horizontal feet of any State waters or more if the Contractor determines necessary. Equipment fueling and servicing shall occur only within approved designated areas.

- (a) *Bulk storage structures.* Bulk storage structures for petroleum products and other chemicals shall have impervious secondary containment or equivalent adequate protection so as to contain all spills and prevent any spilled material from entering State waters. Secondary containment shall be capable of containing the combined volume of all the storage containers plus at least 10 percent freeboard. For secondary containment that is used and may result in accumulation of stormwater within the containment, a plan shall be implemented to properly manage and dispose of all accumulated stormwater which is deemed to be contaminated (e.g., has an unusual odor or sheen).
- (b) *Lubricant Leaks.* The Contractor shall inspect equipment, vehicles, and repair areas daily to ensure petroleum, oils, and lubricants (POL) are not leaking onto the soil or pavement. Absorbent material or containers approved by the Engineer shall be used to prevent leaking POL from reaching the soil or pavement. The Contractor shall have onsite approved absorbent material or containers of sufficient capacity to contain any POL leak that can reasonably be foreseen. The Contractor shall inform all Spill Response Coordinators in accordance with the Spill Response Plan if unforeseen leakage is encountered. All materials resulting from POL leakage control and cleanup shall become the property of the Contractor and shall be removed from the site. Control, cleanup, and removal of by-products resulting from POL leaks shall be performed at the Contractor's expense.
- (c) *Spill Response Plan.* A spill Response Plan shall be developed and implemented to establish

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

operating procedures for handling potential pollutants and preventing spills.

The Response Plan shall contain the following information:

- (1) Identification and contact information of each Spill Response Coordinator.
- (2) Locations of areas on the project site where equipment fueling and servicing operations are permitted.
- (3) Location of cleanup kits.
- (4) Quantities of chemicals and locations stored on site.
- (5) Label system for chemicals and Safety Data Sheets (SDS) for products.
- (6) Clean up procedures to be implemented in the event of a spill that does not enter State waters or ground water.
- (7) Procedures for spills of any size that enter surface waters or ground water, or have the potential to do so. CDOT's Erosion Control and Stormwater Quality Guide contains spill notification contacts and phone numbers required in the Spill Response Plan.
- (8) A summary of the employee training provided.

Information in items (1) through (8) shall be updated in the SWMP when they change.

208.07 Stockpile Management. Material stockpiles shall be located 50 horizontal feet away from State waters, and shall be confined so that no potential pollutants will enter State waters and other sensitive areas as defined in the Contract. Locations shall be approved by the Engineer.

Erodible stockpiles (including topsoil) shall be contained with acceptable control measures at the toe (or within 20 feet of the toe) throughout construction. Control measures shall be approved by the Engineer. The SWMP Administrator shall describe, detail, and record the sediment control devices on the SWMP.

208.08 Limits of Disturbance. The Contractor shall limit construction activities to those areas within the limits of disturbance shown on the plans and cross-sections. Construction activities, in addition to the Contract work, shall include the on-site parking of vehicles or equipment, on-site staging, on-site batch plants, haul roads or work access, and all other activities which would disturb existing soil conditions. Staging areas within the LDA shall be as approved by the Engineer. Construction activities beyond the limits of disturbance due to Contractor negligence shall be restored to the original condition by the Contractor at the Contractor's expense. The SWMP Administrator shall tabulate additional disturbances not identified in the CDPS-SCP application and indicate changes to locations and quantities on the SWMP. The Contractor shall report the changes and additional disturbances to the Engineer, Water Quality Control Division of CDPHE, and all other involved agencies.

The Contractor shall pursue stabilization of all disturbances to completion.

208.09 Regulatory Mechanism for Water Quality. The Department will identify and document findings not in compliance with the Water Quality Specifications, as specified in subsection 208.09(a)7, during Headquarters and Region water quality control inspections or observation by the Engineer. The Engineer will immediately notify the Contractor of these findings by issuing Form 105, which will be tracked in ESCAN/CARL software. Failure by the Contractor to clarify a finding location with the Engineer shall not

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

interrupt the timelines noted in subsection 208.09(b).

Timelines noted in subsection 208.09(b) do not indemnify the Contractor from failing to comply with CDPS-SCP timelines for corrective actions. The CDPS-SCP (Part I.D.8) states corrective actions "...must be addressed as soon as possible, immediately in most cases, to minimize the discharge of pollutants."

