SECTION 00 01 07
SPECIFICATIONS SEALS PAGE
FOR
BAND 266697
UNDERGROUND UTILITIES REHABILITATION
ADDENDUM NO. 1

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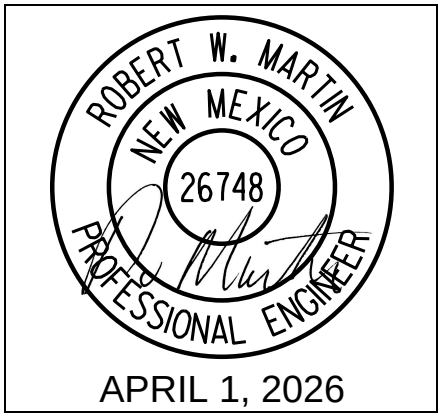

Robert W. Martin

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SECTION 01 11 00
SUMMARY OF WORK

PART 1 GENERAL

1.1 SUMMARY

A. Section includes the following:

1. Work Covered by Contract Documents.
2. Work Phases.
3. Construction Contractor Use of Site.
4. Public Use of Site.
5. Occupancy Requirements for Buildings.
6. Conduct of Operations.
7. Work Restrictions.
8. Special Construction Requirements.
9. Soils Investigation Report.
10. Additional Reports.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Location: Bandelier National Monument, Los Alamos, New Mexico. The Project will be located at the following developed areas within NPS park-owned land: Mesa Top, Entrance Road, and Frijoles Canyon; and Los Alamos National Lab (LANL) right-of-way across Highway-4 from Bandelier. The Mesa Top area consists of Entrance Station, Juniper Campground, Mesa Housing (Residential Area), and Field Operations Center (FOC). Entrance Road consists of Entrance Road and Fire Tower Lane. The Canyon Area consists of Agoyo Lane, Stone House Road, Visitor Center, and Other Buildings.

B. The Work consists of:

1. The Work required in the scope as described in Section 01 27 00, Definition of Contract Line Items, includes the following at Bandelier National Monument developed areas, as described herein but not limited to:

   a. General Conditions. Include General Requirements, Mobilization/ Demobilization, Erosion and Sediment Control, Traffic Control, Non-vegetative Surface Restoration, and Protection and Preservation of historic buildings and features as required to complete the Work per Contract Specifications and Drawings.
   b. The Work is to be completed within two National Register of Historic Places districts, the Civilian Conservation Corps (CCC) Historic District in the Canyon Area, and Mission 66 Historic District in the Mesa Top Area.

c. Replace utility systems at the major distribution and collection systems to address deferred maintenance and code deficiencies on 60 plus year old systems utilizing existing utility corridors and road shoulders and/or under roads to maintain code required separation horizontally and vertically while mitigating impact to sensitive natural and cultural resource areas. Utilities include underground potable water, primary electrical, fiber-optic, natural gas, and sanitary sewer.

d. The main park water system consists of replacing primary distribution mains and laterals, connecting to a new 24,000-gallon belowgrade water storage tank at Entrance Road (referred as Entrance Road Water Tank) and adjacent new Canyon mechanical building, abandoning the existing Canyon 20,000-gallon belowgrade water storage tank (referred as Existing Canyon Underground Concrete Water Tank), removing water main hanging from the Canyon cliff, and providing hydropneumatic tanks with pumps as water pressure boosters at Juniper Campground comfort stations.

e. The primary electrical distribution system consists of replacing Mesa Top single-phase feed with a new three-phase primary electrical service, facilitate future interconnection tie between the Mesa Top and the Frijoles Canyon distribution systems, and replacing aging electrical feeders, equipment, and conductors for the three main areas at Mesa Top, Entrance Road, and Frijoles Canyon.

f. The fiber-optic network consists of extending existing fiber-optic from the Frijoles Canyon to Mesa Top areas including FOC and Entrance Station.

g. The remote monitoring system consists of a cellular modem and antenna for a cloud based monitoring. A remote monitoring system will be installed at the Main Blue Water Tank, Abert's Squirrel Loop, PRV vaults, and Main Lift Station. The existing 35,000-gallon above-grade Existing Main Blue Water Tank level sensor will be wired to Mesa Top Abert's Squirrel Loop.

h. The natural gas system consists of replacing existing natural gas distribution lines and service lines for Mesa Top (Mesa housing, FOC, and Fire Tower Lane) and Frijoles Canyon areas (Visitor Center and other buildings).

i. The wastewater system consists of replacing existing sewer pipes, manholes, and laterals at Mesa Top, Juniper Campground, and Frijoles Canyon developed areas. It also consists of providing new gravity sewer from the Frijoles Canyon Comfort Station Building #1 (also known as Cottonwood Comfort Station) to a manhole near the Visitor Center and installing new electric utility under the pedestrian bridge to re-activate the existing comfort station.

~~i.~~j. The culvert and erosion repairs work consists of work along the Entrance Road, approximately 1,000 feet from the Visitor Center parking area (Sta. 158+00 RT to Sta. 159+00 RT), to excavate soil that has buried a culvert inlet, perform grading of the surrounding drainage basin, repair a

stone headwall, and install erosion control. It also consists of a location along the Entrance Road, approximately 3,000 feet from the Visitor Center parking area (Sta. 138+75 RT to Sta. 139+50 RT), to repair an eroded gully with embankment fill, a colored concrete curb, concrete channel, riprap lined rundown, and replace two wood posts and several wood blockouts on an existing w-beam guardrail.[REV. 1][ADD1]

C. Project will be constructed under a single prime contract.

1.3 WORK PHASES

A. Refer to Section 01 32 16, Construction Schedule, for additional sequencing requirements.

1.4 CONSTRUCTION CONTRACTOR USE OF SITE

A. General: Construction Contractor shall have limited use of site for construction operations. Limit use of premises to work in areas indicated on the Drawings. Do not disturb portions of Project Site beyond areas in which the Work is indicated. Bandelier National Monument will remain open during construction project. See Article Public Use of Site, for additional requirements.

1. Limits: Confine construction and disturbance operations to the Limits of Disturbance (LOD) boundary shown on the Drawings. Coordinate with the requirements of Section 31 10 00, Site Clearing.

B. Storage of Materials: Confine storage of materials to staging areas indicated on the Drawings, or allowable work area next to utility trenches. Use of temporary barriers and signage is not exclusive to locations shown on the Drawings. It is the responsibility of the Construction Contractor to provide protection to any trees, historic buildings and features that may be harmed by equipment during construction.

C. Staging areas shall be located within areas that are already compacted, graded, gravel or paved surface as indicated on Drawing No. 00G004.

D. Parking: Confine parking to areas as shown on Drawing No. 00G004. During busy visitor seasons, preference is for parking at the Bone Yard and carpooling to the active worksites. Contractor is prohibited from parking on the main visitor parking loop by the Visitors Center.

E. Stockpiling: Unless otherwise approved by Contracting Officer, all excess excavated material must be disposed offsite. Temporary stockpiles within approved work areas may be allowed by Contracting Officer in consultation with Bandelier operations, and with appropriate protection of visitors. Contractor may be allowed to reuse material from the existing stockpiles at the Bone Yard for certain project activities, such as filling in the demolished water tank in Contract Line Item Option B. When suitable

material is available at the Bone Yard, preference is to use those onsite materials instead of offsite materials.

F. Protection of Cultural Resources: Bandelier National Monument is listed as a National Historic Landmark on the Register of Historic Places. The Contractor must undertake operations with sensitivity to preserve the historic integrity of the Park.

1. Unless approved by Bandelier staff, construction vehicles and equipment must stay on pavement or gravel surfaces. Equipment will avoid known archeological resources. Coordinate offroad work in advance in accordance with Section 01 32 16, Construction Schedule.
2. Items identified as significant resources, intrinsic features and elements of the property that are not specifically named, as well as archeological remains and artifacts are valued and important.
3. Construction activity must demonstrate treatment approaches that protect Park cultural resources. Construction means and methods must comply with the Secretary of the Interior (SOI) Standards for Rehabilitation and SOI Guidelines for Treatment of Cultural Landscapes and Archeological Protection.
4. Excavation requires archeological monitoring provided by NPS staff.
5. Construction methods that are considered radical, unproven, or have the potential to adversely alter or cause irreversible loss of the fabric, character defining qualities or appearance, must not be attempted.
6. Construction deviating from approved Contract Documents require review and approval by the Contracting Officer in advance of commencing work.
7. Historic Preservation Treatment Plan (HPTP) must be submitted in advance of mobilization, highlighting means and methods for accomplishing critical tasks when and where an elevated risk of damage to resources exists.
8. If previously unknown archeological resources are discovered during construction, all work in the immediate vicinity of the discovery shall be halted until the resources are identified and documented and an appropriate mitigation strategy developed, if necessary, in accordance with pertinent laws and regulations. Contracting Officer shall be called immediately.

G. Preservation of Natural Features:

1. Unless approved by Bandelier staff, construction vehicles and equipment must stay on pavement or gravel surfaces. Coordinate offroad work in advance in accordance with Section 01 32 16, Construction Schedule.
2. Prevent damage to natural surroundings. Limit disturbance to boundaries shown on Drawings. Replace removed and damaged trees at no additional expense to the Government at the location determined by the Bandelier National Monument Integrated Resources Program Manager in accordance with Section 32 93 00, Plants.
3. Provide temporary barriers in accordance with Section 01 50 00, Temporary Facilities and Controls, to protect existing trees and plants and root zones.

4. Do not remove, injure, or destroy trees or other plants without prior approval from the Bandelier National Monument Integrated Resources Program Manager.
5. Do not fasten ropes, cables, or guys to existing trees.
6. Carefully supervise excavating, grading, filling, and other construction operations near trees to prevent damage.
7. Prior to vehicles entering Bandelier National Monument, power wash all vehicles and equipment that will travel off paved surfaces into the construction corridor. Washing shall be sufficient to remove all visible plant material and soil from prior locations where vehicles and equipment have been used. NPS shall inspect vehicles and equipment for adequacy of cleaning before they are used within the Park. Any equipment leaving the Park must be recleaned before re-entry to the Park and Project Site.
8. Subsequent to project completion, Park staff will monitor the Park for the presence of invasive species. The Contractor will be responsible for the removal of any invasive species observed.
9. All introduced fill material coming from outside the Park shall be certified sterile, weed-free soil.
10. Do not paint rocks for subsurface utility marking, temporary benchmarks, or any other reason.
11. Care will be taken not to disturb any wildlife species (reptiles, migratory birds, raptors, or bats) found nesting, hibernating, estivating, or otherwise living in, or immediately nearby, worksites. Follow time of year restrictions for tree removal. Coordinate construction dates with Section 01 32 16, Construction Schedule.
12. All machinery containing fuels and oils shall have a spill kit available immediately in the event of a spill. In the event of a fuel or oil leak/spill, the work shall cease immediately, spill containment deployed, Contracting Officer and other jurisdictional authorities shall be called immediately, as designated.

H. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to Government employees, residents, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

1. Schedule deliveries to minimize use of driveways and entrances.
2. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

I. Construction Camp: Establishment of a camp within the Park will not be permitted.

J. Hauling Restrictions: Comply with legal load restrictions in hauling of materials. Load restrictions on park roads are identical to state load restrictions with such additional regulations as may be imposed by the Park Superintendent. Information regarding rules and regulations for vehicular traffic on park roads may be obtained from the Office of the Park Superintendent. A special permit will not relieve

Construction Contractor of liability for damage which may result from moving of equipment.

K. Bridge Restrictions: Identify jurisdictions, load restrictions, permit requirements, time and calendar restrictions as outlined.

1.5 PUBLIC USE OF SITE

A. Construction Contractor shall conduct operations to ensure the least inconvenience to the public.

B. Coordinate with Section 01 32 16, Construction Schedule. Pause construction and ensure park is fully accessible during the first 2 weeks of October, and second week of March. Coordinate with park staff on other special events.

C. Single lane closures are permitted during visitor hours. See Paragraph Extended Hours with Coordination, for additional requirements. Building and Road closures may be permitted, when required, upon specific approval of Contracting Officer. The maximum allowable full road closure in Entrance Road is 15 minutes during visitor hours.

1. The Construction Contractor will be responsible for traffic control during road closures and shall provide routing around the work being performed, unless a full road closure is specifically approved. All traffic control methods are to be performed in accordance with all federal, state, and local codes.

D. Construction Contractor to maintain the same number of Architectural Barriers Act (ABA) existing or temporary spaces during construction.

E. Provide continuity for visitor seasonal (May – October) shuttle operations, including pickup and dropoff points, and access past active construction zones.

F. Phase work to keep at least one road loop of the campground available at all times. Coordinate timing of campground work per Section 01 32 16, Construction Schedule, in advance with the Contracting Officer to allow Bandelier staff to have predictability with their online camping space reservation system.

G. Coordinate in advance with Bandelier staff for any trail detours necessitated by construction activities. Reference Section 01 50 00, Temporary Facilities and Controls.

1.6 OCCUPANCY REQUIREMENTS FOR BUILIDINGS

A. Existing Buildings:

1. Partial Government Occupancy: Government will occupy premises during entire construction period, with exception of areas under construction.

Cooperate with Government during construction operations to minimize conflicts and facilitate Government usage. Perform Work so as not to interfere with Government's operations. Maintain existing exits, unless otherwise indicated.

a. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Contracting Officer.
b. The Construction Contractor is responsible for maintaining and providing power, water, gas, and sewer to existing buildings at all times.

B. New Buildings:

1. Government Occupancy of Completed Areas of Construction: Government reserves right to occupy and to place and install equipment in completed areas of building, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and partial occupancy shall not constitute acceptance of the entire Project.

a. Contracting Officer will prepare a Beneficial Occupancy letter for each specific portion of the Work to be occupied before Government occupancy.
b. Obtain a Certificate of Occupancy from National Park Service (NPS) before Government occupancy.
c. Before partial Government occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Government will operate and maintain mechanical and electrical systems serving occupied portions of building.
d. On occupancy, Government will assume responsibility for maintenance and custodial service for occupied portions of building.

1.7 CONDUCT OF OPERATIONS

A. Construction Contractor shall conduct operations in conformance with rules and regulations promulgated by the Secretary of the Interior for the National Park Service, and applicable park rules and regulations prescribed by Park Superintendent. The Contractor shall contact the Contracting Officer to obtain the current Park rules and regulations.

B. Work on Saturdays, Sundays, Federal holidays or at night may not be performed unless stated in the Work Restrictions below or without prior consent from the Contracting Officer. Submit requests 3 business days in advance of the work to the Contracting Officer for approval.

C. No signs or advertisements (except those specified herein) shall be displayed on the construction site or within the park unless approved by the Contracting Officer.

1.8 WORK RESTRICTIONS

A. Typical On-Site Work Hours: Work shall be generally performed during normal business working hours of 7:00 a.m. to dusk, Monday through Friday, except when otherwise indicated.

1. Weekend Hours and Federal Holidays: No work shall be performed without the approval of the Contracting Officer.
2. Early Morning Hours: No work shall be performed without the approval of the Contracting Officer.
3. Quiet Hours: Juniper Campground and staff housing area quiet hours are from 10:00 p.m. to 6:00 a.m.
4. Coordinate with the requirements of Section 01 57 19.12, Noise and Acoustics Management.

B. Extended Hours with Coordination:

1. Extended work hours until 10:00 p.m. may be approved for Entrance Road utility and pavement rehabilitation and canyon utility work, with full coordination with Bandelier operations.
2. Night work may be approved for Entrance Road utility installation and pavement rehabilitation between the Campground Road and Agoyo Lane with full coordination of Bandelier operations.

   a. Emergency access must remain available past work areas at all times, or be able to be re-established during the interval first responders are traveling to the site.
   b. Excavation requires archaeological monitoring and is allowable only between 8:00 a.m. and 10:00 p.m.
   c. Full road closure outside of normal park visitor hours is acceptable in January and February. 90 day advance notification is a prerequisite for a full road closure request.

3. Temporary lights must be full cutoff luminaires with an International Dark Sky Association / Illuminating Engineering Society BUG rating uplight value of U0 to protect bats and birds. Use of temporary lights is not allowed between April and August.
4. Project shall comply with NPS and park lighting guidelines to reduce impacts to the night sky and wildlife. This will include, but is not limited to, low-level lighting, minimized glare, downward focused light fixtures, and energy efficient light sources such as low-pressure sodium lamps. If night work is permitted, lights need to be shielded from the sky to minimize impact to migratory birds and bats.

C. Existing Utilities:

1. Existing Utilities: Notify Contracting Officer and utility companies of proposed locations and times for excavation.
2. Construction Contractor shall be responsible for locating and preventing damage to known utilities. If damage occurs, repair utility at no additional expense to the Government.
3. If damage occurs to an unknown utility, repair utility. An equitable adjustment will be made in accordance with the Changes clause of the Contract.

D. Existing Utility Interruptions:

1. Do not interrupt utilities serving facilities occupied by Government or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

a. Notify Contracting Officer not less than seven business days in advance of proposed utility interruptions.
b. Do not proceed with utility interruptions without Contracting Officer's written permission.
c. Hours and Length of Utility Shutdowns: Maximum of 4 hours.

1) Gas system outages are allowed only between 5:00 p.m. and 10:00 p.m.

E. Nonsmoking Building/Tobacco Use/Vaping: Smoking is not permitted within buildings or within 25 feet of entrances, operable windows, or outdoor air intakes, or at locations where smoking would be a nuisance to Park visitors as determined by the Contracting Officer.

1.9 SPECIAL CONSTRUCTION REQUIREMENTS

A. Project Management and Communication Software: Software administered by NPS shall be used to manage communication and document sharing during construction.

1. See Section 01 31 00, Project Management and Coordination, for requirements on using NPS project management and communication software.

B. Coordinate with the requirements in Section 01 50 00, Temporary Facilities and Controls.

C. Equipment is prohibited within the channel of Rito de los Frijoles. Cross-reference to CLIN Option M Cottonwood Comfort Station (Building #1) Utilities Connections.

D. Backfill within the demolished water tank of CLIN Option H Demolition of Existing Canyon Underground Concrete Water Tank and Exposed Suspended Utilities must be delivered by helicopter.

E. When the park closes for snow removal, the Park is also closed to Contractor. Use of steel plates for trenches in roadways is prohibited when there is a risk of snow.

F. Comply with the Migratory Bird Act of 1918.

1. Ensure that the nest of migratory birds are not damaged by timing the construction activities outside of nesting period and/or visual inspection of vegetation before it is treated or removed. Complete all tree/brush removal outside of nesting season (April-July). No construction may occur from STA 115+25 to STA 123+00 (Drawing 02C029) between April-July due to an active Peregrine Falcon nest in that area.
2. The regulatory risk to LANL is from the destruction of active bird nests, which are defined as nests with eggs or nestlings. Prioritize tree and shrub removal outside of the peak bird breeding season, May 15 to July 31. If tree or shrub removal must be conducted during breeding season, you must contact and schedule LANL EPC-ES biologists (Brent Thompson or Milu Velardi) to survey smaller trees and shrubs immediately prior to removal. Large trees often cannot be adequately cleared and may not be approved for removal during breeding season. Active nests built within structures or equipment are also protected and must not be disturbed. If active nests are discovered any time of year, then work must be paused and the Contracting Officer and LANL EPC-ES biologists must be notified.

1.10 SOILS INVESTIGATION REPORT

A. The report *Preliminary Geotechnical Report NPS Bandelier National Monument Utility Rehabilitation*, February 2022, prepared by Shannon & Wilson is available to all plan holders with this package.

B. The report *Geotechnical Report NPS Bandelier National Monument Utility Rehabilitation*, September 26, 2024, prepared by Shannon & Wilson is available to all plan holders with this package.

C. In case of conflict between report and the Drawings or Specifications, the Drawings and Specifications govern.

1.11 ADDITIONAL REPORTS

A. The report Limited Discrete Soil Sampling Results from the Entrance Road near the Frijoles Canyon Visitor Center Maintenance Area, February 23, 2022, prepared by Jacobs is available to all plan holders with this package.

B. In case of conflict between report and the Drawings or Specifications, the Drawings and Specifications govern.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 27 00
DEFINITION OF CONTRACT LINE ITEMS

PART 1 GENERAL

1.1 SUMMARY

A. Section explains in general, what is and is not included in a Contract line item, and limits or cut-off points where one item ends and another begins.

B. If no Contract line item exists for a portion of work, include costs in a related item.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 LIST OF CONTRACT LINE ITEMS

A. Contract Line Item Number 0001 Main Park Water System:

1. This item consists of:

a. Provide new pressure reducing valves, gate valves, and meter at the inter-tie connection with Los Alamos National Lab (LANL) distribution system prior to the existing 35,000-gallon above-grade water storage tank (referred as Existing Main Blue Water Tank). Install meter to be provided by Los Alamos County. Remove and replace 4-inch and 6-inch gate valves, and 6-inch cast iron and ductile iron yard piping. Provide and install 4-inch altitude valve.

b. NPS Existing Main Blue Water Tank to remain.

c. Replace all existing distribution waterlines, service lines, fire hydrants, water meters, pressure reducing valves, and rate of flow control valves.

1) Install new 10-inch Schedule C900 PVC water mains from the Existing Main Blue Water Tank to Abert's Squirrel Loop inter-tie connection. Integrated utility corridor utilizing existing utility corridors and road prisms shoulders and/or under roads to maintain code required separation horizontally and vertically, while mitigating impact to sensitive natural and cultural resource areas. Integrated utility corridor may include water, electrical, fiber-optic, and gas.

2) Install new 8-inch Schedule C900 PVC water mains along Abert's Squirrel Loop, Campground Road to the Entrance Road inter-tie connection. Integrated utility corridor utilizing existing utility corridors and road prisms shoulders and/or under roads to maintain code required separation horizontally and vertically, while

mitigating impact to sensitive natural and cultural resource areas. Integrated utility corridor may include water, electrical, fiber-optic, and gas.

3) Install new 6-inch Schedule C900 PVC water mains from Entrance Road to the Entrance Road Water Tank, and Stone House Road ending at the Canyon Maintenance inter-tie connection. Provide 6-inch taps for future connections at inter-tie connections between Campground Road with Coopers Hawk Road and Entrance Road with Fire Tower Lane. Integrated utility corridor utilizing existing utility corridors and road prisms shoulders and/or under roads to maintain code required separation horizontally and vertically, while mitigating impact to sensitive natural and cultural resource areas. Integrated utility corridor may include water, electrical, fiber-optic, and gas.
4) Install new HDPE water service lines ranging from 3/4-inch to 2 inches at Stone House Road. Abandon-in-place existing service lines.
5) Replace existing water meters at Stone House Road. If a meter can does not have a meter, install a new one.
6) Remove and dispose of existing fire and yard hydrants. Provide new fire and yard hydrants as shown on the Drawings.
7) Provide temporary traffic control as needed for all construction activities.

d. Entrance Road Water Tank:

1) Construct new below-grade effective water volume of 24,000-gallon cast-in-place concrete water storage tank serving the Frijoles Canyon Area divided into two 12,000-gallon water basins by an interior wall including butterfly valves, with integrated concrete sump pits, vents, level indicator sensors, and passive mixing system.
2) Install access hatches in the top slab with wall-mounted ladders.
3) Install new 8-inch ductile iron overflow drain line from the Entrance Road Water Tank to Entrance Road.

e. Canyon Mechanical Building:

1) Construct new prefabricated Canyon mechanical building with precast faux metal standing seam roof, precast board and batten finished walls, and associated mechanical and electrical systems per applicable building codes. Foundation consists of a concrete floor slab.
2) Install hose bibs, floor drains, and domestic connection with back flow preventer valve.
3) Install new unit heaters, exhaust fan, louvre, and A/C unit.

4) Install new 3-inch magnetic flowmeter, air release valve, 6-inch pressure reducing valve, combination rate of flow and pressure reducing valve with solenoid shutoff valve, butterfly and ball valves.
5) Install blowoff line with isolation valves.
6) Provide a PLC control panel with an operator interface touchscreen (OIT) for monitoring the Entrance Road Water Tank. The PLC panel will include a remote monitoring system.

f. Abandon in-place existing 20,000-gallon concrete water tank at the Frijoles Canyon (referred as Existing Canyon Underground Concrete Water Tank). Access to the tank is by foot only.
g. Provide hydropneumatic tanks with pumps as water pressure booster at Coyote Loop comfort station. Remove and replace existing hydropneumatic tanks with pumps as water pressure boosters at Abert's Squirrel Loop and Black Bear Loop comfort stations. The three comfort stations are historic buildings.
h. All cavates and native vegetation are to be protected and not disturbed.

2. Payment will be made at the contract lump sum price.
3. Measurement for payment will be based on percent completion agreed upon.

B. Contract Line Item Number 0002 Mesa Housing and Field Operations Center (FOC) Water Mains and Service Lines:

1. This item consists of:

a. Replace all existing distribution waterlines, service lines, fire hydrants, water meters, pressure reducing valves, and rate of flow control valves.

1) Install new 6-inch Schedule C900 PVC water mains from Campground Road and Coopers Hawk Road inter-tie connection to the FOC. Integrated utility corridor utilizing existing utility corridors and road prisms shoulders and/or under roads to maintain code required separation horizontally and vertically, while mitigating impact to sensitive natural and cultural resource areas. Integrated utility corridor may include water, electrical, fiber-optic, and gas.
2) Install new 6-inch Schedule C900 PVC water lines at Mesa Top Housing area including Saltbrush Court and Paintbrush Court. Integrated utility corridor utilizing existing utility corridors and road prisms shoulders and/or under roads to maintain code required separation horizontally and vertically, while mitigating impact to sensitive natural and cultural resource areas. Integrated utility corridor may include water, electrical, fiber-optic, and gas.

3) Install new HDPE water service lines ranging from 3/4-inch to 2 inches. Abandon-in-place existing service lines.
4) Install new water service line from the FOC to the unserved paint building adjacent to the generator.
5) Remove and replace existing water meters. If a meter can does not have a meter, install a new one.
6) Remove and dispose of existing fire and yard hydrants. Provide new fire and yard hydrants as per the Drawings.

2. Payment will be made at the contract lump sum price.
3. Measurement for payment will be based on percent completion agreed upon.

C. Contract Line Item Number 0003 Primary Electrical Distribution:

1. This item consists of:

a. New primary service from Los Alamos National Lab (LANL) to the Mesa Top System.

1) Provide new three-phase primary electrical service from LANL distribution system to Bandelier National Monument.
2) Coordinate with LANL for new riser pole location approximately 20 feet from existing pole #2604.
3) Provide new primary meter cabinet with ground sleeve meeting LANL and Los Alamos County Electric Utility requirements.
4) Provide new primary service disconnect switchgear with ground sleeve.
5) Demolish overhead H-structure, overhead primary metering, and disconnects. LANL electrical will remove slack span between H-structure and overhead distribution.
6) Remove single-phase feed, slack span, pole-mounted transformer and disconnect, and supporting pole.

b. The existing primary service from LANL to the Frijoles Canyon System, located near Fire Tower Lane, to remain.
c. Mesa Top Primary Electrical Distribution System:

1) Provide new primary system in the Mesa Top areas: Entrance Station, Juniper Campground, Mesa Top Housing, and Field Operations Center (FOC).
2) The Mesa Top primary electrical system will begin at the service disconnect switch on the LANL side of Highway-4, route underground across Highway-4 onto Monument property.
3) Provide new three-phase underground primary distribution system including electrical duct banks, loop-feed transformers, primary switchgear, sectionalizing cabinets, medium voltage conductors, and electrical and communication handholes and manholes.

4) Primary duct banks will be generally routed along the existing roadways.

5) Electrical Demolition, Mesa Area:

   a) Cut, remove, and dispose of existing above ground electrical equipment.
   b) Cut, remove, and dispose of existing underground electrical conductors from accessible vaults and from conduit.
   c) Abandon in place direct buried underground electrical conductors and conductors which cannot be reasonably removed because of crushed or damaged conduit.

6) Entrance Station:

   a) Provide new Entrance Station secondary service fed from the new three-phase primary distribution system.
   b) Provide a new transformer and service entrance rated fused disconnect switches and above-grade support structure.
   c) Refeed the existing low-voltage panelboard inside the Entrance Station.
   d) Refeed the existing motorized gate. Provide low-voltage duct bank and handholes along Entrance Road to motorized gate near the intersection with Campground Road.
   e) Demolish accessible low-voltage conductors and conduit feeding the entrance station and motorized gate. Direct buried conductors and inaccessible conductors will be abandoned in place.

7) Juniper Campground:

   a) Provide new secondary services fed from the new three-phase primary distribution system for each campground comfort station, campground pay station, and the campground amphitheater.
   b) Provide new transformers for comfort stations.
   c) Refeed existing low-voltage panelboards in the comfort stations and amphitheater.
   d) Provide new RV pedestal for the new Abert's Squirrel campground host site fed from the comfort station. Existing campground host RV pedestal and feed shall remain as is.

8) Mesa Top Housing:

   a) Housing area primary distribution and services shall comply with Los Alamos County Electric Utility requirements for residential installation.

b) Provide new single-phase primary feeds and transformers in the housing area.
c) Refeed existing secondary service entrance and metering equipment at Saltbrush housing units.
d) Provide new secondary service to Paintbrush housing units including outdoor wall-mounted meter, service disconnect, and low-voltage distribution panelboard. Subfeed existing housing panelboards from new panelboards.
e) Refeed secondary service to Triplex housing unit.
f) Provide new service entrance rated metered RV pedestals in Saltbrush and Paintbrush housing areas.
g) Provide secondary stub-outs for future expansion from transformers for future services as shown.

9) Field Operations Center (FOC):

a) Provide new three-phase primary feeder.
b) Provide new switchgear with ground sleeve. Provide primary conduit stub out for future EV and solar system connection.
c) Refeed the existing three-phase transformer.

d. Canyon Area Electrical Distribution System:

1) The existing primary distribution in the Canyon Area was replaced by a LIC project in 2017 in which most of the distribution system in Frijoles Canyon was replaced. The existing system consists of three-phase medium voltage conductors, handholes, sectionalizing cabinets, and transformers. Most of the existing primary distribution system will remain in service as is.
2) Scope in the Canyon area consists of Agoyo Lane (CLIN Option K) and Cottonwood Comfort Station Building 1 (CLIN Option M) only.

e. Fiber-Optic Conduits

1) Provide dedicated conduits and handholes for fiber optic communications cabling in common trench with three-phase primary distribution system.
2) Fiber-optic cables and installation is included under CLIN Option E.

f. Provide temporary traffic control as needed for all construction activities.

2. Payment will be made at the contract lump sum price.
3. Measurement for payment will be based on percent completion agreed upon.

D. Contract Line Item Number 0004 Cellular Network:

1. This item consists of:

a. Remote Monitoring Systems: Remote monitoring system to include a cell modem and antenna for cloud based monitoring that also will make call out via text messaging, emailing, or phone calls.

1) Main Blue Tank:

a) Provide new remote monitoring system at Abert's Squirrel Comfort Station.
b) Provide a pressure transmitter to be installed in the valve vault at the Main Blue Water Tank. Pressure transmitter will be used to monitor the level.
c) Provide wiring from the pressure transmitter to Abert's Squirrel Loop.

2) PRV Vault:

a) Provide new remote monitoring system at the PRV Vault near the entrance to Agoyo Lane.
b) Provide a pressure transmitter to be installed in the PRV vault.

3) Main Lift Station: Provide new remote monitoring system to be installed inside the Main Lift Station vault. Remote monitoring system will replace the existing installed Sensaphone.

2. Payment will be made at the contract lump sum price.
3. Measurement for payment will be based on percent completion agreed upon.

E. Contract Line Item Number 0005 Rock Excavation:

1. This item consists of:

a. Provide unit cost for rock excavation per cubic yard.

2. Payment will be made at the contract price per cubic yard.
3. Measurement for payment will be based on percent completion agreed upon.

F. Contract Line Item Number 0006 Roadway:

1. This item consists of:

a. Remove, dispose, and replace asphalt pavement on roads and parking to match existing curbs at Entrance Road and Frijoles Canyon Visitor Center area. Protect historic curbs, stone drainage, and retaining walls.

b. Pulverize pavement in place and provide full depth asphalt pavement reclamation for other roads and parking areas. Transition pavement to meet grades at all driveways, campground slips, and adjacent roads. Protect historic curbs, stone drainage, and retaining walls.
c. Asphalt pavement patching of utility trench locations and around manholes, valves, and other flush utility features within paved roadways and parking areas.
d. Install pavement markings and ABA features as per the Drawings.
e. Include all awarded roadway and parking area pavement work covered in CLINs 1 – 6. This CLIN is also inclusive of the roadway work in the Frijoles Canyon covered in CLIN Options A to D and CLIN Option F.

2. Payment will be made at the contract lump sum price.
3. Measurement for payment will be based on percent completion agreed upon.

G. Contract Line Item Number Option A Primary Electrical Inter-Connection between Frijoles Canyon and Mesa Top systems:

1. This item consists of:

a. Provide new electrical duct banks and access vaults to facilitate future interconnection tie between the Mesa Top and the Frijoles Canyon distribution systems.
b. Provide interlocks on new and existing primary switchgear to prevent parallel connection to both LANL primary services.
c. Install duct banks in the shared utility corridor parallel to the water and gas lines between Campground Road and the Fire Tower Lane. Terminate conduits at the existing primary switchgear at the Frijoles Canyon service from LANL near Fire Tower Lane.
d. Interconnecting primary conductors is not part of this Project Scope.

2. Payment will be made at the contract lump sum price.
3. Measurement for payment will be based on percent completion agreed upon.

H. Contract Line Item Number Option B Frijoles Canyon Water and Natural Gas Main Loop:

1. This item consists of:

a. Replace all existing distribution waterlines, service lines, fire hydrants, and water meters.

1) Install new 6-inch Schedule C900 PVC water mains from the Stone House Road inter-tie at the Canyon Maintenance Center area and loop around the Canyon administration buildings, casitas and Visitor Center and through the Visitor Center parking lot. Integrated utility corridor utilizing existing utility corridors and

road prisms shoulders and/or under roads to maintain code required separation horizontally and vertically, while mitigating impact to sensitive natural and cultural resource areas. Integrated utility corridor may include water, electrical, fiber-optic, and gas. Include non-vegetative surface restoration of disturbed areas.

2) Install new HDPE water service lines ranging from 3/4-inch to 2 inches to the existing meter cans. Abandon-in-place existing service lines.
3) Provide bottle filling / water fountain by the Visitors Center at the telescopic viewing area.
4) Remove and replace existing water meters. If a meter can does not have a meter, install a new one.
5) Remove and dispose of existing fire and yard hydrants. Provide new fire and yard hydrants where shown on the Drawings.

b. Replacement of all existing natural gas distribution lines and service lines for Frijoles Canyon areas (Visitor Center and Buildings).

1) Install new 1-inch to 2-inch MDPE gas mains and plug valves. Gas mains to be installed in integrated utility corridor at Frijoles Canyon. Integrated utility corridor utilizing existing utility corridors and road prisms shoulders and/or under roads to maintain code required separation horizontally and vertically, while mitigating impact to sensitive natural and cultural resource areas. Integrated utility corridor may include water, electrical, fiber-optic, and gas.
2) Mains will be re-routed under the pavement. Some rerouting of mains will be required to avoid conflicts with other utilities and historic features.
3) Limit excavated disturbances to open areas and flat paths that can be restored to original conditions with minimal impacts.
4) Canyon Building service line replacement included under CLIN Option D.

2. Payment will be made at the contract lump sum price.
3. Measurement for payment will be based on percent completion agreed upon.

I. Contract Line Item Number Option C Frijoles Canyon Wastewater System:

1. This item consists of:

a. Replace vitrified clay sewers and associated receiving manholes and install new 4-inch through 8-inch Schedule C900 PVC pipes.
b. Remove and dispose of sections of ductile iron and PVC mains with critical offset joints or heavily sagging as identified from CCTV results and install new 4-inch through 8-inch Schedule C900 PVC pipes.

c. Removal and disposal (only if needed) of DDT contaminated soil in accordance with specification Section 02 61 00, Removal and Disposal of Contaminated Soil.
d. Remove and dispose sewer laterals and associated receiving manholes and install new Schedule C900 PVC laterals to cleanout. If there is no cleanout, install a new cleanout to the edge of the building as per the Drawings.
e. No work at the existing wastewater treatment lagoons.
f. Provide temporary traffic control as needed for all construction activities.

2. Payment will be made at the contract lump sum price.
3. Measurement for payment will be based on percent completion agreed upon.

J. Contract Line Item Number Option D Frijoles Canyon Natural Gas Laterals:

1. This item consists of:

a. Replace service lines for each building within the Frijoles Canyon Loop up to the regulator for buildings where the regulator and meter are adjacent to the building. For individual buildings in the Canyon area where regulators/meter assemblies are not collocated with the building, the service laterals from the assemblies to the first connection outside the building wall will also be replaced.

2. Payment will be made at the contract lump sum price.
3. Measurement for payment will be based on percent completion agreed upon.

K. Contract Line Item Number Option E Fiber-Optic Cable from Existing Fiber Handhole near the Entrance Road Microwave Tower to FOC and Entrance Station:

1. This item consists of:

a. Provide 12-strand fiber-optic cables from Frijoles Canyon IT room in Building #15 to FOC, and from FOC to Entrance Station. Existing duct bank conduits and innerduct will be utilized from the Canyon IT room to an existing communications handhole near Fire Tower Lane. New underground dedicated fiber-optic duct bank conduits from the existing handhole to the FOC and Entrance Station are included under CLINs 0003 and Option A.

2. Payment will be made at the contract lump sum price.
3. Measurement for payment will be based on percent completion agreed upon.

L. Contract Line Item Number Option F Frijoles Canyon Visitor Center Fiber Pathway:

1. This item consists of:

   a. Provide underground conduit pathway between the Building 15 IT room and the Visitor Center Server Room.
   b. Provide building penetrations for new conduits.

2. Payment will be made at the contract lump sum price.
3. Measurement for payment will be based on percent completion agreed upon.