(a) *Definitions.*

1. **Compliance Assistance.** A low risk event as determined by the Region Water Pollution Control Manager (RWPCM). Compliance assistance events are not considered Findings and not subject to the Regulatory Mechanism noted in subsection 208.09(b).
2. **Deferment.** A request from the Contractor to the Engineer to delay implementation of corrective actions for Regular Findings pertaining to Water Quality Specifications. Deferments may only be granted due to extraordinary circumstances. However, it is at the Department's discretion to approve or reject these requests.
3. **Finding.** An incident discovered through inspection by the Department or by Engineer observation, which is noncompliant with the Water Quality Specifications. A Finding will be classified as one of the following:
 - (1) **Regular Finding.** A situation upon inspection that is in noncompliance with the Water Quality Specifications.
 - (2) **Severe Finding.** A discharge outside the project's Limits of Construction (LOC), subsection 107.25(a), to State waters or to a live inlet where the pollutant cannot be reclaimed.
 - (3) **Chronic Finding.** A Chronic Finding is assessed when the same Regular Finding at the same location is documented twice in the last three Headquarters or Region water quality control inspections. Engineer observed findings outside these inspections will not apply.
4. **Inspection Form 105.** The Form 105 issued by the Engineer documenting findings from Headquarters or Region led water quality inspection in accordance with subsection 208.03(c).
5. **Location.** The place where the finding was observed; can be a document (e.g., stormwater management plan [SWMP]) or physical location. A physical location must be described with enough detail to guide an independent party to the spot of the finding. Physical locations must be supported with at least one photograph.
6. **Recalcitrance.** Contractor has shown willful negligence or misrepresentation or unwillingness to adhere to the Water Quality Specifications.
7. **Water Quality Specifications.** Subsection 107.25, Sections 208, 213 and 216, and Standard Plans M-208-1 and M-216-1.

(b) *Liquidated Damages and Stop Work Orders.* The Contractor will be subject to Liquidated Damages for incidents of failure to comply with the Water Quality Specifications and implement corrective actions to resolve noncompliance in the time frame established in subsection 208.09(b and c). Liquidated damages will not be considered a penalty but will be assessed to recover costs associated with environmental damages, and engineering and administrative expenses incurred by the Department for the Contractor's failure to comply with the Water Quality Specifications. Liquidated damages will accumulate for each finding, for each cumulative day that the finding remains

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

uncorrected. Liquidated damages associated with incidents pertaining to this subsection do not indemnify the Contractor of other Liquidated Damages associated with this project.

In addition to Liquidated Damages, the Contractor will be subject to a project-wide Stop Work Order for recalcitrance and the Engineer may, in writing, issue a Stop Work Order for Chronic and Severe Findings in accordance with subsection 105.01.

Findings are closed when the corrective action is complete, reported to ESCAN and accepted by the Department. The Department will notify the Contractor through ESCAN when the corrective action is accepted or denied. Liquidated damages will be assessed by the type of finding as follows and will continue until the corrective action is approved by the Department.

1. Regular Finding. The time required to repair a Regular Finding shall begin at 11:59 PM on the date the Inspection Form 105 is issued. The Contractor shall have no more than a seven day grace period to correct the Regular Finding before Liquidated Damages are assessed. The grace period extends until 11:59 PM on the seventh day after the Inspection Form 105 was issued.

The Engineer will issue a Form 105 notifying the Contractor that Liquidated Damages are accruing at \$1,500 per day for each full or partial calendar day a Regular Finding remains uncorrected after the seven day grace period. At 11:59 PM on the 14th day after the Form 105 was issued, each uncorrected, undeferred Regular Finding will be assessed as recalcitrant and the Engineer will issue a project-wide stop work order. The Contractor shall fix each recalcitrant finding and submit a plan to avoid future instances of each recalcitrance to the Department for approval. The recalcitrance plan shall be in writing, signed by the Superintendent and shall include:

- (1) Each Recalcitrant Finding.
- (2) Why the corrective action for each Recalcitrant Finding was not implemented within 14 days.
- (3) How the Contractor will avoid future recalcitrance.