M. Contract Line Item Number Option G Demolition of Utility Features:

1. This item consists of:

   a. After new utility systems are active and functional, remove above ground features and underground valves of abandoned utility systems under CLINs 0001 to Option D.

2. Payment will be made at the contract lump sum price.
3. Measurement for payment will be based on percent completion agreed upon.

N. Contract Line Item Number Option H Demolition of Existing Canyon Underground Concrete Water Tank and Exposed Suspended Utilities:

1. This item consists of:

   a. Demolish roof, electrical panels, and valves of the existing 20,000-gallon concrete water tank at the Frijoles Canyon (referred as Existing Canyon Underground Concrete Water Tank). Drill 4-inch diameter holes at the bottom of the concrete tank. Fill with native soil materials from the bone yard via helicopter and provide non-vegetative surface restoration. Worker access to the tank is by foot only. Demolition concrete material can remain inside the emptied tank. Demolition metal materials to be recycled. Reference Section 01 11 00, Summary of Work, Article Special Construction Requirements.
   b. Demolish and dispose exposed water and natural gas pipes, and electrical conduit suspended over the cliff from the Existing Canyon Underground Concrete Water Tank to the Frijoles Canyon. Access is by foot only. After all utilities have been removed, demolish the rock façade. Avoid impacts to nearby archeological cavates.

2. Payment will be made at the contract lump sum price.
3. Measurement for payment will be based on percent completion agreed upon.

O. Contract Line Item Number Option I Juniper Campground Water Mains and Service Lines:

1. This item consists of:

a. Install new 4-inch Schedule C900 PVC water lines at Juniper Campground from Campground Road inter-tie connection to Abert's Squirrel Loop, Black Bear Loop, and Coyote Loop. Integrated utility corridor utilizing existing utility corridors and road prisms shoulders and/or under roads to maintain code required separation horizontally and vertically, while mitigating impact to sensitive natural and cultural resource areas. Integrated utility corridor may include water and electrical.

b. Install new HDPE water service lines ranging from 3/4-inch to 2 inches to the comfort stations, existing Camp Host site, and new Camp Host site. Abandon-in-place existing service lines.

c. Remove and dispose of existing fire and yard hydrants. Provide new fire and yard hydrants.

d. After new utility systems are active and functional, remove above ground features and underground valves of abandoned utility systems.

e. Asphalt pavement patching of utility trench locations and around manholes, valves, and other flush utility features within paved roadways and parking areas impacted by this Option and installation of pavement markings and ABA features as per the Drawings.

2. Payment will be made at the contract lump sum price.

3. Measurement for payment will be based on percent completion agreed upon.

P. Contract Line Item Number Option J Mesa Top Wastewater System:

1. This item consists of:

a. Mesa Housing and FOC:

1) Remove and dispose of all vitrified clay sewers and associated receiving manholes and install new 4-inch to 8-inch Schedule C900 PVC pipes.

2) Remove and dispose of sections of ductile iron and PVC mains with critical offset joints or heavily sagging as identified from CCTV results and install new 4-inch to 8-inch Schedule C900 PVC pipes.

3) Open cut and replace asbestos cement pipes and install new 4-inch to 8-inch Schedule C900 PVC pipes.

4) Asbestos cement pipe demolition requires hazardous material PPE and disposal at hazardous material landfill.

5) Remove and dispose sewer laterals and associated receiving manholes and install new Schedule C900 PVC laterals to cleanout. If there is no cleanout, install a new cleanout per the Drawings.

6) No work at the existing wastewater treatment lagoons.
7) Pulverize pavement in place and provide full depth asphalt pavement reclamation in all other roads and parking areas outside of the integrated utility corridor. Transition pavement to meet grades at all driveways, campground slips, and adjacent roads. Protect historic curbs, stone drainage, and retaining walls.
8) Provide temporary traffic control as needed for all construction activities.

b. Juniper Campground:

1) Remove and dispose identified sewer laterals. Install new laterals Schedule C900 PVC pipes to cleanout at comfort stations, existing Camp Host, and new Camp Host site. If there is no cleanout, install a new cleanout per the Drawings.
2) Remove and dispose of identified sewer manholes. Install new manholes as per the Drawings.
3) Point repairs on segments of sewer pipes identified by CCTV.
4) Provide temporary traffic control as needed for all construction activities.

2. Payment will be made at the contract lump sum price.
3. Measurement for payment will be based on percent completion agreed upon.

Q. Contract Line Item Number Option K Agoyo Lane Electrical System:

1. This item consists of:

a. Provide new single-phase buried electrical duct banks. Intercept the single-phase circuit near Building 25 transformer and extend to new sectionalizing cabinet. Provide single-phase primary circuit for Agoyo Lane.
b. Provide a new transformer near the existing storage building and refeed secondary service to existing pole-mounted panelboard near RV Site #1.
c. Provide new transformer near the existing Bunkhouse and refeed secondary service to the existing pole-mounted panelboard near the Bunkhouse.
d. Demolish and dispose of the existing single-phase overhead primary conductors from the Stable to the Agoyo Lane pump station. Demolish and dispose of the existing overhead secondary conductors serving the storage building. Demolish wood poles above existing panelboard mounting.
e. Existing secondary feeders to the stables, storage building, staff RV sites, and the Bunkhouse will remain.
f. Asphalt pavement patching of utility trench locations and around manholes, valves, and other flush utility features within paved roadways

and parking areas impacted by this Option and installation of pavement markings and ABA features as per the Drawings.

2. Payment will be made at the contract lump sum price.
3. Measurement for payment will be based on percent completion agreed upon.

R. Contract Line Item Number Option L Fire Tower Lane Water and Natural Gas Line Replacement:

1. This item consists of:

   a. Install new 2-inch HDPE water service lateral from Entrance Road inter-tie connection to Fire Tower Lane. Integrated utility corridor utilizing existing utility corridors and road prisms shoulders and/or under roads to maintain code required separation horizontally and vertically, while mitigating impact to sensitive natural and cultural resource areas. Integrated utility corridor may include water, electrical, fiber-optic, and gas.
   b. Install new 1-inch gas service line along Fire Tower Lane up to the regulator for the Fire Tower building where the regulator and meter are adjacent to the building.
   c. Asphalt pavement patching of utility trench locations and around manholes, valves, and other flush utility features within paved roadways and parking areas impacted by this Option and installation of pavement markings and ABA features as per the Drawings.

2. Payment will be made at the contract lump sum price.
3. Measurement for payment will be based on percent completion agreed upon.

S. Contract Line Item Number Option M Cottonwood Comfort Station (Building #1) Utility Connections:

1. This item consists of:

   a. Install new 4-inch Schedule C900 PVC sewer lateral from the comfort station to the manhole at the Canyon Visitor Center, electric to reactivate existing Building 1 Comfort Station. Install utilities in integrated utility corridor under the pedestrian bridge across the Frijoles Creek near the Canyon Visitor Center.
   b. Install new NEMA 4X enclosed control panel, 208V, single-phase.
   c. Provide a new secondary electrical feed from the Visitor Center to serve the comfort station.
   d. Asphalt pavement patching of utility trench locations and around manholes, valves, and other flush utility features within paved roadways and parking areas impacted by this Option and installation of pavement markings and ABA features as per the Drawings.

2. Payment will be made at the contract lump sum price.
3. Measurement for payment will be based on percent completion agreed upon.

T. Contract Line Item Number Option N Natural Gas System:

1. This item consists of:

a. Replacement of all existing natural gas distribution lines and service lines for Mesa Top (Mesa housing and FOC) and Frijoles Canyon areas (Stone House Road).

1) Remove and replace main line piping downstream of the existing meter at the inter-tie connection with Los Alamos National Laboratory.
2) Increase the main line pressure supply to Bandelier National Monument.
3) Install new 1-inch to 4-inch MDPE gas mains and plug valves. Gas mains to be installed in integrated utility corridor at Mesa Top, Entrance Road, and Stone House Road. Integrated utility corridor utilizing existing utility corridors and road prisms shoulders and/or under roads to maintain code required separation horizontally and vertically, while mitigating impact to sensitive natural and cultural resource areas. Integrated utility corridor may include water, electrical, fiber-optic, and gas.
4) Replace service lines for Mesa Top Housing and FOC for each building up to the regulator for buildings where the regulator and meter are adjacent to the building. For individual buildings in the Canyon area Stone House Road where regulators/meter assemblies are not collocated with the building, the service laterals from the assemblies to the first connection outside the building wall will also be replaced. Remaining Canyon Building service line replacement included under CLIN Option D.
5) Mains will be re-routed under the pavement. Some rerouting of mains will be required to avoid conflicts with other utilities and historic features.
6) Limit excavated disturbances to open areas and flat paths that can be restored to original conditions with minimal impacts.
7) Asphalt pavement patching of utility trench locations and around manholes, valves, and other flush utility features within paved roadways and parking areas impacted by this Option and installation of pavement markings and ABA features as per the Drawings.

b. Remove existing diesel fueled generator and fuel tank. Replace with new natural gas fueled, spark ignited generator. Existing transfer switch will be reused.

2. Payment will be made at the contract lump sum price.
3. Measurement for payment will be based on percent completion agreed upon.

U. Contract Line Item Number Option O Culvert and Erosion Repairs:

1. This item consists of:

a. Restore functionality to an existing culvert inlet located on the north side of the Entrance Road approximately 1,000 feet southeast of the Visitor Center main parking area (Sta. 158+00 RT to Sta. 159+00 RT).

1) Protect an adjacent ponderosa pine tree and excavate to expose a historic mortared stone headwall and corrugated metal pipe culvert inlet as per the Plans.
2) Protect the mortared stone headwall and the ponderosa pine tree from damage.
3) Grade the area surrounding the drop inlet to drain as per the Plans with excess clean fill removed and used for fill at the erosion repairs site.
4) Clean the corrugated metal pipe culvert to remove accumulated soil and debris.
5) Repair and stabilize the mortared stone headwall as per the Drawings.
6) Install a riprap lined rundown as per the Plans.
7) Install 100 percent biodegradable natural material erosion control jute or coir blankets on all exposed earth areas.

b. Repair of an eroded area and guardrail located on the north side of the Entrance Road approximately 3,000 feet southeast of the Visitor Center main parking area (Sta. 138+75 RT to Sta. 139+50 RT).

1) Protect a historic stone ditch, and concrete curb, located adjacent to the Entrance Road.
2) Fill an eroded gully with clean excess excavation material from the culvert repair site and supplement with off-site fill as per the Plans.
3) Install a colored concrete curb and colored concrete channel.
4) Install a riprap lined rundown.
5) Remove two sections of w-beam transition guardrail. Install two guardrail posts and up to five wood blockouts. Reinstall w-beam guardrail with existing or new fasteners as per the Drawings.
6) Install 100 percent biodegradable natural material erosion control jute or coir blankets on all exposed earth areas.

2. Payment will be made at the contract lump sum price.
3. Measurement for payment will be based on percent completion agreed upon.[REV. 1][ADD1]

END OF SECTION

SECTION 01 31 00
PROJECT MANAGEMENT AND COORDINATION

PART 1 GENERAL

1.1 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. Definitions.
2. Construction Coordination.
3. Submittals.
4. Coordination Drawings.
5. Requests for Information (RFIs).
6. NPS Project Management and Communication Software.
7. Project Meetings.
8. Environmental Coordination.
9. Permits.

B. Related Requirements:

1. Section 01 32 16, Construction Schedule, for preparing and submitting Construction Contractor's construction schedule.
2. Section 01 73 40, Execution, for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
3. Section 01 77 00, Closeout Procedures, for coordinating closeout of the Contract.
4. Section 01 91 14, Total System Commissioning, for coordinating the work with Owner's Commissioning Authority.

1.2 DEFINITIONS

A. Agency with Jurisdiction.

B. Construction Permits: Contractor Provided.

C. Government-Furnished Permits.

1.3 CONSTRUCTION COORDINATION

A. Coordination: Coordinate construction operations included in different sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different sections, which depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components with other Construction Contractors to ensure maximum accessibility for required maintenance, service, and repair.
3. Make provisions to accommodate items scheduled for later installation.
4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of components, including mechanical and electrical.
5. Properly plan construction operations to include permit requirements. Allow enough time to execute permit provisions to maintain work schedule, site visits, inspections, and reporting deadlines.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

C. Administrative Procedures:

1. Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other Construction Contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to:

   a. Preparation of Construction Contractor Construction Schedule.
   b. Preparation of the Schedule of Values.
   c. Installation and removal of temporary facilities and controls.
   d. Delivery and processing of submittals.
   e. Progress meetings.
   f. Permit requirements.
   g. Pre-installation conferences.
   h. Project closeout activities.
   i. Commissioning activities.

1.4 SUBMITTALS

A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.

1. Content:

a. Project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of Contract Documents or standard printed data. Include-following information, as applicable:

1) Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
2) Indicate dimensions shown on the Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Contracting Officer (CO) for resolution of such conflicts.
3) Indicate space requirements for routine maintenance and anticipated replacement of components during the life of the installation.
4) Show location and size of access doors required for access to concealed dampers, valves, and controls.
5) Indicate required installation sequences.

2. Refer to individual sections for Coordination Drawing requirements for Work in those sections.
3. Follow NPS DSC Electronic Drawing Standards. See CAD/BIM (Computer Aided Design/Building Information Modeling) & Drafting Standards page > DSC Requirements section.

B. Coordination Drawing Organization:

1. Organize coordination drawings as follows:

a. Floor Plans and Reflected Ceiling Plans: Show architectural, structural, mechanical, plumbing, fire-protection, fire-alarm, and electrical elements. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
b. Plenum Space: Indicate sub-framing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within ceiling plenum to accommodate layout of light

fixtures indicated on the Drawings. Indicate areas of conflict between light fixtures and other components.

c. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.

d. Structural Penetrations: Indicate penetrations and openings required for all disciplines.

e. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.

f. Mechanical and Plumbing Work:

1) Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.
2) Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
3) Fire-rated enclosures around ductwork.

g. Electrical Work:

1) Runs of vertical and horizontal conduit 1-1/4 inches (32 millimeters) in diameter and larger.
2) Light fixture, exit light, emergency battery pack, smoke detector, and other fire-alarm locations.
3) Panel board, switch board, switchgear, transformer, busway, generator, and motor control center locations.
4) Location of pull boxes and junction boxes, dimensioned from column center lines.

h. Fire-Protection System: Locations of standpipes, mains piping, branch lines, pipe drops, and sprinkler heads.

i. Review: Contracting Officer will review coordination drawings to confirm Work is being coordinated; details of coordination are Construction Contractor's responsibility. If Contracting Officer determines coordination drawings are not prepared in scope or detail, or are otherwise deficient, Contracting Officer will inform Construction Contractor, who shall make changes and resubmit.

j. Coordination Drawing Prints: Prepare coordination drawing prints according to requirements in Section 01 33 23, Submittal Procedures.

C. Coordination Digital Data Files:

1. Prepare coordination digital data files according to:

a. File Preparation Format: Same digital data software program, version, and operating system as original Drawings.
b. File Submittal Format: Submit or post coordination drawing files using Portable Document Format (PDF) file format.
c. Contracting Officer will furnish Construction Contractor one set of digital data files (AutoCad.dwg) of the Drawings for use in preparing coordination digital data files.

1) Contracting Officer makes no representations as to accuracy or completeness of digital data files as they relate to the Drawings.
2) Digital Data Software Program: Drawings are available in AutoCad.dwg.

D. Division 01, General Requirements Documents:

1. Letter designating Project Superintendent.
2. Construction Schedule.
3. A Comprehensive Schedule of Values.
4. Accident Prevention Plan.
5. A List of Subcontractors for this Project.
6. Written statements from Subcontractors certifying compliance with applicable labor standard clauses.
7. Certificates of Insurance and Standard Form SF1413 for Contactor and all Subcontractors.
8. Waste Management Plan.
9. Quality Control Plan.
10. Temporary Storm Water Pollution Prevention Plan (SWPPP).
11. Indoor Air Quality (IAQ) Management Plan.
12. Construction Contractor Commissioning Plan.
13. Historic Preservation Treatment Plan (HPTP).
14. List of Required Construction Permits. Include the following information for each permit:

a. Name of Permit.
b. Agency(ies) with Jurisdiction issuing the permit.
c. Information required from Government to complete permit application.

E. Provide items listed to Contracting Officer at least 1 week prior to Pre-Construction Conference, or as directed by Contracting Officer.

1. Failure to submit items may result in:

a. Construction conference may be cancelled, Notice to Proceed may not be issued, and Contracting Officer will consider other contractual remedies.

b. Work shall not commence until written Notice to Proceed has been issued and Certificates of Insurance and SF1413 documents are received for Construction Contractor and all Subcontractors.

1.5 REQUESTS FOR INFORMATION (RFI)

A. General: Immediately on discovery of the need for additional information or interpretation of Contract Documents, Construction Contractor shall prepare and submit an RFI utilizing form created on NPS project management and communication software.

1. Contracting Officer will not respond to RFIs submitted by other entities controlled by Construction Contractor.
2. Coordinate and submit RFIs in a prompt manner to avoid delays in the work.

B. Content of RFI:

1. Include detailed, legible description of item needing information or interpretation and the following:

a. RFI number, numbered sequentially.
b. Date.
c. RFI subject.
d. Specification section number and title and related paragraphs, as appropriate.
e. Drawing number and detail references, as appropriate.
f. Field dimensions and conditions, as appropriate.
g. Construction Contractor's suggested resolution: If suggested resolution impacts Contract Time or Contract Sum, Construction Contractor shall state impact in RFI.
h. Construction Contractor's signature.
i. Requested date for response.
j. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

1) Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

C. RFI Form: Complete and submit on NPS project management and communication software.

D. Contracting Officer's Action: Contracting Officer will review each RFI, determine action required, and respond. Contracting Officer will determine critical nature of each RFI and issue response accordingly.

1. The following are not considered to be RFIs and will receive no action:

    a. Requests for approval of submittals.
    b. Requests for approval of substitutions.
    c. Requests for approval of Construction Contractor's means and methods.
    d. Requests for coordination information already indicated in Contract Documents.
    e. Requests for adjustments in Contract Time or Contract Sum.
    f. Requests for interpretation of Architect's actions on submittals.
    g. Incomplete RFIs or inaccurately prepared RFIs.

2. Contracting Officer's action may include a request for additional information; time for response will date from time of receipt of additional information.
3. Contracting Officer's action on RFIs may result in need for a change to Contract Time or Contract Sum. All contract changes will be processed following terms and Conditions of Contract.

1.6 PROJECT MANAGEMENT AND COMMUNICATION SOFTWARE

A. Use to manage project communication and document sharing during contract period on:

1. Project directory.
2. Project correspondence.
3. Meeting agendas and minutes.
4. Contract modifications forms and logs.
5. RFI form and processing.
6. Task and issue management.
7. Photo documentation.
8. Baseline schedule, schedule updates and calendar management.
9. Submittal form and processing.
10. Payment coordination documentation.
11. Reminder and tracking functions.
12. Archiving functions.
13. Notification of submittal and RFI statuses and current responsible party.
14. Permits and addendums.

B. Some documents are not suitable to be shared using NPS project management and communication software. Documents containing Personal Identifying Information (PII) (i.e., certified payrolls) shall not be shared and shall be coordinated with project team as appropriate.

1.7 PROJECT MEETINGS

A. Preconstruction Conference:

1. Before start of construction, Contracting Officer will arrange an on-site meeting with Construction Contractor. Meeting agenda will include the following as a minimum:

a. Roles & Responsibilities / Lines of Authority.
b. Park rules and regulations.
c. Jobsite Safety.
d. Resolution of comments on required Division 01, General Requirements documents.
e. Coordination of Subcontractors.
f. Labor law application.
g. Modifications.
h. Payments to Construction Contractor.
i. Payroll reports.
j. Contract time.
k. Liquidated damages.
l. Construction Contractor Performance Evaluation.
m. Display of Hotline posters.
n. Notice to proceed.
o. Correspondence procedures.
p. NPS project management and communication software.
q. Acceptance/rejection of work.
r. Progress meetings.
s. Submittal procedures.
t. NPS Final Accessibility Inspection.
u. Environmental requirements.
v. Permit requirements.
w. Historic properties protection requirements.
x. Archeological resources protection requirements.
y. As-constructed drawings/operation and maintenance (O&M) manuals.
z. Saturday, Sunday, holiday and night work.
aa. Reference materials.
bb. Value engineering.
cc. Schedule of Values.

B. Progress Meetings: Contracting Officer will schedule weekly meetings with Construction Contractor.

1. Attendees: In addition to Government Representatives, each Construction Contractor, Subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future

activities shall be represented. Participants at meeting shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda:

   a. Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Meeting agenda will include:

      1) Approval of minutes of previous meetings.
      2) Submittal status.
      3) Review of off-site fabrication and delivery schedules.
      4) Requests for information (RFI) and other issues.
      5) Modifications.
      6) Work in progress and projected.

         a) Status of required inspections (Special Inspections, Accessibility, etc.).

      7) Inspections of work in progress and projected (Special inspections, Accessibility, etc.).
      8) Construction Schedule update (provide updated Critical Path Method (CPM)).
      9) Status of Project Record Drawings and O&M manuals.
      10) Other business relating to work.
      11) Permit requirements.

C. Preinstallation Conferences: Conduct at Project Site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend meeting. Advise Contracting Officer of scheduled meeting dates.

2. Agenda:

   a. Review progress of other construction activities and preparations for particular activity under consideration, including requirements for:

      1) Contract Documents.
      2) Options.
      3) Related RFIs.
      4) Related Change Orders.
      5) Purchases.
      6) Deliveries.
      7) Submittals.

b. Review of mockups.
c. Possible conflicts.
d. Compatibility requirements.
e. Time schedules.
f. Weather limitations.
g. Manufacturer's written instructions.
h. Warranty requirements.
i. Compatibility of materials.
j. Acceptability of substrates.
k. Temporary facilities and controls.
l. Space and access limitations.
m. Regulations of agency(ies) with jurisdiction.
n. Testing and inspecting requirements.
o. Installation procedures.
p. Coordination with other work.
q. Required performance results.
r. Protection of adjacent work.
s. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of meeting to each party present and to other parties requiring information.
5. Do not proceed with installation if conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of Work and reconvene conference at earliest feasible date.

1.8 ENVIRONMENTAL COORDINATION

A. Construction Contractor's Environmental Manager: Designate onsite party responsible for overseeing Construction Contractor's conformance to environmental goals for project and implementing procedures for environmental protection.

1. Qualifications: Minimum 3 years Construction experience on projects of similar size and scope; with environmental procedures similar to this Project; familiarity with Environmental Management Systems (EMSs) such as International Organization for Standardization (ISO) 14001; familiar with environmental regulations applicable to construction operations.
2. Responsibilities:

a. Responsibilities shall include:

1) Compliance with applicable federal, state, and local environmental regulations, including maintaining required documentation.

2) Coordination with Archeological Monitor in accordance with Section 01 35 13.22, Archeological Protection.
3) Implementation of Waste Management Plan (WMP).
4) Implementation of Indoor Air Quality (IAQ) Management Plan.
5) Implementation of Storm Water Pollution Prevention Plan (SWPPP).
6) Present overview of environmental issues and summarize site specific procedures relating to management plans at Preconstruction conference.
7) Training for Construction Contractor personnel in accordance with position requirements.
8) Monitoring and documentation of environmental procedures.

B. Perform project quality control in accordance with requirements specified in Paragraph Related Requirements, including:

1. Quality Requirements.
2. Regulatory Requirements.
3. Indoor Air Quality (IAQ) Management.
4. Noise and Acoustics Management.
5. Temporary Storm Water Pollution Prevention Environmental Management.
6. Construction Waste Management.

C. Construction Contractor's Environmental Training Program:

1. Construction Contractor shall provide environmental training for workers performing work on Project Site. Training shall include:

a. Overview of environmental issues related to building industry.
b. Overview of environmental issues related to Project.
c. Review of Site-specific Procedures and Management Plans:

1) Construction Waste Management.
2) Indoor Air Quality (IAQ) Management.
3) Noise and Acoustics Management.
4) Temporary Storm Water Pollution Prevention.

d. Pollution Prevention (P2) Practices: Submit evidence of P2 training.
e. Compliance with environmental regulations: As specified in Regulatory Requirements. Submit Construction Contractor 40 CFR (Code of Federal Regulations) employee training records upon request of Contracting Officer.

D. Provide documentation for environmental procedures as specified herein and in accordance with approved Waste Management Plan, IAQ Management Plan, and Storm Water Pollution Prevention Plan.

1.9 PERMITS

A. General:

1. Permits and Responsibilities: Construction Contractor shall, without additional expense to the Government, be responsible for obtaining necessary licenses and permits, and for complying with federal, state, and municipal laws, codes, and regulations applicable to the performance of the work. Construction Contractor shall also be responsible for damages to persons or property that occur as a result of Construction Contractor's fault or negligence; and for materials delivered and work performed until completion and acceptance of the work.
2. For the purpose of this contract, Construction Contractor will not be considered an agent of the Government. Construction Contractor shall comply with appropriate federal, state and local laws.

B. Government Furnished Permits: The following permits will be received by the Government prior to bid award. Terms and provisions of these permits shall be adhered to for the duration specified in each permit.

1. New Mexico Department of Transportation (NMDOT) Environmental Clearance for Undertakings within NMDOT Right-of-Ways
2. NMDOT Application for Permit to Install Utility Facilities in Public Rights-of-Way
3. Utility Easements Right-of-Way from Los Alamos National Laboratories
4. A construction notification will be sent to Los Alamos County Department of Public Utilities GWS Operations 2 weeks prior to mobilization.

C. Potential Permits: Permits listed below were identified during the design process as likely to be required based on typical means and methods of construction. The list is provided to assist Construction Contractor in determining which permits will be required for contract's chosen means and methods. The list shall not be considered complete; it is the Construction Contractors' responsibility to determine means and methods and obtain required permits. Construction Contractor shall obtain all permits required to legally conduct work.

1. Electrical Utility Connection to Service Provider: Los Alamos National Laboratories.
2. Gas Utility Connection to Service Provider: Los Alamos National Laboratories.
3. Water Utility Connection to Service Provider: Los Alamos National Laboratories.
4. New Water Meter: Los Alamos County.
5. Highway 4 Right-of-Way Permit: New Mexico Department of Transportation.
6. Traffic Control/Roadway Work Permit for Highway 4 Utility Crossings: New Mexico Department of Transportation.

7. National Pollution Discharge Elimination System (NPDES) Permit: General Permit for Discharges of Stormwater (Storm Water Pollution Prevention Plan): New Mexico Environmental Department.
8. Required Excavation/Fill/Soil Disturbance (EXID) Excavation Permit (for utility work on Los Alamos National Laboratories (LANL)[REV. 1] property): Los Alamos National Laboratories. Permit will require a routine 7 business day review.

    a. Excavation activities may not commence on this project until the Excavation/Fill/Soil Disturbance permit has been approved and issued by OSH-ISH. Requests may be submitted by accessing the excavation permit url: http://eswebapps/irt/login.aspx.
    b. All changes, deviations in the proposed scope (length, depth, width, location etc.) of the activity will need to be resubmitted for appropriate review and approval.
    c. Requester of an excavation permit review or anyone who is listed as a Person in Charge (PIC)/Alt PIC/STR must take the online Excavation Soil Disturbance self-study (Course 31419) and LANL Excavation/ Fill/ Soil Disturbance (EXID) Permit Process Using the EXID Request System (Course 47420) prior to requesting the review.
    d. If there are questions, contact Carrie Atencio at (505) 695-5343 or carriea@lanl.gov.
    e. Access the IRT policy at https://int.lanl.gov/policy/documents/P351.pdf.
    f. Access the Excavation/Fill/Soil Disturbance Procedure P101-17 at: http://int.lanl.gov/policy/documents/P101-17.pdf.

9. Dewatering Permit: New Mexico Environmental Department.
10. Digging/Excavation: New Mexico OneCall.
11. Air Quality Permit Hot Mix Asphalt Plant General Construction Permit 3 (GCP-3).

D. Construction Contractor Utility Coordination with Los Alamos National Laboratory:

1. All work will be performed in accordance with applicable LANL Electrical Safety Program requirements, NESC standards, and approved construction drawings.
2. Required outages will be coordinated in advance between LANL and the National Park Service to minimize operational impacts to Bandelier National Monument.
3. Contractor-furnished equipment will meet LANL specifications and be delivered prior to scheduled construction activities.
4. Final metering configuration and interconnection details are subject to ES-UI engineering review and approval.
5. Outage planning and switching orders shall be coordinated through ES-UI Operations.

6. Construction sequencing shall ensure safe isolation of existing facilities prior to demolition activities.
7. LANL representative must be present on-site during the utility connection work.
8. Final inspection, testing, and commissioning of the metering installation shall be completed prior to energization.
9. As-built documentation shall be updated to reflect the new metering configuration and demarcation point.[REV. 1]

~~D.~~E. Construction Contractor Utility Coordination within Bandelier National Monument:

1. Coordinate in accordance with Section 01 32 16, Construction Schedule.

    a. Water, sanitary sewer, electric, natural gas, communications.
    b. Construction Trailer, Utilities Hookup Permit: Bandelier National Monument.
    c. Traffic Control/Street Closure: Bandelier National Monument.
    d. Hydrostatic Testing Approval: National Park Service.
    e. Waterline Flushing and Disinfection Approval: National Park Service.

~~E.~~F. Coordination with Agency(ies) with Jurisdiction Issuing Permits:

1. Coordination:

    a. Contact the Agency(ies) with Jurisdiction as needed and sufficiently in advance to avoid delaying work: Coordinate meetings, reporting requirements, inspections, and other requirements.

~~F.~~G. Administrative Procedures:

1. Coordinate scheduling and timing of required administrative provisions of project permits with Agency(ies) with Jurisdiction, Construction Manager, and Park to avoid conflicts.
2. Supply needed information to Agency(ies) with Jurisdiction issuing permits, pay fees required and provide material needed to comply with permit's conditions and provisions.
3. Upload permits to NPS project management and communication software when permits are obtained.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 33 23
SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.2 DEFINITIONS

A. Action Submittals: Written, graphic information, and physical samples that require Government's responsive action.

B. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.

C. Informational Submittals: Written information that does not require Government's responsive action. Submittals may be rejected for not complying with requirements.

D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.3 SUBMITTALS

A. Submittal Log and Schedule of Submittals within 10 days of the Effective Date of the Agreement.

B. Monthly status update of submittals using the Submittal Log as format.[REV. 1]

~~1.3~~1.4 GENERAL SUBMITTAL PROCEDURES

A. General: Prepare and submit submittals required by individual specification sections and in some cases as requested on the Drawings. Types of submittals are indicated in individual specific sections and must be complete before submittal.

1. Contracting Officer (CO) reserves right to require submittals in addition to those called for in individual sections.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Review for legibility, accuracy, completeness, and compliance with Contract Documents.

1. Coordinate submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Coordinate transmittal of different types of submittals for related parts of Work so processing will not be delayed because of need for concurrent review coordination.

    a. Contracting Officer reserves right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Submittal List: Submittal list is attached to the end of this section. The intent is to provide an overall summary of submittal requirements. The requirements of individual specification sections and terms and conditions of the Contract still apply regardless of what is shown on submittal list.

D. Processing Time: Allow enough time for submittal review and resubmittals. Contract time extensions will not be authorized if submittals are not transmitted with enough time to permit processing, including resubmittals.

1. Action Submittals:

    a. Initial Review: Allow 30 calendar days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required.
    b. Resubmittal Review: Allow 21 calendar days for review of each resubmittal or if a submittal is re-opened.

2. Informational Submittals:

    a. Review: Allow 14 calendar days for review of each submittal.

E. Approved Equal Submittal Requirements:

1. For each item proposed as an “approved equal,” submit supporting data, including:

    a. Drawings and samples as appropriate.
    b. Comparison of the salient characteristics of the proposed item with that specified.
    c. Changes required in other elements of the work because of the substitution.
    d. Name, address, and telephone number of vendor.
    e. Manufacturer’s literature regarding installation, operation, and maintenance, including schematics for electrical and hydraulic systems, lubrication requirements, and parts lists. Describe availability of maintenance service, and state source of replacement materials.

2. A request for approval constitutes a representation that Construction Contractor:

   a. Has investigated the proposed item and determined that it is equal or superior in all respects to that specified.
   b. Will provide the same warranties for the proposed item as for the item specified.
   c. Has determined that the proposed item is compatible with interfacing items.
   d. Will coordinate installation of an approved item and make changes required in other elements of the work because of the substitution.
   e. Waives claims for additional expenses that may be incurred as a result of the substitution.

F. Submittals: Identify and incorporate information in each submittal file as follows:

   1. Transmittal Form (CM-16): Utilize NPS Transmittal Form for all submittals. No action will be taken on a submittal item unless accompanied by this Transmittal Form.
   2. Physical Samples: Complete Transmittal Form and deliver physical sample to the Contracting Officer (or designee) on site for processing. All comments and actions will be documented on the Transmittal Form.

G. Identification: Submittal number or other unique identifier, including revision identifier.

   1. Submittal number shall use a sequential number (e.g., .001). Resubmittals shall include alphabetic suffix after another decimal point (e.g., .001.A).

H. Resubmittals: Make resubmittals using same process used with initial submittal.

   1. Note date and content of previous submittal.
   2. Note date and content of revision in the title block on the Transmittal Form (CM-16) and clearly indicate extent of revision.
   3. Resubmit submittals until they are marked “Approved” or “Approved with notations.”

I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, and others as necessary for performance of construction activities.

J. Use for Construction: Use only final submittals with mark indicating “Approved,” “Accepted,” or “Approved with notations.” Ensure notations have been incorporated and, at a minimum, keep one copy of final approved submittal on site for use during construction.

~~1.4~~1.5 CONSTRUCTION CONTRACTOR'S USE OF CAD/BIM FILES

A. General:

1. At Construction Contractor's written request, copies of CAD/BIM (Computer Aided Design/Building Information Modeling) files will be provided to Construction Contractor for use in connection with Project, subject to:

a. Files provided as is; no format or other changes to files or changes to objects on the Drawings will be done by the Government.
b. The CAD files are provided for the convenience of the Contractor in planning for temporary working space, protection of existing utilities and features, and survey stakeout of new work. The printed construction documents prevail in the case of any discrepancies.

PART 2 PRODUCTS

2.1 ACTION SUBMITTALS

A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each submittal to show which products and options are applicable.
3. As applicable, include:

a. Manufacturer's product specifications.
b. Manufacturer's Installation Instructions: When Contract Documents require compliance with manufacturer's printed instructions, provide one complete set of instructions to Contracting Officer and keep another complete set of instructions at the Project Site until substantial completion.
c. Manufacturer's Catalog Cuts: Submit only pertinent pages; mark each page of standard printed data to identify specific products proposed for use.
d. Wiring diagrams showing factory-installed wiring.
e. Printed performance curves.
f. Operational range diagrams.
g. Compliance with specified referenced standards.
h. Testing by recognized testing agency.

4. Submit product data in PDF (portable document format) file format before or concurrent with samples.

B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation:

a. Fully illustrate requirements in Contract Documents. As applicable, include:

1) Dimensions.
2) Identification of products.
3) Fabrication and installation drawings.
4) Roughing-in and setting diagrams.
5) Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
6) Shopwork manufacturing instructions.
7) Templates and patterns.
8) Schedules.
9) Notation of coordination requirements.
10) Notation of dimensions established by field measurement.
11) Relationship to adjoining construction clearly indicated.
12) Seal and signature of professional engineer if specified.
13) Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.

2. Submit Shop Drawings as PDF electronic file.

C. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Complete and post the Transmittal Form (CM-16) on the NPS project management and communication software website for processing and documentation of action on submitted samples.
3. Identification:

a. Attach label on unexposed side of Samples that includes:

1) Generic description of Sample.
2) Product name and name of manufacturer.
3) Sample source.
4) Submittal Number and title of appropriate specification section.

4. Disposition: Maintain sets of approved Samples at Project Site, available for quality-control comparisons throughout course of construction activity. Sample

sets may be used to determine final acceptance of construction associated with each set.

5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing full range of colors, textures, and patterns available.

    a. Number of Samples: Submit two full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Contracting Officer will return with options selected.

6. Samples for Verification:

    a. Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

        1) Number of Samples: Submit four sets of Samples. Contracting Officer will retain three Sample sets; remainder will be returned.

D. Construction Materials: Construction Contractor is encouraged to submit products made out of recycled or environmentally responsible material. Every effort will be made by NPS to approve these materials.

2.2 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by individual specification sections.

1. Post informational submittals as PDF electronic files directly to the NPS project management and communication software.
2. Certificates and Certifications: Provide a notarized statement with signature of entity responsible for preparing certification. Certificates and certifications shall be signed by officer or other individual authorized to sign documents on behalf of that entity.
3. Informational submittals that do not comply with requirements specified in Contract Documents will be rejected and one copy will be returned.

B. Coordination Drawings: Comply with requirements specified in Section 01 31 00, Project Management and Coordination.

C. Construction Contractors Construction Schedule: Comply with requirements specified in Section 01 32 16, Construction Schedule.

D. Accident Prevention Plan: Comply with requirements specified in Section 01 35 23, Safety Requirements.

E. Schedule of Values: Comply with requirements specified in Section 01 32 16, Construction Schedule.

F. Waste Recycling Plan: Comply with requirements specified in Section 01 74 19, Construction Waste Management and Disposal.

G. Quality Control Plan: Comply with requirements specified in Section 01 40 00, Quality Requirements.

H. Storm Water Pollution Prevention Plan: Comply with requirements specified in Section 01 57 23, Temporary Storm Water Pollution Prevention, and storm water permit requirements identified in Section 01 31 00, Project Management and Coordination.

I. Qualification Data: Prepare written information demonstrating capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

J. Welding Certificates: Prepare written certification that welding procedures and personnel comply with Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on American Welding Society (AWS) forms. Include names of firms and personnel certified.

K. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying Installer complies with Contract Documents and, where required, is authorized by manufacturer for this specific Project.

L. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying manufacturer complies with Contract Documents. Include evidence of manufacturing experience where required.

M. Product Certificates: Prepare written statements on manufacturer's letterhead certifying product complies with Contract Documents.

N. Material Certificates: Prepare written statements on manufacturer's letterhead certifying material complies with Contract Documents.

O. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in Contract Documents.

P. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

Q. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.

R. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in Contract Documents.

S. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

T. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in Contract Documents.

U. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Section 01 78 23, Operation and Maintenance Data.

V. Design Data:

1. Prepare written and graphic information, including: Performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

W. Manufacturer's Instructions: Prepare written or published information documenting manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.

X. Manufacturer's Field Reports:

1. Prepare written information documenting factory-authorized service representative's tests and inspections. As applicable, include:

a. Statement on condition of substrates and their acceptability for installation of product.
b. Summary of installation procedures being followed, compliance with requirements and, if not, what corrective action was taken.
c. Results of operational and other tests and a statement of whether observed performance complies with the requirements.

Y. Permit Compliance Products: Prepare required information for compliance with permit provisions. Products include written notification of project startup, suspension, and completion of work; photo documentation of site conditions; reports; and drawings.

PART 3 EXECUTION

3.1 CONSTRUCTION CONTRACTOR'S REVIEW

A. Review each submittal and check for coordination with other Work of Contract and for compliance with Contract Documents. Note corrections and field dimensions.

3.2 CONTRACTING OFFICER'S ACTION

A. General: Submittals will be disapproved without technical review if identification information is missing, not filled in, or if placed on back of submittal; an incorrect format of submittals is provided; transmittal form is incorrectly filled out; submittals are not coordinated; or submittals do not show evidence of Construction Contractor's approval.

1. Any work done or orders for materials or services placed before approval shall be at Construction Contractor's own risk.

B. Action Submittals:

1. Contracting Officer will review each submittal, generate comments on corrections or modifications required, and indicate appropriate action on the Transmittal Form (CM-16). Submittal will be marked as defined below:

a. APPROVED: Acceptable with no corrections.
b. APPROVED WITH NOTATIONS: Minor corrections or clarifications required. Comments are clear and no further review is required. Construction Contractor shall address review comments when proceeding with the work.

c. DISAPPROVED - RESUBMIT: Rejected as not in accordance with the contract or as requiring major corrections or clarifications. Contracting Officer will identify reasons for disapproval. Construction Contractor shall revise and resubmit with changes clearly identified.

C. Informational Submittals: Contracting Officer will review each submittal and will either accept or reject it.

D. Partial submittals are not acceptable, will be considered non-responsive, and will be returned without review.

3.3 SUPPLEMENT

A. The supplement listed below, following "End of Section," is a part of this specification:

1. Submittal List.

END OF SECTION

Submittal List

National Park Service (NPS) - Denver Service Center (DSC) | 1-27-21

SUBMITTAL LIST											ACTION SUBMITTAL REVIEW ESTIMATE (Complete this portion for Architect / Engineer (A/E) construction service task order negotiation)										
Park Acronym/Project Management Information System (PMIS) Number:			**BAND-266697**																		
Project Title:		**UNDERGROUND UTILITIES REHABILITATION**																			
SUBMITTAL			REQUIREMENTS (Indicate with **X**)								ARCHITECT / ENGINEER REVIEW TIME (Indicate in whole or partial hours)										
			INFORMATIONAL				ACTION														
SPECIFICATION SECTION	PARAGRAPH NUMBER	DESCRIPTION	CERTIFICATIONS OR LABORATORY TESTS	REPORTS OR CALCULATIONS OR PLAN	MANUFACTURER DATA AND INSTRUCTIONS	OTHER	SAMPLES	SHOP DRAWINGS	MANUFACTURER DATA AND INSTRUCTIONS	OTHER		ARCHITECT	CIVIL ENGINEER (SITE CIVIL, NATURAL GAS, ROADWAY)	STRUCTURAL ENGINEER	BUILDING MECHANICAL ENGINEER	PROCESS MECHANICAL ENGINEER	ELECTRICAL ENGINEER	I&C ENGINEER	CCA SUBMITTAL PROCESSING	PROJECT MANAGER INTERDISCIPLINARY COORDINATION / QUALITY REVIEW	LANDSCAPE ARCHITECT
01 31 00	**1.4**	**Project Management and Coordination**																			
		Coordination Drawing Organization						X		X											
		Division 01 Documents		X		X				X											
01 32 16	**1.3**	**Construction Schedule**				X															
01 32 33	**1.2**	**Photo Documentation**																			
		Construction Images				X															
01 35 23	**1.3**	**Safety Requirements**																			
		Accident Prevention Plan		X																	
01 35 91	**1.3**	**Historic Preservation Treatment Procedures**																			
		Historic Preservation Treatment Plan								X											
		Alternate Methods and Materials		X		X															
		Photographs or Videotape				X															
01 40 00	**1.4**	**Quality Requirements**																			
		Quality Control Plan								X											
		Qualification Data								X											
		Contractor Quality Control Daily Reports		X																	
		Test Reports	X	X																	
		Accessibility Inspection Report		X																	
		Offsite Inspection Report		X																	
		Permits, Licensing and Certificates	X			X															
01 45 33	**1.04**	**Special Inspection, Observation and Testing**																			
		Special Inspector Qualifications	X																		
		AISC Certified Steel Fabricator Qualifications	X																		
		Contractor Statement of Responsibility				X															
01 57 23	**1.3**	**Temporary Storm Water Pollution Prevention**																			
		Storm Water Pollution Prevention Plan		X																	
		Inspection Schedule		X																	
		Erosion Control Products					X														
01 57 28	**1.05**	**Temporary Flow Control**																			

SUBMITTAL LIST

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		Temporary Flow Control Plan		X																
		Emergency Cleanup Plan		X																
		Special Permits				X														
		Names and Qualifications for Personnel				X														
		Information on Equipment and Materials				X														
01 67 00	**1.3**	**Product Requirements**																		
		Material Safety Data Sheets			X															
		Affirmative Procurement Reporting Form								X										
		Manufacturer's Certificate of Proper Installation				X														
		Manufacturer's Certificate of Compliance				X														
01 73 29	**1.2**	**Cutting and Patching**																		
		Cutting and Patching Plan								X										
01 73 40	**1.2**	**Execution**																		
		Certificates				X														
		Landfill Receipts				X														
		Certified As-built Surveys								X										
01 74 19	**1.4**	**Construction Waste Management and Disposal**																		
		Waste Management Plan								X										
		Progress Documentation		X																
		Waste Reduction Calculations		X																
		Records of Donations				X														
		Records of Sales				X														
		Recycling and Processing Facility Records				X														
		Landfill and Incinerator Disposal Records				X														
		Qualification Data			X															
		Statement of Refrigerant Recovery				X														
		Progress Payment Requirement		X																
		Closeout Submittals		X																

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01 77 00	**1.3**	**Closeout Procedures**																			
		Specific Warranties, Guarantees, Workmanship Bonds, Final Certificates, and similar.	X			X															
		Project Record Documents, Record Drawings, O&M Manuals, Final Completion Construction Digital Images, and similar		X		X		X													
		Environmental Record Documents		X	X																
		Posted Operating Instructions							X	X											
		Keys and Keying Schedule				X															
		Approved Pre-Functional Checklist and Performance Testing Reports		X		X															
		Test and Balance Report	X	X																	
01 78 23	**1.2**	**Operation and Maintenance Data**																			
		Operation and Maintenance Manual								X											
		Equipment Data Sheet				X															
01 79 00	**1.3**	**Demonstration and Training**																			
		Instruction Program								X											
		Demonstration and Training Video				X															
01 81 13	**1.3**	**Sustainable Design Requirements for Non-LEED™**																			
		Recycled Content				X															
		Certified Wood			X																
		Low Emitting Materials - Adhesives and Sealants			X																
		Low Emitting Materials - Paints and Coatings			X																
		Low Emitting Materials - Flooring			X																
		Biopreferred Products				X															
01 88 15	**1.05**	**Anchorage and Bracing**																			
		Shop Drawings						X	X												
		Anchorage and Bracing Calculations		X																	
		Manufacturer's Hardware Installation Requirements			X																
01 91 14	**1.6**	**Total System Commissioning**																			
		Two-Week Look Ahead Schedules				X															
		Certificate of Readiness	X																		
		Contractor's Commissioning Representative Qualifications				X															
		Commissioning Plan								X											
		Pre-functional Checklists		X																	

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		Owner's Project Requirements		X																	
		Functional Performance Test Forms		X																	
		List of Test Instrumentation, Equipment and Monitoring Devices	X	X		X															
		Deficiency Report and Resolution Record		X																	
		Closeout Documentation	X	X		X		X													
02 41 00	**1.03**	**Demolition**																			
		Demolition Plan		X																	
		Notifications, Authorizations and Permits				X															
		Reports and Other Documentations		X		X															
02 61 00	**1.04**	**Removal and Disposal of Contaminated Soil**																			
		Permits, Certification and Acceptance Requirements	X			X															
		Qualifications				X															
		Soil and Debris Analytical and Physical Characterization Testing Plan		X																	
		Inspection Reports		X																	
		Excavation and Water Control Plan		X																	
		Site-specific Health and Safety Plan		X																	
		Emergency Response Plan		X																	
		Daily Job Progress Log		X																	
		Weekly Excavation Plans		X																	
		Copies of Manifests, Bills of Lading and Receipts		X																	
02 82 00	**1.04**	**Asbestos Remediation**																			
		Product Data Sheets			X				X												
		Test Reports		X						X											
		Certificates	X							X											
03 01 32	**1.03**	**Repair of Vertical and Overhead Concrete Surfaces**																			
		Product Data Sheets							X												
		Drawings						X		X											
		Repair Mortar Systems			X																
		Description of Equipment				X															
		Certificates	X																		
		Statement of Qualification	X			X															
		Field and Laboratory Test Reports	X	X																	

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03 01 33	**1.03**	**Repair of Horizontal Concrete Surfaces**																			
		Product Data Sheets							X												
		Drawings						X		X											
		Repair Mortar Systems			X																
		Description of Equipment				X															
		Certificates	X																		
		Statement of Qualification	X			X															
		Field and Laboratory Test Results	X	X																	
03 10 00	**1.04**	**Concrete Forming and Accessories**																			
		Shop Drawings						X													
		Product Data							X												
		Statement of Qualification	X																		
03 15 00	**1.02**	**Concrete Joints and Accessories**																			
		Shop Drawings						X													
		Product Data							X												
		Samples					X														
		Certification	X			X															
		Manufacturer's Written Instruction			X																
03 21 00	**1.03**	**Steel Reinforcement**																			
		Shop Drawings						X	X												
		Welded, Metallic Sleeve Splice, and Mechanical Threaded Connection								X											
		Lab Test Reports	X																		
		Mechanical Threaded Connections				X															
		Test Results of Field Testing	X																		
		Product Data for Recycled Materials			X																
03 30 00	**1.03**	**Cast-in-Place Concrete**																			
		Mix Designs								X											
		Manufacturer’s Certificate of Compliance	X																		
		Test Reports	X	X																	
		Aggregates							X	X											
		Product Data							X												
		Detailed Plan for Cold Weather Placement								X											

SUBMITTAL LIST

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		Detailed Plan for Hot Weather Placement								X										
		Preinstallation Conference Minutes		X																
		Manufacturer's Application Instructions			X															
		Statement of Qualification	X																	
		Field Test Reports		X																
		Thermal Control Plan		X																
		Recorded Temperature Data from Concrete Placement		X																
		Liquid Tightness Test Results	X																	
		Concrete Delivery Tickets				X														
03 39 00	**1.02**	**Concrete Curing**																		
		Manufacturer's Data							X											
		Curing Methods								X										
		Manufacturer's Certificate of Compliance	X																	
		Product Data for Low Emitting Materials - Paint and Coatings			X															
		Manufacturer's Literature Documenting VOC content			X															
03 40 00	**1.02**	**Precast Concrete Structures**																		
		Experience Record on Production of Precast Structures								X										
		Drawings						X												
		Manufacturer's Catalog Data							X											
		Manufacturer's Design Structural Calculations and Certification	X	X																
		Manufacturer's Catalog Data							X											
03 62 00	**1.02**	**Grouting**																		
		Product Data							X											
		Proposed Method for Keeping Concrete Wet Prior to Grouting							X											
		Forming Method for Fluid Grout Placements							X											
		Curing Method for Grout							X											
		Manufacturer's Written Instruction			X															
		Manufacturer's Proposed Training Schedule				X														
		Manufacturer's Certificate of Compliance	X																	
		Statements of Qualification	X																	
		Test Reports		X																
		List of Contractor's Equipment Installation Staff				X														

SUBMITTAL LIST

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03 63 00	**1.03**	**Concrete Doweling**																			
		Product Data							X												
		Manufacturer's Instructions			X																
		Manufacturer's Written Letter of Certification	X																		
		ICC Evaluation Services Report		X																	
03 64 23	**1.03**	**Epoxy Resin Injection Grouting**																			
		Physical and Chemical Properties							X												
		Technical Data for Metering, Mixing, and Injection Equipment							X												
		Marked-up Drawings						X													
		Health and Safety Plan		X																	
		Sample Bottle					X														
		Pot Life Test								X											
		Plant Shear Test (Bond Strength)								X											
		Manufacturer's Recommended Surface Preparation Procedures			X																
		Certificate for NSF 61 Conformance	X																		
		Statements of Qualification for Epoxy Resin	X																		
		Sample of Epoxy Resin				X															
		Installation Instructions			X																
		Test Results of Epoxy Resin Bond Tests	X																		
		Epoxy Resin Two Component Ratio and Injection Pressure Test Records	X	X																	
03 64 24	**1.03**	**Polyurethane Injection Grouting**																			
		Physical and Chemical Properties for Polyurethane Injection Resin							X												
		Technical Data for Metering, Mixing, and Injection Equipment							X												
		Marked-up Drawings						X													
		Sample Bottle					X														
		Manufacturer's Recommended Surface Preparation Procedures			X																
		Certificate for NSF 61 Conformance	X																		
		Statements of Qualification for Polyurethane Resin Injection	X																		
		Sample of Polyurethane Resin				X															
		Installation Instructions			X																
		Polyurethane Resins Injection Pressure Test Records	X																		
05 05 19	**1.03**	**Post-Installed Anchors**																			
		Shop Drawings						X	X												
		Manufacturer's Product Description and Installation Instructions			X																
		Current ICC-ES or IAPMO-UES Report		X																	

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		Adhesive Anchor Installer Certification	X																		
05 50 00	**1.03**	**Metal Fabrications**																			
		Shop Drawings						X	X												
		Samples					X														
		Passivation Method for Stainless Steel Members		X																	
08 16 13	**1.02**	**Fiberglass Doors**																			
		Shop Drawings						X	X												
		Samples					X														
		Manufacturer's Installation Instructions			X																
		Manufacturer's Instructions							X												
		Executed Guarantee				X															
08 71 00	**1.02**	**Door Hardware**																			
		Shop Drawings						X													
		Product Data							X												
		Finish Hardware Schedule								X											
		Special Tools								X											
		Operation and Maintenance Data				X															
		Manufacturer's Field Service Report		X																	
		Certification of Hardware Consultant	X																		
09 90 00	**1.03**	**Painting and Coating**																			
		Shop Drawing						X													
		Data Sheets							X												
		Detailed Chemical and Gradation Analysis								X											
		Samples					X														
		Factory Applied Coating	X																		
		Manufacturer's Written Verification that Submitted Material is Suitable			X																
		Coating for Faying Surfaces	X																		
		Manufacturer's Written Instructions			X																
10 14 00	**1.02**	**Signage**																			
		Shop Drawings						X	X												
		Manufacturer's Installation Instructions			X																
10 44 00	**1.03**	**Fire Protection Specialties and Safety Equipment**																			
		Shop Drawings						X	X												

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		Manufacturer's Installation Instructions			X																
		Operation and Maintenance Data				X															
13 34 20	**1.05**	**Precast Concrete Building**																			
		Shop Drawings						X	X												
		Building Engineering Calculations		X																	
		Manufacturer's Installation Instructions, and Certifications	X		X				X												
22 07 00	**1.02**	**Plumbing Piping Insulation**																			
		Product Description							X												
		Proof of Compliance for Test of Products for Fire Rating, Corrosiveness,	X																		
		Manufacturer's Installation Instructions			X																
22 10 01	**1.03**	**Plumbing Piping and Accessories**																			
		Product Data Sheets																			
		2.03.A Hose Valves and Hydrants							X												
		2.05.D Gate Valves							X												
		2.05.E Ball Valves							X												
		2.05.F Thermoplastic Ball Valves 2 Inches and Smaller for Water Service							X												
		2.06.A Strainers for Water Service							X												
		2.06.B Sleeves							X												
		2.06.C Joint Solder							X												
		2.06.D Rubber Gaskets							X												
		2.07.A Pressure Gauge							X												
		2.08.A Fuel Piping Above Ground							X												
		2.08.B Fuel Piping Below Ground							X												
		2.08.C Flex Connector							X												
		2.08.D Anodeless Riser							X												
		2.08.E Above Grade Ball Valve							X												
		2.08.F Lockwing Ball Valve							X												
		2.08.G Below Grade Polyethylene Ball Valve							X												
		2.08.H Natural Gas Pressure Reducing Valve							X												
		2.08.I Natural Gas Pressure Gauge							X												
		2.08.J Natural Gas Meter							X												
		Shop Drawings						X													

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		Changes in Location of Equipment or Piping																			
		Building Mechanical		X				X													
		Natural Gas		X				X													
		Complete List of Products Proposed for Installation				X															
		Test Records																			
		2.08.H Manufacturer's test of pressure reducing valve							X												
		2.08.J Manufacturer's test of meters							X												
		3.02.E.5 Installed system tracer wire continuity testing								X											
		3.02.E.7 Installed system pressure testing								X											
		3.10.A.5 Test Records		X						X											
22 30 00	**1.02**	**Plumbing Equipment**																			
		Manufacturer's Product Data																			
		2.02 Backflow Preventer						X	X												
		2.04 Hydropneumatic Pressure Boosters						X	X												
		2.05 Water Fountains						X	X												
		Seismic Anchorage and Bracing Drawings and Cut Sheets						X	X												
		Seismic Anchorage and Bracing Calculations		X																	
		Component and Attachment Testing Seismic Certificate of Compliance	X																		
22 40 00	**1.02**	**Plumbing Fixtures**																			
		Catalog Information and Rough-in Dimensions							X												
		Product Data Sheets																			
		2.03.A.1 Cleanout (Exterior)							X												
		2.03.A.2 Floor Drain (Finished Areas)							X												