The Department will discuss the recalcitrance plan and may meet with the Superintendent to recommend modifications, if needed. The Engineer will issue a Form 105 accepting or rejecting the recalcitrance plan within 24 hours of the Contractor submitting a plan or resubmitting a modified plan.

The Contractor will neither be reimbursed for costs incurred to fix each Recalcitrant Finding pertaining to a control measure in the SWMP plan nor costs to prepare the recalcitrance plan. The Contractor shall propose additional control measures, if needed, according to subsection 208.04(a). The project-wide Stop Work Order and Liquidated Damages will be assessed until approval of the corrective action for each Recalcitrant Finding and approval of the Contractor's recalcitrance plan by the Department is given. After written approval by the Engineer, the project-wide Stop Work Order will be lifted and accrual of Liquidated Damages will cease.

2. Severe Finding. In response to a Severe Finding, the Engineer will issue Inspection Form 105 and immediately assess Liquidated Damages of \$3,500 per Severe Finding. Severe Findings shall not be eligible for the seven day grace period (subsection 208.09(b)1). Liquidated damages will accrue at \$3,500 per Severe Finding per calendar day beginning at 11:59 PM of day the Inspection Form 105 is issued.
 - A. If the Severe Finding is a discharge to State waters, the Contractor shall prevent any further discharge and shall reclaim discharge which has not yet entered State waters. The

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

Contractor shall report the discharge to CDPHE in accordance with CDPS-SCP requirements.

- B. If the Severe Finding is a discharge outside the LOC that does not enter State waters, the Contractor shall fully reclaim the discharge before it enters State waters and implement relevant CDPS-SCP noncompliance notification procedures.

The Engineer may require the Contractor to submit a plan for permanent stabilization of disturbed areas outside the LOC per 208.04(e)4 for approval. Permanent stabilization plans pertaining to Severe Findings and subsequent stabilization activities are not subject to 208.09(b).

The Contractor shall not be reimbursed for activities undertaken to reclaim the discharge, stabilize areas outside the LOC and implement relevant CDPS-SCP noncompliance notification procedures.

3. Chronic Finding. In response to a Chronic Finding, the Engineer will issue Inspection Form 105 and immediately assess Liquidated Damages of \$1,500 per Chronic Finding. Chronic Findings shall not be eligible for the seven day grace period (subsection 208.09(b)). Liquidated damages will accrue at \$1,500 per Chronic Finding per day beginning at 11:59 PM of day the Inspection Form 105 is issued.

When the Chronic Finding is comprised of two Severe Findings, the Department will assess Liquidated Damages in accordance with this specification.

- (c) *Deferment.* If the Contractor seeks deferment, the Superintendent shall submit a deferment request to the Engineer by 11:59 PM of the day after the issuance of Inspection Form 105. Chronic and Severe Findings are not eligible for deferment. The deferment request shall be in writing, signed by the Superintendent and shall include:

- (1) Regular Findings to be deferred
- (2) The reasons why the Findings cannot be corrected in seven days
- (3) An action plan containing:
 - (i) Methodology to protect water quality until each deferred Finding is corrected and accepted
 - (ii) Milestones to measure progress toward completion
 - (iii) Additional control measures to be implemented until each deferred Finding is corrected and accepted
 - (iv) Corrective completion dates for each Finding

The Department will discuss the deferment request and may meet with the Superintendent to recommend modifications to the action plan. The Engineer will issue a Form 105 accepting or rejecting the deferment request by 11:59 PM of the third day after the Inspection Form 105 documenting the Regular Finding is issued. The Department will not accept a deferment for operational error, lack of resources, improperly installed control measures, inadequate control measures, lack of preventative maintenance, careless or improper operation, or other non-proactive reason.

Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements

Preparation of deferment documentation and additional materials, including additional control measures, required to complete the action plan shall be at the Contractor's expense. Time frames noted in subsection 208.09(b)1 will not be stopped during the deferment review period, therefore, Liquidated Damages will be assessed beginning 11:59 PM on calendar day seven if the deferment request is rejected and, furthermore, a rejected deferment plan (subsection 208.09(c)) shall not absolve the Contractor from recalcitrance.

The Engineer will assess Liquidated Damages in the amount of \$1,500 per calendar day, and partial day, for each uncorrected Deferred Finding. These Liquidated Damages will start on the date the uncorrected work was deferred to be completed (subsection 208.09(c)(3)). In addition, Liquidated Damages of \$1,500 per calendar day will be assessed retroactively to 11:59 PM of the day the finding was originally noted on the Inspection Form 105.