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23 05 48	**1.03**	**Vibration Isolation for HVAC Piping and Equipment**																			
		Shop Drawings						X													
		Product Data							X												
		Schedule of Vibration Isolator Type								X											
		Vibration Isolation Base Details							X	X											
		Manufacturer's Installation Instruction			X																
		Manufacturer's Certificate of Compliance	X																		
		Manufacturer's Certificate of Proper Installation	X																		
23 81 00	**1.03**	**Unitary Air-Conditioning Equipment**																			
		Shop Drawings						X	X												
		Seismic Anchorage and Bracing Calculations		X																	
		Manufacturer's Certificate of Compliance	X																		
		Detailed Information on Structural, Mechanical, Electrical, or other Modifications		X																	
		Sample Copy of Guarantee				X															
		Test Reports		X																	
		Operation and Maintenance Data				X															
23 82 00	**1.03**	**Terminal Heating and Cooling Units**																			
		Shop Drawings						X	X												
		Seismic Anchorage and Bracing Calculations		X																	
		Manufacturer's Certificate of Compliance	X																		
		Detailed Information on Structural, Mechanical, Electrical, or other Modifications		X																	
		Operation and Maintenance Data				X															
26 05 02	**1.05**	**Basic Electrical Requirement**																			
		Manufacturer's Product Data							X												
		Anchorage and Bracing Drawings and Cut Sheets						X	X												
		Anchorage and Bracing Calculations		X																	
26 05 04	**1.02**	**Basic Electrical Materials and Methods**																			
		Manufacturer's Product Data							X												
		Seismic Anchorage and Bracing Drawings and Cut Sheets						X	X												
		Anchorage and Bracing Calculations		X																	
26 05 05	**1.02**	**Conductors**																			

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		Manufacturer's Product Data							X											
		Cable Pulling Calculations								X										
		Journeyman Lineman or Electrician Splicing Credentials	X																	
26 05 26	**1.02**	**Grounding and Bonding for Electrical Systems**																		
		Manufacturer's Product Data						X	X											
26 05 33	**1.02**	**Raceway Boxes for Electrical Systems**																		
		Manufacturer's Product Data							X											
		Precast Manholes, Handholes, and Frames/Covers						X	X	X										
		Seismic Anchorage and Bracing Drawings and Cut Sheets						X	X											
		Anchorage and Bracing Calculations		X																
26 05 70	**1.02**	**Electrical Systems Analysis**																		
		Short Circuit Studies								X										
		Protective Device Coordination Studies								X										
		Arc Flash Study								X										
		Arc Flash Warning Labels								X										
		Electronic Files of Final Studies								X										
26 08 00	**1.02**	**Commissioning of Electrical Systems**																		
		Testing Firm Qualifications	X																	
		Schedule for Performing Inspection and Tests				X														
		List of References to be used for each test				X														
		Sample Copy of Equipment and Materials Inspection Form(s)				X														
		Sample Copy of Individual Device Test Form				X														
		Sample copy of Individual System Test Form				X														
		Energization Plan		X																
		Test or Inspection Reports and Certificates	X	X																
		Operation and Maintenance Data				X														
		Programmable Settings				X														

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26 12 02	**1.02**	**Oil-Filled Pad Mounted Transformers**																			
		Manufacturer's Product Data						X	X												
		Seismic Anchorage and Bracing Drawings and Cut Sheets						X	X												
		Seismic Anchorage and Bracing Calculations		X																	
		Component and Attachment Testing Seismic Certificate of Compliance	X																		
		Operation and Maintenance Data				X															
26 13 16.02	**1.02**	**Pad-Mounted Switchgear**																			
		Manufacturer's Product Data						X	X	X											
		Equipment Foundation Pedestals						X	X												
		Anchoring Details								X											
		Anchorage and Bracing Drawings and Cut Sheets						X	X												
		Seismic Anchorage and Bracing Calculations		X																	
		Component and Attachment Testing Seismic Certificate of Compliance	X																		
		Factory Test Report		X																	
		Manufacturer's Installation Instructions			X																
		Operation and Maintenance Data				X															
26 20 00	**1.04**	**Low-Voltage AC Induction Motors**																			
		Manufacturer's Product Data							X	X											
		Maximum Brake Horsepower Required by the Equipment Driven by the Motor								X											
		Component and Attachment Testing Seismic Certificate of Compliance	X																		
		Operation and Maintenance Data				X															
26 22 00	**1.02**	**Low-Voltage Transformers**																			
		Manufacturer's Product Data							X	X											
		Anchorage and Bracing Drawings and Cut Sheets						X	X												
		Anchorage and Bracing Calculations		X																	
		Component and Attachment Testing Seismic Certificate of Compliance	X																		
26 24 16	**1.02**	**Panelboards**																			
		Manufacturer's Data Sheets							X												
		Manufacturer's Shop Drawings						X													
		Tabulation of Features								X											
		Anchorage and Bracing Calculations		X																	
		Manufacturer's recommended Installation Instructions			X																

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		Component and Attachment Testing Seismic Certificate of Compliance	X																		
26 27 26	**1.02**	**Wiring Devices**																			
		Manufacturer's Product Data							X												
26 32 13.16	**1.02**	**Natural Gas Engine Generator Set**																			
		Dimensioned Outline Drawing						X													
		Specification Compliance Statement								X											
		Engine and Generator Weight, and Anchoring Requirements							X												
		Complete List of Accessories Provided							X												
		Performance Curves							X												
		Circuit Breaker Data							X												
		Control Panel Instrument Identification Inscriptions								X											
		Sample Guarantee								X											
		Electrical Schematic and Wiring Diagrams							X												
		Engine Generator Set Motor Starting Capability and Percent Voltage Dip curve							X												
		Block Heater Size and Voltage							X												
		Jacket Water Heater Size and Voltage							X												
		Noise Data for Enclosed Engine Generator							X												
		Manufacturer's Certificate of Compliance	X																		
		Certification, Copies of Analyses, or Test Reports	X	X																	
		Component and Attachment Testing Seismic Certificate of Compliance	X																		
		Factory Test Report		X																	
		Operation and Maintenance Data				X															
		Description of Parts and Service Availability			X																
		Manufacturer's Certificate of Proper Installation	X																		
		Special Guarantee				X															
26 43 00	**1.02**	**Surge Protective Devices**																			
		Manufacturer's Product Data							X												
		Product Data							X												
		Manufacturer's UL Certified Test Data and Nameplate Data							X	X											
26 50 00	**1.02**	**Lighting**																			
		Shop Drawings						X	X												
		Manufacturer's Printed Installation Instructions			X																

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		Operation and Maintenance Data				X															
31 10 00	**1.02**	**Site Clearing**																			
		Overall Site Plan						X													
		Survey Information		X																	
31 23 16	**1.02**	**Excavation**																			
		Excavation Plan		X																	
		Excavation Permit				X															
31 23 19.01	**1.01**	**Dewatering**																			
		Water Control Plan		X																	
		Well Permits				X															
		Discharge Permits				X															
		Water Level Elevations Observed in Observation Wells		X																	
		Settlement Benchmark Elevations		X																	
		Inflow Measurements		X																	
31 23 23	**1.03**	**Fill and Backfill**																			
		Shop Drawings						X	X												
		Samples					X														
		Manufacturer's Data Sheets			X																
		Certified Test Results	X																		
31 23 23.15	**1.03**	**Trench Backfill**																			
		Shop Drawings						X	X												
		Catalog and Manufacturer's Data Sheets for Compaction Equipment			X																
		Certified Gradation Analysis	X																		
		Controlled Low Strength Material	X																		
		Shop Drawings																			
		2.01 Marking Tape			X			X	X												
		2.02 Trench Stabilization Material			X			X	X												
		2.03 Bedding Material and Pipe Zone Material			X			X	X												
		2.04 Granular Drain Material			X			X	X												
		2.05 Earth Backfill			X			X	X												
		2.06 Processed Earth Backfill			X			X	X												

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		2.07 Controlled Low Strength Material (CLSM)			X			X	X											
31 32 19.16	**1.03**	**Geotextile**																		
		Shop Drawings						X	X											
		Samples					X													
		Certifications of Geotextile Manufacturer	X																	
		Field Seam Efficiency Test Results	X																	
		Shop Drawings																		
		2.01 Nonwoven Geotextile						X	X											
		2.02 Sewing Thread						X	X											
		2.03 Securing Pins						X	X											
31 37 00	**1.03**	**Riprap**																		
		Shop Drawings					X	X	X											
		Certified Test Results	X																	
		Trip Tickets				X														
31 40 00	**1.03**	**Tunneled Crossings**																		
		Abandonment-Recovery Contingency Plan		X																
31 41 00	**1.02**	**Shoring**																		
		Excavation Support Plan (Open Cut)		X																
		Shaft/Pit Excavation Support Plan		X																
31 42 00	**1.03**	**Horizontal Auger Boring**																		
		Qualifications				X														
		Pre-Construction Surveys		X		X														
		Post-Construction Surveys		X		X														
		Quality Control Methods				X														
		Safety Plan		X																
		Schedule				X														
		Daily Records		X																
		Horizontal Auger Boring Work Plan								X										
		Calculations		X						X										
		Contingency Plans		X						X										
		Abandonment-Recovery Contingency Plan		X						X										
31 43 00	**1.03**	**Steel Casing Pipe**																		

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		Steel Casing Pipe for the Trenchless Crossings						X													
		Calculations (1.04.B)		X																	
31 44 00	**1.02**	**Settlement Monitoring**																			
		Qualifications	X																		
		Instrumentation Schedule				X															
		Description of Methods and Materials				X															
		Drawings with Locations of Proposed Monitoring Points				X															
		Monitoring Plan		X																	
		Reports and Records (Location of Installed Instruments)		X																	
		Reports and Records (Preconstruction Survey)				X															
		Shop Drawings (Monuments and Posts)						X	X												
31 45 00	**1.03**	**Installation of Carrier Pipe in Steel Casing**																			
		Carrier Pipe Installation Plan		X		X															
		Safety Plan		X																	
		Emergency Response Plan		X																	
		Shop Drawings						X	X												
		Written Confirmation that the Model, Type and Spacing of the Carrier Pipe Supports Meets the Minimum Requirements								X											
31 46 00	**1.04**	**Backfilling Grouting**																			
		Work Plan		X																	
		Shop Drawings						X	X												
		Pre-Placement Test Reports and Certifications	X																		
		Daily Reports and Records of Backfill Grout Placement		X																	
		Product Data							X												
		Equipment							X												
32 11 23	**1.03**	**Aggregate Base Course(s)**																			
		Certified Test Results on Source Materials	X																		
		Certified Results of In-Place Density Tests	X																		
32 12 16	**1.05**	**Asphalt Paving**																			
		Asphalt Concrete Job Mix Formula	X																		
		Test Report for Asphalt Cement		X																	
		Manufacturer's Certificate of Compliance	X																		

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		Statement of Qualification for Independent Testing Laboratory	X																		
		Test Results	X																		
		WMA Mix Design Information			X	X															
32 13 13	**1.02**	**Concrete Paving** (see 03 30 00 for general Concrete Submittals)																			
		Jointing Drawings						X													
		Colored Concrete Samples					X														
		Admixtures: Color Pigment Product Data							X												
32 16 00	**1.02**	**Curbs and Gutters**																			
		Form Materials								X											
		Complete Data on Concrete Mix							X												
		Curing Compound				X															
		Ready-Mix Delivery Ticket				X															
32 17 23	**1.02**	**Pavement Markings**																			
		Shop Drawings						X	X												
		Description of Proposed Methods for Removal of Drips, Overspray, Improper Markings, Paint and Thermoplastic Material Tracked by Traffic, and Existing Markings				X															
		Equipment List				X															
		Manufacturer's Instructions			X																
32 31 13	**1.03**	**Chain Link Fences and Gates**																			
		Shop Drawings						X													
		Product Data							X												
		Samples					X														
		Manufacturer's Recommended Installation Instructions			X																
		Evidence of Supplier and Installer Qualifications	X																		
		Shop Drawings																			
		2.01.B.1 Chain Link Fence Fabric						X	X												
		2.01.B.2 Posts						X	X												
		2.01.B.3 Top and Brace Rails						X	X												
		2.01.B.4 Fence Fittings						X	X												
		2.01.B.5 Tension Wire						X	X												
		2.01.B.6 Barbed Wire						X	X												
		2.03 Concrete Mix						X	X												

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32 91 13	**1.03**	**Soil Preparation**																			
		Certified Topsoil Analysis Reports		X																	
		Samples - Erosion Control Blankets					X														
		Manufacturer's Recommended Installation Instructions - Erosion Control Blankets			X																
		Shop Drawings																			
		2.02 Erosion Control Blanket						X	X												
33 05 01	**1.02**	**Conveyance Piping - General**																			
		Shop Drawings						X													
		Product Data							X												
		Manufacturer's Certificate of Compliance	X																		
		Shop Drawings																			
		2.04 Couplings						X	X												
		2.05 Service Saddles						X	X												
		2.06 Slab, Floor, Wall, and Roof Penetrations						X	X												
		2.07 Flanges, Flange Gaskets and Bolting Materials						X	X												
		2.11 Tracer Wire						X	X												
		2.12 Water Quality Sampling Station						X	X												
		2.13 PRV Enclosure						X	X												
		2.14 Water Bottle Filling Station						X	X												
33 05 01.02	**1.02**	**Ductile Iron Pipe and Fittings**																			
		Shop Drawings (Pipe and Fittings)						X	X												
		Manufacturer's Certificate of Compliance	X																		
		Field Hydrostatic Testing Plan		X																	
		Certifications of Calibration	X																		
		Test Documentation Form and Results		X																	
33 05 01.09	**1.02**	**Polyvinyl Chloride (PVC) Pressure Pipe and Fittings**																			
		Shop Drawings						X	X												
		Manufacturer's Certificate of Compliance	X																		
		Hydrostatic Testing Plan		X																	
		Certification of Calibration	X																		
		Test Report Documentation		X																	
33 05 01.12	**1.03**	**Gravity Sewer Pipe and Fittings**																			

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		Shop Drawings						X	X												
		Certificates	X																		
		Manufacturer's Written Recommendations for Pipe Handling and Installation			X																
		Field Leakage Testing Plan		X																	
		CCTV Inspection				X															
		Leakage Test Results	X																		
		Pipe Deflection Test Results	X																		
		Shop Drawings																			
		2.01 Piping						X	X												
		2.02 Joints						X	X												
		2.03 Gaskets						X	X												
		2.04 Gasket Lubricant						X	X												
		2.05 Plugs						X	X												
		2.06 Lateral Service Connection Pipe and Fittings						X	X												
		2.07 Pipe for Waterline Crossings						X	X												
		2.09 Flexible Compression Collar						X	X												
33 05 13	**1.02**	**Manholes**																			
		Shop Drawings						X													
		Product Data							X												
		Experience Record	X																		
		Calculations		X																	
		Certificate of Compliance	X																		
		Test Reports	X	X																	
		Certified Load Test Data		X																	
		Manufacturer's Recommended Installation Instructions			X																
		Field Quality Control Report		X																	
		Shop Drawings/Product Data																			
		2.01 General							X												
		2.02 Precast Manholes						X													
		2.03 Manhole Frames and Covers						X													
		2.04 Manhole Frame Connection to Structure						X													

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		2.05 Mortar						X	X											
		2.07 Flexible Joints for Sealing Pipes in Manholes						X												
		2.08 Cold-Applied Asphalt Emulsion Damproofing						X	X											
		2.09 Corrosion Resistant Coating (CRC) System						X	X											
33 05 23.13	**1.04**	**Utility Horizontal Directional Drilling**																		
		Description of Pilot Hole Drilling Procedure								X										
		Installation Plan								X										
		Descriptions of HDD Drill Rig and Equipment								X										
		Contingency Plan								X										
		Frac-Out, Surface Spill and Abandonment Contingency Plan								X										
		Record Drawing Plan and Profile		X																
33 12 13	**1.02**	**Water Service Connections**																		
		Shop Drawings						X												
		Manufacturer's Certificate of Compliance	X																	
		Statement of Qualifications	X																	
		Procedure for Field Testing Water Mains and Service Connections		X																
		Shop Drawings						X												
		2.02 Service Saddles						X												
		2.03 Repair Service Clamps						X												
		2.04 Corporation Stops						X												
		2.05 Miscellaneous Fittings						X												
		2.06 Curb Stops						X												
		2.07 Meter Boxes, Vaults and Covers						X												
		2.08 Meter Yokes						X												
		2.09 Angle Valves						X												
		2.10 Water Meters						X												
		2.11 High Density Polyethylene Plastic Pipe						X												
33 12 16	**1.02**	**Water Utility Distribution Valves**																		
		Shop Drawings (Gate Valves)						X	X											
		Manufacturer's Certificate of Compliance	X																	
		Method for Hydrostatic Testing				X														
		Tests and Inspection Results	X	X																
		Operation and Maintenance Data				X														
		Manufacturer's Certificate of Proper Installation	X																	
33 12 16.29	**1.02**	**Air and Vacuum Release Valve Assemblies**																		
		Product Data Sheets							X											

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		Complete Catalog Information							X												
		Maximum Recommended Test Pressure							X	X											
		Recommended Seating Materials for Specified Operating Pressures								X											
		Manufacturer's Instructions			X																
		Operation and Maintenance Data				X															
		Affidavit of Compliance in Accordance with AWWA C512	X																		
		Affidavit of Compliance that Materials Comply with the Requirements of the EPA Safe Drinking Water Act	X																		
		Product Data																			
		2.02 Combination Air Release Vacuum Valves						X	X												
		2.03 Connection to Mainline							X												
		2.04 Isolation Valves							X												
		2.05 Piping Between Mainline and Air Valve and Piping for Air Vent							X												
		2.06 Valve Vault						X	X												
		2.07 Accessories							X												
33 12 19	**1.02**	**Water Utility Distribution Fire Hydrants**																			
		Certificate of Compliance	X																		
		Shop Drawings																			
		2.01 General						X	X												
		2.02 High Pressure Hydrant						X	X												
		2.03 Flush Type Hydrants						X	X												
		2.04 Yard Hydrant						X	X												
		2.05 Precast Concrete Pier Block						X	X												
		2.06 Gravel for Drainage						X	X												
		2.07 Concrete for Thrust Blocking						X	X												
33 13 00	**1.02**	**Disinfection of Water Utility Distribution Facilities**																			
		AWWA Standards Conformance Plan		X																	
		Procedure and Plan for Cleaning System		X																	
		Procedures and Plans for Disinfection and Testing		X																	
		Proposed Locations within System where Samples will be Taken		X																	
		Type of Disinfecting Solution and Method of Preparation		X																	
		Employee Certification	X																		
		Method of Disposal for Highly Chlorinated Disinfecting Water		X																	
		Independent Testing Agency	X																		
		Certified Bacteriological Test Results	X																		
40 05 15	**1.03**	**Piping Support Systems**																			
		Catalog Information and Drawings of Piping Support System			X	X															
		Calculations		X																	
		Revisions to Support Systems Resulting from Changes in Related Piping System Layout or Addition of Flexible Joints				X															