- (d) *Conflict Resolution.* Subsections 105.22, 105.23, and 105.24 detail the process through which the parties (CDOT and the Contractor) agree to resolve any issue that may result in a dispute.
- (e) *Exemptions.* The Engineer will exempt from subsection 208.09(b) situations of Compliance Assistance, Documented Upset Conditions, Documented Reportable Spills and Documented Winter Exemptions. Release from subsection 208.09(b) does not exempt the Contractor from compliance with CDPS-SCP, Part I.D.8.
1. Documented Upset Condition. The Contractor shall report, both verbally and in writing, the Upset Condition to CDPHE per CDPS-SCP Part II.A.6 and subsection 208.03(c) and provide written documentation to the Engineer. The Engineer will issue a Form 105 and recognize the exemption to the Regulatory Mechanism. The Contractor shall also update the SWMP with the Form 105 and the documented Upset Condition.
 2. Documented Reportable Spills. The Contractor shall report, both verbally and in writing, the Reportable Spill to CDPHE per subsection 107.25(b) and provide written documentation to the Engineer. The Engineer will issue a Form 105 and recognize the exemption to the Regulatory Mechanism. The Contractor shall also update the SWMP with the Form 105 and the documented Reportable Spill.
 3. Winter Exemptions. The Contractor is unable to address findings noted on the Headquarters or Region led water quality control inspection due to:
 - (1) Snow covers the entire site for an extended period and;
 - (2) No construction activity and;
 - (3) Melting conditions posing a risk of surface erosion do not exist.The Contractor shall request a Winter Exemption to the Department. If approved, the Engineer will issue a Form 105 and recognize the exemption to subsection 208.09(b). The Contractor shall also update the SWMP with the Form 105 and the documented Winter Exemption. Liquidated Damages, if assessed, will only accrue up to the point where the Winter Exemptions are approved.
 4. Compliance assistance during Headquarters or Region led water quality control inspections. The RWPCM will record compliance assistance in ESCAN/CARL software.

208.10 Items to Be Completed Prior to Requesting Partial Acceptance of Water Quality Work.

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

- (a) *Reclamation of Washout Areas.* After concrete operations are complete, washout areas shall be reclaimed in accordance with subsection 208.05(n) at the Contractor's expense.
- (b) *Survey.* When Permanent Water Quality control measures are required on the project, the Contractor shall survey the control measures to confirm that they conform to the configuration and grade shown on the Plans. The survey shall conform to Section 625. The results of the survey shall be submitted as CAD drawing files and PDF files, showing both designed and final elevations and configurations. Paper versions of the drawings shall be submitted with the stamp and seal of the Contractor's Surveyor.

The Engineer and the CDOT Hydraulics Engineer for the region will perform a walkthrough of the Permanent control measures to confirm conformance to material requirements, locations, and dimensions of the Permanent control measures. Permanent control measures not meeting the Contract requirements will be identified in writing by the Engineer, and shall be repaired or replaced at the Contractor's expense. Correction surveys shall be performed at the Contractor's expense to confirm the locations and dimensions of each Permanent control measure. Final as-built plans of the Permanent control measures shall be provided to the Engineer and the CDOT Headquarters and Region Permanent Water Quality Control Specialist for their records.

- (c) *Locations of Temporary Control Measures.* The Engineer will identify locations where modification, cleaning, or removal of temporary control measures are required and will provide these in writing to the Contractor. Upon completion of work required, the SWMP Administrator shall modify the SWMP to provide an accurate depiction of control measures to remain on the project site.

All punch list and walkthrough items shall be completed and approved by the Engineer and Maintenance.

**REVISION OF SECTION 208
EROSION CONTROL GREATER THAN 40 ACRES**

Section 208 of the Standard Specifications is hereby revised for this project as follows:

In subsection 208.03(c) delete the first paragraph and replace it with the following

Erosion Control Management (ECM). Erosion Control Management for this project shall consist of Erosion Control Inspection and the SWMP Administration. All ECM staff shall have working knowledge and experience in construction, and shall have successfully completed the Transportation Erosion Control Supervisory Certificate Training (TECS) as provided by the Department. The Superintendent will not be permitted to serve in an ECM role. The Erosion Control Inspector (ECI) and the SWMP Administrator may be the same person in projects involving less than 40 acres of disturbed area.

In subsection 208.03(c)1 delete the first paragraph and replace it with the following:

SWMP Administration. The SWMP shall be maintained by a SWMP Administrator. In the case of a project requiring only one TECS, the SWMP Administrator may also be the ECI for the project. The name of the SWMP Administrator shall be recorded on the SWMP Section 3. B. The SWMP Administrator shall have full responsibility to maintain and update the SWMP and identify to the Superintendent critical action items needed to conform to the CDPS-SCP as follows:

In subsection 208.03(c)2 delete the first paragraph and replace it with the following:

One ECI is required for every 40 acres of total disturbed area which is currently receiving temporary and interim stabilization measures as defined in subsection 208.04 (e). An ECI shall not be responsible for more than 40 acres in the project. Accepted permanent stabilization methods as defined in subsection 208.04 (e) will not be included in the 40 acres.

In subsection 208.03(d)1 delete item (1) and replace it with the following:

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

- (1) SWMP Site Maps and Plan Title Sheet - Construction site boundaries, ground surface disturbance, limits of cut and fill, flow arrows, structural BMPs, non-structural BMPs, Springs, Streams, Wetlands and surface water. Also included on the sheets is the protection of trees, shrubs and cultural resources.

In subsection 208.05(n), in the list of requirements for pre-fabricated concrete washout structures, delete item (2) and replace it with the following:

- (2) Structure shall be located 50 horizontal feet away from State waters, and shall be confined so that no potential pollutants will enter State waters and other sensitive areas are as defined in the Contract. Locations shall be as approved by the Engineer. The site shall signed as "Concrete Washout".

In subsection 208.11 delete the first paragraph and replace it with the following:

Erosion Control Management will be measured as the actual number of days of ECM work performed, regardless of the number of personnel required for SWMP Administration and Erosion Control Inspection, including erosion control inspections, documentation, meeting participation, SWMP Administration, and the preparation of the SWMP notebook. If the combined hours of SWMP Administration and Erosion Control Inspection is four hours or less in a day, the work will be measured as ½ day. If the combined hours of SWMP Administration and Erosion Control Inspection is more than four hours in a day, the work will be measured as one day. Total combined hours of ECM work exceeding eight hours in a day will still be paid as one day.

**REVISION OF SECTION 208
CONSTRUCTION MAT**

Section 208 of the standard specifications is hereby revised for this project to include the following:

DESCRIPTION

208.13 This work consists of furnishing and installing construction mats to support equipment working in wetlands, streams, and other locations designated on the plans while protecting the soils and vegetation beneath from damage.

MATERIALS

208.14 Construction mats shall be capable of supporting the anticipated loads on the types of soil that will be encountered. Larger mats shall be used on soils with low bearing strength (e.g., muck or peat) to spread the weight over a larger area. Construction mats shall be free of leachable preservatives or other constituents harmful to aquatic environments. All treated wood shall contain a quality mark or letter of certification from a third party inspection agency assuring the product meets the minimum American Wood Protection Association (AWPA) Use Category 4A standard. The Contractor may fabricate the mats or use prefabricated mats designed for these purposes.

- (a) *Construction Mats Fabricated by the Contractor.* The construction mats shall be fabricated of wooden cants, sawn dense hardwoods, or round logs fastened together. The mats shall be fabricated of cants or logs of length, width, and thickness to meet anticipated loads, soil strength, and construction equipment sizes. Alternative materials may be used if approved by the Engineer.

The mats shall be capable of being connected using quick links or other heavy-duty connectors if needed for stability or to reduce movement.

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

The Contractor's mat design shall be submitted to the Engineer for review and approval at least three weeks before the mats are to be used on the project. The design shall include a list of equipment and materials to be placed on the mats and anticipated loading.

Mats that are determined to be inadequate to support the required loads or protect the soil and vegetation beneath shall be removed from the project and replaced with adequate mats at the Contractor's expense.