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		Anchorage and Bracing Drawings and Cut Sheets				X															
		Anchorage and Bracing Calculations		X																	
		Maintenance Information on Piping Support System			X																
	1.05	Pedestrian Bridge Beam Clamp and Pipe Hanger System						X	X												
		Pedestrian Bridge Pipe Insulation and Jacket						X	X												
		Pedestrian Bridge Pipe Expansion Assembly						X	X												
40 27 00	**1.03**	**Process Piping - General**																			
		Shop Fabricated Piping						X	X	X											
		Pipe Wall Thickness							X												
		Hydraulic Thrust Restraint for Restrained Joints							X	X											
		Dissimilar Buried Pipe Joints								X											
		Pipe Corrosion Protection							X												
		Anchorage and Bracing Drawings and Cut Sheets							X	X											
		Manufacturer's Certification of Compliance	X																		
		Anchorage and Bracing Calculations		X																	
		Flanged Pipe and Fittings			X																
		Qualifications	X																		
		Welding Procedures				X															
		Nondestructive Inspection and Testing Procedures	X	X																	
		Test Logs	X	X																	
		Pipe Coating Applicator Certification	X																		
		Laboratory Testing Equipment	X	X	X																
		CWI Inspection Records and NDE Test Records	X	X																	
40 27 02	**1.02**	**Process Valves and Operators**																			
		Shop Drawings																			
		A. Gate Valves						X	X												
		B. Ball Valves						X	X												
		C. Butterfly Valves						X	X												
		D. Check and Flap Valves						X	X												
		E. Self Regulated Valves						X	X												
		Anchorage and Bracing Calculations		X																	
		Manufacturer's Certificate of Compliance	X																		
		Component and Attachment Testing Seismic Certificate of Compliance	X																		
		Tests and Inspection Data	X	X																	
		Operation and Maintenance Data				X															
		Manufacturer's Certificate of Proper Installation	X																		
40 80 01	**1.01**	**Process Piping Leakage Testing**																			
		Testing Plan		X																	
		Certifications of Calibration	X																		
		Certified Test Report		X																	

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40 91 00	**2.04A**	**Flow Element and Transmitter, Electromagnetic**																			
		Catalog Cuts							X												
		Component Data Sheets								X											
		Sizing and Selection Calculations								X											
		Installation Details							X												
		Factory and Field Test Documentation								X											
		Operation and Maintenance Data				X															
		Manufacturer's Certificate of Proper Installation	X																		
		Testing Related Submittals				X															
		Maintenance Service Agreement				X															
40 91 00	**2.04B**	**Flow Switch, Paddle:**																			
		Catalog Cuts							X												
		Component Data Sheets								X											
		Installation Details							X												
		Operation and Maintenance Data				X															
		Manufacturer's Certificate of Proper Installation	X																		
		Maintenance Service Agreement				X															
40 91 00	**2.04C**	**Level Element and Transmitter: Submersible.**																			
		Catalog Cuts							X												
		Component Data Sheets								X											
		Sizing and Selection Calculations								X											
		Installation Details							X												
		Factory and Field Test Documentation								X											
		Operation and Maintenance Data				X															
		Manufacturer's Certificate of Proper Installation	X																		
		Testing Related Submittals				X															
		Maintenance Service Agreement				X															
40 91 00	**2.04D**	**Intrusion Switch:**																			
		Catalog Cuts							X												
		Component Data Sheets								X											
		Installation Details							X												
		Operation and Maintenance Data				X															
		Manufacturer's Certificate of Proper Installation	X																		
		Maintenance Service Agreement				X															
40 91 00	**2.04E**	**Pressure Gauge:**																			
		Catalog Cuts							X												
		Component Data Sheets								X											
		Sizing and Selection Calculations								X											
		Installation Details							X												
		Operation and Maintenance Data				X															

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		Manufacturer's Certificate of Proper Installation	X																		
		Maintenance Service Agreement				X															
40 91 00	**2.04F**	**Pressure Transmitter:**																			
		Catalog Cuts							X												
		Component Data Sheets								X											
		Sizing and Selection Calculations								X											
		Installation Details							X												
		Factory and Field Test Documentation								X											
		Operation and Maintenance Data				X															
		Manufacturer's Certificate of Proper Installation	X																		
		Testing Related Submittals				X															
		Maintenance Service Agreement				X															
40 91 00	**2.04G**	**Temperature Element and Transmitter, Resistance:**																			
		Catalog Cuts							X												
		Component Data Sheets								X											
		Sizing and Selection Calculations								X											
		Installation Details							X												
		Factory and Field Test Documentation								X											
		Operation and Maintenance Data				X															
		Manufacturer's Certificate of Proper Installation	X																		
		Testing Related Submittals				X															
		Maintenance Service Agreement				X															
40 91 00	**2.05**	**PLC PANEL COMPONENTS**																			
		Bill of Materials								X											
		Catalog Cuts							X												
		Component Data Sheets								X											
		Sizing and Selection Calculations								X											
		Preliminary Panel Elevation Drawings						X													
		Panel Construction Drawings						X													
		Diagrams								X											
		Panel Power Requirements and Heat Dissipation								X											
		Spares, Expendables, and Test Equipment								X											
		PLC I/O List								X											
		Identify Proposed Items, Options, Installed Spares, and Other Provisions for Future Work								X											
		Color schedule for control panels								X											
		Applications Software Documentation								X											
		Factory and Field Test Documentation								X											
		Legends and Abbreviation Lists								X											
		Shop Drawings for Changes Impacting PLC Programming						X													

SUBMITTAL LIST

Park Acronym/Project Management Information System (PMIS) Number: **BAND-266697**

Project Title: **UNDERGROUND UTILITIES REHABILITATION**

ACTION SUBMITTAL REVIEW ESTIMATE
(Complete this portion for Architect / Engineer (A/E) construction service task order negotiation)

SUBMITTAL			REQUIREMENTS (Indicate with **X**)								ARCHITECT / ENGINEER REVIEW TIME (Indicate in whole or partial hours)										
			INFORMATIONAL				ACTION														
SPECIFICATION SECTION	PARAGRAPH NUMBER	DESCRIPTION	CERTIFICATIONS OR LABORATORY TESTS	REPORTS OR CALCULATIONS OR PLAN	MANUFACTURER DATA AND INSTRUCTIONS	OTHER	SAMPLES	SHOP DRAWINGS	MANUFACTURER DATA AND INSTRUCTIONS	OTHER		ARCHITECT	CIVIL ENGINEER (SITE CIVIL, NATURAL GAS, ROADWAY)	STRUCTURAL ENGINEER	BUILDING MECHANICAL ENGINEER	PROCESS MECHANICAL ENGINEER	ELECTRICAL ENGINEER	I&C ENGINEER	CCA SUBMITTAL PROCESSING	PROJECT MANAGER INTERDISCIPLINARY COORDINATION / QUALITY REVIEW	LANDSCAPE ARCHITECT
		Proposed Submittal Breakdown Consisting of Sequencing and Packaging of Information				X															
		Statements of Qualification	X																		
		Operation and Maintenance Data				X															
		Testing Related Submittals				X															
		Maintenance Service Agreement				X															
40 91 00	**2.06**	**REMOTE MONITORING SYSTEM**																			
		Bill of Materials								X											
		Catalog Cuts							X												
		Component Data Sheets								X											
		Sizing and Selection Calculations								X											
		Preliminary Panel Elevation Drawings						X													
		Panel Construction Drawings						X													
		Diagrams								X											
		Panel Power Requirements and Heat Dissipation								X											
		Installation Details							X												
		Spares, Expendables, and Test Equipment								X											
		I/O List								X											
		Identify Proposed Items, Options, Installed Spares, and Other Provisions for Future Work								X											
		Factory and Field Test Documentation								X											
		Operation and Maintenance Data				X															
		Manufacturer's Certificate of Proper Installation	X																		
		Testing Related Submittals				X															
		Maintenance Service Agreement				X															
40 95 80	**1.04**	**Fiber Optic Communication System**																			
		Site Layout Diagram								X											
		Cable Schedule								X											
		Component Data							X	X											
		Manufacturer's Statement that Installer is Certified to Perform Installation Work	X																		
		Subcontractor Qualifications	X																		
		Manufacturer's Certificate of Compliance	X																		
		Manufacturer's Suggested Installation Practice				X															
		Operation and Maintenance Data				X															
											Total:	0	0	0	0	0	0	0	0	0	0

SECTION 01 35 13.22
ARCHEOLOGICAL PROTECTION

PART 1 GENERAL

1.1 SUMMARY

A. Section consists of protecting archeological resources contained in soil deposits.

1.2 DEFINITIONS

A. Archeological Monitor: Representative of Government designated to oversee construction activities that could disturb archeological resources.

B. Archeological Resources: Archeological resources are physical evidences of past human activity, including evidences of effects of that activity on the environment. Archeological resources represent both prehistoric and historic time periods, found above and below ground and under water.

C. Archeological Resources Protection Act (ARPA) of 1979 (Public Law (P.L.) 96-95; 93 United States Statues at Large (Stat.) 712): defines archeological resources as any material remains of past human life or activities that are of archeological interest and at least 100 years old; Section 4 of the statute describes the requirements that must be met before Federal authorities can issue a permit to excavate or remove any archeological resource on Federal or Indian lands; the curatorial requirements of artifacts, and other materials excavated or removed.

D. Archeologically Sensitive Area: All of Bandelier National Monument qualifies.

1.3 SCHEDULE COORDINATION

A. Include coordination with Archeological Monitor as part of weekly progress meetings in accordance with Section 01 31 00, Project Management and Coordination.

1.4 QUALITY ASSURANCE

A. In accordance with Section 01 31 00, Project Management and Coordination.

PART 2 PRODUCTS

2.1 SCHEDULE COORDINATION

A. Schedule Coordination is required. Include all work and key the schedule to the Drawings to include:

1. Starting and ending dates of ground-disturbing construction.
2. Locations of temporary facilities, such as barriers, field offices, staging areas, sanitary facilities, borrow pits, and haul and access roads.
3. Types of construction, such as clearing, topsoil stripping, structure or trench excavation, landscaping, and post construction clean-up.
4. Methods and equipment used for each type of construction.
5. Plan for relocating work in the event of temporary work stoppages due to an archeological finding.

PART 3 EXECUTION

3.1 BARRICADES

A. Comply with requirements specified in Section 01 50 00, Temporary Facilities and Controls.

3.2 ARCHEOLOGICAL INVESTIGATION BY NON-NPS PERSONNEL

A. NPS personnel will monitor site excavations.

B. A permit is required for archeological investigations (e.g., excavation, shovel testing, coring, pedestrian survey, underwater archeology, rock art documentation, or other types of reconnaissance including archaeological monitoring of construction) carried out on park lands by non-National Park Service (NPS) personnel, unless carried out under a contract or a cooperative agreement specifically written for archeological investigations. Permits are issued under the Archaeological Resources Protection Act of 1979 (ARPA). The NPS does not issue a permit for archeological investigations carried out by NPS archeologists, or to archeologists working on NPS archeological projects under a contract or cooperative agreement.

C. Applicants must submit a Permit Application (DI Form 1926 (Revision September 2004) Office of Management and Budget (OMB) Number (No.) 1024-0037, approved through 1/31/2008. Permit Application form is available, in PDF (portable document file) format, to the manager of the park in which they propose to work; or to the regional director, with a copy to the park manager.

3.3 OBSERVATION

A. Archeological Monitor will observe ground-disturbing site work, including construction of temporary facilities, from a safe location mutually agreed on by

Contractor and Monitor. As new ground is broken, Monitor will examine excavated materials, using construction layout centerline and perimeter staking as a reference point to record locations of findings.

3.4 DISCOVERY OF RESOURCES ON NPS PROPERTY

A. If Archeological Monitor discovers resources, immediate relocation of work to another project area may be required for Monitor to identify and document resources and, if necessary, develop appropriate mitigation plan. While Archeological Monitor is documenting resources, Contractor shall relocate work to less-sensitive areas where discovery of resources is estimated to be less likely.

B. If resources or human remains are discovered while Archeological Monitor is absent, stop work immediately and report the discovery to the Contracting Officer and the NPS Bandelier National Monument Integrated Resources Manager.

C. Collecting of artifacts is prohibited. All Contractor workers will be informed of the penalties of illegally collecting artifacts or intentionally damaging any archeological or historic property.

3.5 DISCOVERY OF RESOURCES ON LANL PROPERTY

A. The Los Alamos National Laboratory (LANL) policy prioritizes avoidance of all cultural resources, and the Cultural Resources Program uniformly prohibits all project activity within 30 feet of an archaeological resource. Two sites on LANL property are within 100 feet of the utility easement. These sites will need to be flagged for visibility and avoidance and a cultural resources monitor is required to be present for all earth-disturbing work near the two sites. Disturbance of these areas during project activity will result in an immediate pause of work. Notify personnel from the Cultural Resources Program via email 10 business days prior to the start of work to ensure the sites are flagged for visibility and avoidance and a Cultural Resources monitor is scheduled.

1. Cultural Resources Program Contacts:

   a. Kari Garcia: manzk@lanl.gov, (505) 699-2730.
   b. Ali Livesay: aklives@lanl.gov, (505) 695-3897.

B. During all ground-disturbing project activities, the Contractor is to pause work immediately if bones (possible burials), clusters or alignments of rock situated above bedrock (possible masonry walls), charcoal stains (possible hearths or burned wooden structures), or clusters of artifacts such as pottery, pieces of chipped stone, and historic debris such as cans or glass are encountered. Immediately contact the Cultural Resources Program at cultural@lanl.gov to notify of the issue and provide a phone number and point of contact. Cultural Resources subject matter experts will call the point of contact as soon as possible and arrange an emergency field inspection to be conducted prior to the resumption of project ground-disturbing activities.

3.6 WORK STOPPAGE

A. Contractor shall plan, schedule, and execute work to prevent stoppages at one area from stopping all work at construction site.

END OF SECTION

SECTION 01 35 91
HISTORIC PRESERVATION TREATMENT PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

A. Section includes special procedures for historic treatment on Project including, but not limited to:

1. Definitions.
2. Submittals.
3. Quality Assurance.
4. Storage and protection of existing historic materials.
5. Project Site conditions.
6. Historic Preservation Treatment Plan.
7. Protection, General.
8. Protection during application of chemicals.
9. Protection during use of heat-generating equipment.
10. Historic preservation treatment procedures.

1.2 DEFINITIONS

A. “Existing to Remain” or “Retain”: Existing items of construction not to be removed and not otherwise indicated to be removed and salvaged or removed and reinstalled.

B. Material in Kind: Material that closely matches existing materials through comparison of architectural qualities and salient characteristic such as species, cut, color, grain, dimension, profile, thickness, and finish.

C. Preservation: To apply measures necessary to sustain existing form, integrity, and materials of historic property. Work may include preliminary measures to protect and stabilize the property.

D. Protect and Maintain: To remove deteriorating corrosion, reapply protective coatings, and install protective measures such as temporary guards; to provide the least degree of intervention.

E. Protect in Place: To install temporary protective materials between historic features and nearby work zones in accordance with this section.

F. Reconstruction: To reproduce in exact form and detail, a building, structure, or artifact as it appeared at a specific period in time. Reconstructed elements do not possess historic integrity in their own right since they are not original fabric.

G. Rehabilitation: To make possible a compatible use for property through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, or architectural values.

H. Remove: To demolish or detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.

I. Remove and Reinstall: To detach items from existing construction, repair and prepare for reuse, and reinstall where indicated.

J. Remove and Salvage: To detach items from existing construction and deliver them ready for reuse to Contracting Officer (CO) or designee.

K. Repair: To stabilize, consolidate, or conserve; to retain existing materials and features while employing as little new material as possible. Repair includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials. Within restoration, repair also includes limited replacement in kind, rehabilitation, and reconstruction, with compatible substitute materials for deteriorated or missing parts of features when there are surviving prototypes.

L. Replace:

1. To duplicate in its entirety, a historic element or feature by matching its historic pattern, detail, and appearance. Replacement is justified when original or historic elements are damaged beyond repair or are missing. Replacement conditions and methods include:

   a. Replacement with New Materials: Includes replacement with new material of like kind (custom fabricated or manufactured). Duplication of appearance using like material.
   b. Replacement with Original or Historic Fabric: Includes fabric salvaged from other locations or projects having identical architectural qualities. Duplication of appearance using identical material possessing historical significance.
   c. Replacement with Substitute Materials: Includes replacement with a compatible substitute that is frequently contemporary and unlike the historic fabric. Duplication of appearance using modern (non-traditional) material. Use of substitute materials is not approved unless matching materials are not available.

M. Restoration: To accurately return form, features, and character of a property to its appearance at a particular period of time by means of removal of features from other

periods in its history and repair and reconstruction of missing and deteriorated features from the restoration period.

N. Stabilize: To apply measures designed to reestablish a weather-resistant enclosure or structural reinforcement of an item or portion of the building while maintaining its essential form as it exists at present. This level of intervention is aimed at retarding or arresting deterioration of buildings and structures.

1.3 SUBMITTALS

A. Historic Preservation Treatment Plan:

1. After contract award and before Pre-Construction conference, submit for approval a written Historic Preservation Treatment Plan (HPTP).
2. If the plan requires revisions or corrections, Contractor shall resubmit plan within 10 days.
3. No change in approved plan may be made without written concurrence by Contracting Officer.

B. Alternative Methods and Materials: If alternative methods and materials different from those indicated are proposed for any phase of work, provide a written description including evidence of successful use on other, comparable projects, and program of testing to demonstrate effectiveness for use on this Project.

C. Photographs or Videotape:

1. In accordance with Section 01 32 33, Photographic Documentation, photograph existing conditions of the landscape prior to utility installation, including adjoining construction and site improvements and finish surfaces that might be misconstrued as damage caused by utility installation or construction activities. Submit photographs before work begins of the following but not limited to:

a. Existing landscape along utility trench installation, construction stockpile areas, and temporary generator locations.
b. Entrance Road stone curbing and storm drainage.
c. Stone House Road stone curbing.
d. Casitas flagstone.
e. Buildings with facades adjacent to areas of active construction.
f. Retaining walls (top and exposed sides), and exposed façade.

D. Historic features are considered to be in good condition, unless noted. The Contractor is responsible for repairs of any damaged areas during or post construction operations.

1.4 QUALITY ASSURANCE

A. Historic Preservation Treatment Specialist Qualifications: Experienced firm with required NPS Professional Qualification Standards: 36 CFR Part 61, certifications and training able to demonstrate through past performance that they have experience in projects and have engaged in historic treatments similar in nature, materials, design with a record of successful in-service performance of not less than three recent projects that demonstrate the firm's qualifications to perform this work.

1. Field Supervisory Qualifications: Full-time supervisors experienced in historic treatment work similar in nature, material, design, and extent to that indicated for this Project. Supervisors shall be on Project Site during times that historic treatment work is in progress. Supervisor shall not be changed during the Project except for causes beyond control of the specialist firm.
2. Worker Qualification: Persons who are experienced in historic treatment work of types they will be performing.

1.5 STORAGE AND PROTECTION OF HISTORIC MATERIALS

A. Removed and Salvaged Historic Materials:

1. Clean only loose debris from salvaged historic items unless more extensive cleaning is approved.
2. Pack or crate items after cleaning, cushion against damage during handling. Identify and label contents of containers.
3. Store items in secure area until delivery to Contracting Officer.
4. Transport items to storage area on-site as designated by the Contracting Officer.
5. Protect items from damage during transport and storage.
6. Do not dispose of items removed from existing construction without prior written consent of Contracting Officer.