- (a) *Prefabricated Construction Mats.* Pre-fabricated mats shall be made of natural timber or other material approved by CDOT's Project Engineer. Mats shall be capable of assembly to form appropriate size mats to be placed directly onto ground surfaces for the purposes of holding or transferring heavy equipment, preventing excessive rutting, and minimizing vegetation disturbance.
- (b) *Hardware.* Construction mats shall be supplied with all necessary hardware, including all bolts with nuts and washers, timber connectors, drift pins, dowels, nails, screws, spikes, metal pile protectors, steel anchor plates and all other metal fastenings.

CONSTRUCTION REQUIREMENTS

208.15 General. Prior to placement of mats, woody vegetation (willows, shrubs, trees, etc.) shall be cut or trimmed at or slightly above ground level. Vegetation shall not be uprooted, and the root mat of any vegetation shall not be disturbed.

Crossing sites shall be located where stream channel is narrow for the shortest possible clear span and where stream banks are stable and well defined. When feasible on large wetland complexes, structures shall be accessed from opposite sides to avoid crossing the entire wetland.

208.16 Installation. Mats shall be in good condition to ensure proper installation, use, and removal. Mats shall be inspected by the Engineer to ensure they are clean of soil and any invasive plant species seed stock or plant material from previous use. The spread of aquatic nuisance species, including the New Zealand mud snail, shall be prevented. Specifically, if heavy equipment (including mats) is used that was previously working in another stream, river, lake, pond, or wetland, it shall be cleaned using one of the following procedures:

- (1) Remove all mud and debris from equipment (tracks, turrets, buckets, drags, teeth, etc.) and spray/soak equipment with a solution of commercial grade quaternary ammonium disinfectant compound containing at least 8.0% active ingredient diluted in solution to achieve at least 0.8% concentration (roughly 12 ounces of product per gallon of water). Treated equipment shall be kept moist for at least 10 minutes, managing rinsate as a solid waste in accordance with local, county, state, or federal regulations, OR
- (2) Remove all mud and debris from equipment (tracks, turrets, buckets, drags, teeth, etc.) and spray or soak equipment with water hotter than 140 °F for at least 10 minutes.

Hand tools, boots, and any other equipment that will be used in the water shall be cleaned using option (1) or (2) as well. The equipment shall be dried before use. Equipment shall not be moved from one water body to another without cleaning.

Equipment and associated materials (including mats) shall not be stored, maintained, fueled or repaired in waters of the U.S. or wetlands.

Operating heavy equipment on mats in wetlands shall be minimized.

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

Impacts to waters of the U.S. or wetlands areas shall be minimized during installation, use, and removal of construction mats. Mats shall be placed in a location that would minimize the amount needed for crossing the waters of the U.S. or wetlands.

Construction mats shall not be dragged into position. More than one layer of mats may be necessary in areas which are inundated or have deep organic wetland soils.

At crossings where no flow is present or anticipated during project construction, the mats may be placed directly onto the ground in order to prevent excessive rutting, provided stream banks and bottoms are not adversely altered.

For further protection, mats may be installed on top of nonwoven geotextile that covers the crossing area.

Construction mats may be used as a temporary bridge over a stream to allow vehicles access to the work site. Mats shall not be placed so that they restrict the natural flow of the stream. When used for flowing water crossings, small sections of mat shall be placed within and along the stream parallel to the flow of water. Mats shall then be placed perpendicular to the stream, resting on top of the initial construction mat supports. It may be necessary to place additional reinforcement for extra stability and to minimize the amount of sediment that could fall between the spaces of each timber.

In most cases, construction mats shall be placed along the travel area so that the individual cants or logs are resting perpendicular to the direction of traffic. Mats shall be placed far enough on either side of the stream or wetland to rest on firm ground.

Adequate erosion and sediment controls shall be installed at approaches to mats to promote a smooth transition to, and minimize sediment tracking onto, construction mats.

Matted crossings of waters of the U.S. or wetlands shall be monitored to assure correct functioning of the mats. Mats shall be inspected during use for any defects or structural problems. Mats which become covered with soils or construction debris shall be cleaned and the materials removed and disposed of in an upland location. The material shall not be scraped and shoveled into the resource area. Mats which become imbedded shall be reset or layered to prevent mud from covering them or water passing over them.

208.17 Removal Mats shall be removed by “backing” out of the site, removing mats one at a time. Construction mats shall not be dragged out of position. All other material placed for protection, such as geotextile fabric, straw, etc. shall then be removed. Any rutting or significant indentations identified during mat removal shall be regraded immediately, taking care not to compact soils.

Crossings shall be inspected following mat removal to determine the level of restoration required.

Mats shall be cleaned in an upland area which doesn't drain directly to waters of the U.S. or wetlands before transport to another wetland or stream location. Cleaning methods may include but are not limited to shaking or dropping mats in a controlled manner with a piece of machinery to knock off attached soil and debris, spraying with water or air, and sweeping.

208.18 Restoration. Upon removal of the construction mats, the Contractor and the Engineer shall examine the matted area together to determine what restoration, if any, is required. Restoration shall include, but is not limited to, the following:

Areas of disturbed soil located near waters of the U.S. or wetlands shall be promptly stabilized. Matted areas within wetlands shall be restored to their original condition and elevation. This may involve natural revegetation from existing root and seed stock of native plant species. Conditions may warrant planting and the broadcast of a wetland seed mix over the matted area to supplement the existing seed and rootstock. Seed mixes and vegetation shall contain only native plant species of the appropriate moisture tolerance regime. The use of mulch in wetlands shall consist of weed free mulch to mitigate the risk of the spread of invasive plant species.

**REVISION OF SECTION 240
PROTECTION OF PRAIRIE DOGS AND MIGRATORY BIRDS**

Revision of Section 240 – Biological Performed by a Biologist Section 240 is hereby added to the Standard Specifications for this project as follows:

240.01 This work consists of protecting prairie dogs

A pre-project survey shall be completed by Contractor's biologist to determine if active prairie dog burrows occur within the project area. In all instances CDOT's Prairie Dog Policy shall be followed, and avoidance/relocation techniques may need to be employed to ensure that direct impacts to prairie dog colonies within the CDOT ROW do not occur. If active burrows are discovered, but can be avoided, orange construction fencing shall be established around the burrow with an appropriate buffer, or otherwise approved methods, to prevent construction related impacts from occurring.

240.02 This work consists of protecting migratory birds during construction.

The Contractor shall schedule clearing and grubbing operations and work on structures to avoid taking (pursue, hunt, take, capture or kill; attempt to take, capture, kill or possess) migratory birds protected by the Migratory Bird Treaty Act (MBTA). The Contractor shall retain a qualified wildlife biologist for this project. The wildlife biologist shall have a minimum of three years' experience conducting migratory bird surveys and implementing the requirements of the MBTA. The Contractor shall submit documentation of the biologist's education and experience to the Engineer for acceptance. A biologist with less experience may be used by the Contractor subject to the approval of the Engineer based on review of the biologist's qualifications.

The wildlife biologist shall record the location of each protected nest, bird species, the protection method used, and the date installed. A copy of these records shall be submitted to the Engineer.

(a) *Vegetation Removal.* When possible, vegetation shall be cleared prior to the time when active nests are present. Vegetation removal activities shall be timed to avoid the migratory bird breeding season which begins on April 1 and runs to August 31. All areas scheduled for clearing and grubbing between April 1 and August 31 shall first be surveyed within the work limits for active migratory bird nests. The Contractor's wildlife biologist shall also survey for active migratory bird nests within 50 feet outside work limits. Contractor personnel shall enter areas outside CDOT ROW only if a written, signed document granting permission to enter the property has been obtained from the property owner. The Contractor shall document all denials of permission to enter property. The Contractor shall avoid all active migratory bird nests. The Contractor shall avoid the area within 50 feet of the active nests or the area within the distance recommended by the biologist until all nests within that area have become inactive. Inactive nest removal and other necessary measures shall be incorporated into the work as follows:

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

1. *Tree and Shrub Removal or Trimming.* Tree and shrub removal or trimming shall occur before April 1 or after August 31 if possible. If tree and shrub removal or trimming will occur between April 1 and August 31, a survey for active nests shall be conducted by the wildlife biologist within the seven days immediately prior to the beginning of work in each area of tree and shrub removal or trimming. The survey shall be conducted for each phase of tree and shrub removal or trimming.

If an active nest containing eggs or young birds is found, the tree or shrub containing the active nest shall remain undisturbed and protected until the nest becomes inactive. The nest shall be protected by placing fence (plastic) a minimum distance of 50 feet from each nest to be undisturbed. This buffer dimension may be changed if determined appropriate by the wildlife biologist and approved by the Engineer. Work shall not proceed within the fenced buffer area until the young have fledged or the nests have become inactive.

If the fence is knocked down or destroyed by the Contractor, the Engineer will suspend the work, wholly or in part, until the fence is satisfactorily repaired at the Contractor's expense. Time lost due to such suspension will not be considered a basis for adjustment of time charges, but will be charged as contract time.

2. *Grasses and Other Vegetation Management.* Due to the potential for encountering ground nesting birds' habitat, if work occurs between April 1 and August 31, the area shall be surveyed by a wildlife biologist within the seven days immediately prior to ground disturbing activities. The undisturbed ground cover to 50 feet beyond the planned disturbance, or to the ROW line, whichever is less, shall be maintained at a height of 6 inches or less beginning April 1 and continuing until August 31 or until the end of ground disturbance work, whichever comes first.

If birds establish a nest within the survey area, an appropriate buffer of 50 feet will be established around the nest by the CDOT biologist. This buffer dimension may be changed if determined appropriate by the CDOT biologist and approved by the Engineer. The Contractor shall install fence (plastic) at the perimeter of the buffer. Work shall not proceed within the buffer until the young have fledged or the nests have become inactive.

If the fence is knocked down or destroyed by the Contractor, the Engineer will suspend the work, wholly or in part, until the fence is satisfactorily repaired at the Contractor's expense. Time lost due to such suspension will not be considered a basis for adjustment of time charges, but will be charged as contract time.

- (b) *Work on structures.* The Contractor shall prosecute work on structures in a manner that does not result in a taking of migratory birds protected by the Migratory Bird Treaty Act (MBTA). The Contractor shall not prosecute the work on structures during the primary breeding season, April 1 through August 31, unless he takes the following actions:
 - (1) The Contractor shall remove existing nests prior to April 1. If the Contract is not awarded prior to April 1 and CDOT has removed existing nests, then the monitoring of nest building shall become the Contractor's responsibility upon Notice to Proceed.
 - (2) During the time that the birds are trying to build or occupy their nests, between April 1 and August 31, the Contractor shall monitor the structures at least once every three days for any nesting activity.

**Request for Proposal
US 550 / 160 Connection South Design Build
NHPP 5501-029, Sub Account: 22420
Book 2 – Technical Requirements
Section 5 – Environmental Requirements**

- (3) If the birds have started to build any nests, they shall be removed before the nest is completed. Water shall not be used to remove the nests if nests are located within 50 feet of any surface waters.
- (4) Installation of netting may be used to prevent nest building. The netting shall be monitored and repaired or replaced as needed. Netting shall consist of a mesh with openings that are $\frac{3}{4}$ inch by $\frac{3}{4}$ inch or less.

If an active nest become established, i.e., there are eggs or young in the nest, all work that could result in abandonment or destruction of the nest shall be avoided until the young have fledged or the nest is unoccupied as determined by the wildlife biologist and approved by the Engineer. The Contractor shall prevent construction Activity from displacing birds after they have laid their eggs and before the young have fledged.

If the project continues into the following spring, this cycle shall be repeated. When work on the structure is complete, the Contractor shall remove and properly dispose of netting used on the structure.

- (c) *Bald Eagle Roosting.* The wildlife biologist shall conduct dusk and dawn surveys of Bald Eagle roosts within seven days prior to the start of any construction during the winter season, November 15 to March 15. If a Bald Eagle roost is identified, construction Activity shall not proceed within 0.25 mile of active nocturnal roost sites between November 15 and March 15.
- (d) *Raptor Nesting.* The wildlife biologist shall conduct raptor nest surveys within 0.5 mile of the construction site prior to the start of construction and prior to each construction phase from February 1-July 15. This survey can be done with binoculars. If construction activities are located within the CPW recommended buffer zone for specific raptors, "NO WORK" zones shall be established around active sites during construction according to the CPW standards or as recommended by the wildlife biologist in consultation with the CPW. The "NO WORK" zone shall be marked with either fencing or signing. Work shall not proceed within a "NO WORK" zone until the wildlife biologist has determined that the young have fledged or the nest is unoccupied.
- (e) *Taking of a Migratory Bird.* The taking of a migratory bird shall be reported to the Engineer. The Contractor shall be responsible for all penalties levied by the U. S. Fish and Wildlife Service (USFWS) for the taking of a migratory bird.