B. Removed and Reinstalled Historic Materials:

1. Clean and repair historic items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for historic materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use as indicated.

C. Existing Historic Materials to Remain: Protect materials indicated to remain against damage and soiling during construction. When permitted by Contracting Officer, items may be removed to suitable, protected storage location during construction, and cleaned and reinstalled in their original locations after construction operations are complete.

D. Storage and Protection: When removed from existing location, store historic materials within weather-tight enclosure protected from wetting by rain, snow, or ground water, and temperature variations. Secure stored materials to protect from theft.

1. Identify removed items with an inconspicuous and non-permanent mark indicating original location.
2. Develop key plan when many similar items are scheduled for removal and reinstallation.

1.6 PROJECT-SITE CONDITIONS

A. Exterior Cleaning and Repairing:

1. Proceed with work only when forecasted weather conditions are favorable.

a. Wet Weather: Do not attempt repairs during rainy or foggy weather. Do not apply primer, paint, putty, or epoxy when relative humidity is above 80 percent. Do not remove exterior elements of structures when rain is forecast or in progress.
b. Do not perform exterior wet work when air temperature is below 40 degrees F (5 degrees C).
c. Do not begin cleaning, patching, or repairing given likelihood of frost or freezing.
d. Do not begin cleaning when either air or surface temperature is below 45 degrees F (7 degrees C) unless approved means are provided for maintaining 45 degrees F (7 degrees C) temperature of air and materials during, and for 48 hours subsequent to, cleaning.

2. Perform cleaning and rinsing of the exterior only during daylight hours.

B. National Park Service will occupy portions of building immediately adjacent to construction area. Conduct construction activities so National Park Service operations will not be disrupted. Provide 72 hours' notice to Contracting Officer of activities that will affect National Park Service operations.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 HISTORIC PRESERVATION TREATMENT PLAN

A. Prepare written plan for preservation work covering preservation components of project. Plan shall verify that construction strategy and intent is compatible with Department of the Interior's (DOI) standards for Treatment of Historic Properties, guidelines for Treatment of Cultural Landscapes, and National Park Service

management policies for cultural resources. Plan shall satisfy both project scope and resource protection requirements. Plan shall include:

1. Organized list of preservation components of project, systems, and tasks.
2. Staging and detailed sequence of work that includes protection of historic resources.
3. Disassembly and reassembly techniques and steps.
4. Stockpile areas for historic resources.
5. Equipment and tools required.
6. Supplies and materials with manufacturer or supplier identified including specific clean up/storage procedure with frequency and documentation of such.
7. Skilled trades and crafts required.
8. Anticipated testing and analysis of fabric.
9. Additional investigations for extent or magnitude of treatments needed.
10. Protective measures for individual items or elements.
11. Seasonal limitations on the work.
12. Alternative means if primary treatment method is unfeasible.
13. Work conducted off-site (Approval from Contracting Officer required prior to taking resources off-site).

3.2 PROTECTION, GENERAL

A. Comply with manufacturer's written instructions for precautions and effects of products and procedures on adjacent building materials, components, and vegetation.

B. Ensure supervisory personnel are present when work begins and during progress.

3.3 PROTECTION DURING APPLICATION OF CHEMICALS

A. Protect persons, motor vehicles, surrounding surfaces of building being restored, building site, plants, and surrounding buildings from harm or damage resulting from applications of chemical cleaners and paint removers.

B. Comply with requirements in Section 01 50 00, Temporary Facilities and Controls.

C. Cover adjacent surfaces with materials proven to resist chemical cleaners selected for Project unless chemicals being used will not damage adjacent surfaces. Use covering materials containing only waterproof, UV (ultraviolet)-resistant adhesives. Apply masking agents to comply with manufacturer's written instructions. Do not apply liquid masking agent to painted or porous surfaces. Promptly remove masking to prevent adhesive staining on completion.

D. Do not clean surfaces during winds of sufficient force to spread cleaning solutions to unprotected surfaces.

E. Neutralize and collect alkaline and acid wastes and dispose of outside park boundaries.

F. Dispose of runoff from chemical operations by legal means and in a manner preventing soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.

G. Document daily clean-up, proper storage, and disposition of any flammable/combustible materials with daily reports.

3.4 PROTECTION DURING USE OF HEAT-GENERATING EQUIPMENT

A. Comply with following procedures while performing work with heat-generating equipment, including welding, cutting, soldering, brazing, paint removal with heat, and other operations where open flames or implements utilizing heat are used:

1. Obtain Contracting Officer's approval for operations involving use of open-flame or welding equipment.

    a. Notification shall be given for each occurrence and location of work with heat-generating equipment.
    b. Obtain appropriate permit from the park as required.

2. As far as practical, use heat-generating equipment in shop areas or outside building.
3. Before work with heat-generating equipment commences, furnish fire watch (or watches) for location(s) where work is to be performed.
4. Do not perform work with heat-generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use combustible gas indicator test to ensure area is safe.
5. Remove and keep area free of combustibles, including, rubbish, paper, waste, etc., within area of operations.

    a. If combustible material cannot be removed, provide fireproof blankets to cover such materials.

6. Where possible, furnish and use baffles of metal or gypsum board to prevent spraying of sparks or hot slag into surrounding combustible material.
7. Prevent extension of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.
8. Inspect each location of day's work not sooner than 30 minutes after completion of operations to detect hidden or smoldering fires; ensure proper housekeeping is maintained.

B. Where sprinkler protection exists and is functional, maintain without interruption while operations are performed. If operations are performed near automatic sprinkler heads, shield individual heads temporarily with guards.

3.5 HISTORIC PRESERVATION TREATMENT PROCEDURES

A. The principal aim of preservation work is to halt the process of deterioration and stabilize the item's condition to sustain the integrity of the historic element, feature or structure being preserved. Cyclic maintenance is often required as well as repair work. Repair is required where specifically indicated. The following procedures shall be followed:

1. Retain as much existing material as possible; repair and stabilize rather than replace.
2. Use additional material or structure to reinforce, strengthen, prop, tie, and support existing material or structure.
3. Use reversible processes wherever possible.
4. Use traditional replacement materials and techniques if possible. New work shall be distinguishable from old work and original materials and techniques.
5. Record repair work during construction with periodic construction photos and daily inspection reporting. Photo documentation is specified in Section 01 32 33, Photographic Documentation.

B. Prohibit smoking by personnel performing work on or near historic structures.

C. Notify Contracting Officer of visible changes in integrity of material or components due to environmental causes including biological attack, UV degradation, freezing, or thawing, or due to structural defects including cracks, movement, or distortion.

1. Do not proceed with work in question until directed by Contracting Officer.

D. Where Work requires existing features to be removed, cleaned, and reinstalled, perform operations without damage to material itself, to adjacent materials, or to substrate.

E. Identify new or replacement materials and features with inconspicuous, permanent marks to distinguish from original materials. Record legend of identification marks and locations of these marks on Record Drawings.

F. When cleaning, match samples of existing materials that have been cleaned and identified for acceptable cleaning levels. Avoid over-cleaning to prevent damage. Use gentlest methods available. Initiate cleaning using hand cleaning methods before introducing power cleaning methods and equipment.

G. Protect persons, motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm resulting from utility installation procedures.

1. Use only proven protection methods appropriate to each area and surface being protected.
2. Provide barricades, barriers, and temporary directional signage to exclude public from areas where utility installation work is being performed.
3. Erect temporary protective covers over historic elements in areas of construction activities.
4. Contain dust and debris generated by removal and dismantling work and prevent it from reaching the public or adjacent surfaces.
5. Provide shoring, bracing, and supports, as necessary. Do not overload structures.

H. Provide supplemental sound-control treatment to isolate removal and dismantling work from other areas of the building.

I. Comply with manufacturer's written instructions for precautions and effects of products and procedures on adjacent building materials, components, and vegetation.

J. Ensure that Contracting Officer reviews protection measures and makes modifications if desired to ensure the protection of historically sensitive elements that may be affected by installation of utility lines.

K. Temporary Protection of Historic Materials during Construction:

1. Protect existing materials during installation of temporary protections and construction. Do not deface or remove existing materials.
2. Attachments of temporary protection to existing construction shall be approved by the Contracting Officer prior to installation.

L. Historic structures and elements to be protected during utility installation operations as indicated on the drawings, plans, and details as approved by the Contracting Officer, including but not limited to:

1. Historic building walls to be protected by wood barriers constructed of solid 4 by 4 timbers and plywood sheathing.
2. Historic retaining walls and top of walls to be covered with Styrofoam insulation board and plywood sheathing to protect from mechanical equipment damage.
3. Historic stone curbs along entirety of the project to be protected by Styrofoam insulation board and plywood sheathing to protect from mechanical equipment damage.
4. Historic stone retaining wall along Entrance Road is to be protected by placement of protective vehicular barriers and Styrofoam backing in areas of

active construction. Milling and paving machines must not go closer than 2 feet to the wall.

5. Historic stone gutter along entirety of the Project Area to be protected with solid steel plates, high density insulation and wood timbers in areas of active construction. If an additional length requires protection than the available number of steel plates, then use the steel plates in the most vulnerable locations according to equipment movements, and use plywood caps over the remaining stone gutter. Protect the gutter during adjacent demolition, trenching, and repaving.
6. Historic stone culvert headwalls to be protected by shoring with plywood and 2 by 4 lumber to prevent damage from nearby trenching and repaving.
7. Historic stone culvert headwall located along the Entrance Road, 1,000 feet from the Visitor Center parking area, shall be protected and repaired:
    a. Hand dig around the area of the headwall to expose it. Vacuum truck excavation can be used in addition to hand digging if it is demonstrated that no damage will be done to the wall and no stones will be displaced or lost.
    b. Photograph the stone headwall and remove any loose stones and protect the stones for restoration of the headwall after the excavation is complete.
    c. Protect the stone headwall from damage by shoring with plywood and 2 by 4 lumber during excavation and riprap installation.
    d. Repair the stone headwall:
        1) Follow the guidance from Preservation Brief #2 *"Repointing Mortar Joints in Historic Masonry Buildings"*.
        2) Remove deteriorated mortar by raking deteriorated mortar joints and repointing with an in-kind mortar mix. Original documentation reports the Civilian Conservation Corp (CCC) used a 1:1:6 (portland cement:lime:sand) mix. Provide sand to closely match aggregate size of the original historic mortar and color shall also match as closely as possible the color of the original mortar with consideration being given to age and weathering.
        3) Replace present but deteriorated stones depending on the severity of deterioration. Stones with minor cracking or spalling may be lightly epoxied and reset in order to retain as much original fabric as possible.
        4) Several displaced stones located nearby (to be identified by park staff) shall be replaced and re-mortared in situ as directed by the Contracting Officer.[REV. 1][ADD1]

M. Protect landscape work adjacent to or within work areas as follows:

1. Provide barriers to protect tree trunks.
2. Bind spreading shrubs.

3. Coverings shall allow plants to breathe. Remove coverings at end of day. Do not cover plant material with waterproof membrane more than 8 hours at a time.
4. Set scaffolding and ladder legs away from plants.

N. Existing (non-historic) Flagstone sidewalks shall be considered as valued landscape elements and are to be protected from damage during construction operations. Include description of protection methods to be reviewed and accepted by the Contracting Officer.

O. Existing drains and culverts are part of the historic structures on site. Drains and culverts are not to be affected during the course of these operations.

P. Existing Drains: Prior to the start of work or any cleaning operations, test drains and other water removal systems to ensure proper operation and functionality. Notify the Contracting Officer immediately of stopped or blocked drains or systems. Do not begin work in this area until the drains are in working order.

1. Provide a method to prevent solids including stone or mortar residue from entering the drains or drain lines. Clean out drains and drain lines that become blocked or filled by sand or any other solids because of Work performed under this Contract.
2. Protect storm drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.
3. Provide a method to protect the historic stonework for review and approval by the Contracting Officer in advance of construction operations.

END OF SECTION

SECTION 31 37 00
RIPRAP

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. ASTM International (ASTM):
   a. C94/C94M, Standard Specification for Ready-Mixed Concrete.
   b. C136/C136M, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
   c. C150/C150M, Standard Specification for Portland Cement.
   d. C535, Standard Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.

1.02 DEFINITIONS

A. Refer to applicable definitions in Section 31 23 23, Fill and Backfill.

1.03 SUBMITTALS

A. Action Submittals:

1. Shop Drawings: Description and location of proposed quarries and[REV. 1] sources of riprap bedding and riprap.
~~1.~~2. Samples of riprap stones.[REV. 1]

B. Informational Submittals:

1. Certified Test Results:
   a. Riprap:
      1) Gradation.
      2) Abrasion resistance.
      3) Bulk density.
2. Trip tickets showing source, type, and weight of each load of material delivered to Site.

1.04 QUALITY ASSURANCE

A. Riprap Source: Quarry that has produced riprap and has performed satisfactorily on other projects for at least 3 years.

1.05 SCHEDULING AND SEQUENCING

A. Complete subgrade preparation as specified in Section 31 23 13, Subgrade Preparation, and geotextile installation as specified in Section 31 32 19.16, Geotextile, prior to placing riprap.

PART 2 PRODUCTS

2.01 RIPRAP

A. Physical Characteristics:

1. Hard and durable quarry stone free from fractures, bedding planes, pronounced weathering, and earth or other adherent coatings.
~~1.~~2. Color of stones are to be similar to on-site stones and rock formations in the vicinity of the locations where the riprap is placed, typically a light brown color.[REV. 1]
~~2.~~3. On-site material may be used as riprap if material conforms to bulk density, abrasion resistance and other specifications listed below.
~~3.~~4. Minimum Dimension of Individual Pieces: Not less than 1/3 maximum dimension.
~~4.~~5. Abrasion Resistance: Maximum 35 percent wear as determined in accordance with ASTM C535.
~~5.~~6. Bulk Density: Minimum 160 pounds per dry cubic foot.
~~6.~~7. Gradation: Smaller pieces shall generally fill voids between larger pieces without either excess or deficiency of one or more sizes of stone.
~~7.~~8. Conform to the following requirements for size gradation and thickness:

Classification and Gradation of Ordinary Rip Rap

Rip Rap Designation by Weight	% Smaller Than Given Size	Intermediate Rock Dimension (inches)	d50* (inches)
Class 1~~I~~[REV. 1][ADD1]	100 50 – 70 35 – 55 10	12 9 6 ~~3~~2 [REV. 1][ADD1]	6
Class 2	100 50 – 70 35 – 55 10	15 12 9 3	9[REV. 1][ADD1]

*d50 = Mean particle size. Thickness is typically 2 times the d50 size.

B. Functional Characteristics: Prevent erosion of soil from water discharge.

C. Performance Characteristics: None.

PART 3 EXECUTION

3.01 PREPARATION

A. Excavate areas to receive riprap to the subgrade for soil riprap to the specified depth (bedding material is not required for soil riprap).

B. Ensure that subgrade materials are stable. If unsuitable materials are encountered, remove and replace in accordance with Section 31 23 13, Subgrade Preparation.

C. Additional compaction will not be required unless specified by Engineer. When subgrade is built up with embankment material, compact to in accordance with Section 31 23 23.15, Trench Backfill.

D. Bed riprap with geotextile as specified in Section 31 32 19.16, Geotextile.

E. Geotextile:

1. After an acceptable subgrade is established, immediately place and level the geotextile to the specified elevation.
2. Immediately following the placement of the geotextile, place the riprap.
3. Replace the geotextile if the geotextile is disturbed for any reason.
4. In-place geotextile are not to be contaminated with soils, debris or vegetation before the riprap is placed. If contaminated, remove and replace the geotextile material.

3.02 PLACING RIPRAP

A. Place riprap over geotextile to uniform thickness as shown.

B. No mechanical compaction of riprap is required; however, work riprap bedding as necessary to distribute it and to eliminate detrimental voids. Avoid overworking or long pushes that result in segregation of particle sizes.

C. Grade surface of riprap bedding free from irregularities and to tolerances of 0.2 foot from established grade.

D. Place and grade riprap in a manner that avoids subgrade disturbance and displacement or damage to geotextile. Do not push riprap bedding down slope. If wrinkles form in geotextile as riprap bedding is placed, correct them as specified in Section 31 32 19.16, Geotextile.

E. Place riprap on geotextile without puncturing or damaging geotextile. If accidentally damaged, repair geotextile prior to proceeding.

END OF SECTION

SECTION 32 91 13
SOIL PREPARATION

PART 1 GENERAL

1.01 WORK INCLUDED

A. The extent of Work is to prepare and stabilize the disturbed areas for revegetation.

B. Vegetative surface restoration to be performed by NPS staff.

1.02 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. ASTM International (ASTM):
   a. C33/C33M, Standard Specification for Concrete Aggregates.
   b. C602, Standard Specification for Agricultural Liming Materials.
   c. D2974, Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils.
   d. D5268, Standard Specification for Topsoil Used for Landscaping Purposes.
   e. D6459, Standard Test Method for Determination of Rolled Erosion Control Product (RECP) Performance in Protecting Hillslopes from Rainfall-Induced Erosion.
   f. D6475, Standard Test Method for Measuring Mass per Unit Area of Erosion Control Blankets.
   g. D6525, Standard Test Method for Measuring Nominal Thickness of Rolled Erosion Control Products.
   h. D6567, Standard Test Method for Measuring the Light Penetration of a Rolled Erosion Control Product (RECP).
   i. D6818, Standard Test Method for Tensile Properties of Rolled Erosion Control Products.[REV. 1][ADD1]

1.03 SUBMITTALS

A. Action Submittals:

1. Shop Drawings:
   a. Manufacturer material specifications and product literature.
   b. Installation drawings showing RECP sheet layout, location of seams, direction of overlap, and sewn seams.
   c. Description of proposed method of RECP deployment and provisions for holding RECP temporarily in place until permanently secured.

2. Samples: RECP: One-piece, minimum 18 inches long, taken across full width of roll of each type and weight of RECP furnished for Project. Label each with brand name and furnish documentation of lot and roll number from which each Sample was obtained.[REV. 1][ADD1]

~~A.~~B. Informational Submittals:

1. Certified Topsoil Analysis Reports: Indicate quantities of materials necessary to bring onsite topsoil into compliance with textural/gradation requirements.
2. Certifications from each RECP manufacturer that furnished products have specified property values. Certified property values shall be either minimum or maximum average roll values, as appropriate, for RECP furnished.[REV. 1][ADD1]

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver each RECP roll with sufficient information attached to identify it for inventory and quality control.

B. Handle products in manner that maintains undamaged condition.[REV. 1][ADD1]

~~1.04~~1.05 SEQUENCING AND SCHEDULING

A. Rough grade areas to be planted or seeded prior to performing Work specified under this section.

PART 2 PRODUCTS

2.01 TOPSOIL

A. General: Natural, friable, sandy loam, obtained from well-drained areas, free from objects larger than 1-1/2 inches maximum dimension, and free of subsoil, roots, grass, other foreign matter, hazardous or toxic substances, and deleterious material that may be harmful to plant growth or may hinder grading, planting, or maintenance.

B. Composition: In general accordance with ASTM D5268.

1. Gravel-Sized Fraction: Maximum 5 percent by weight retained on a No. 10 sieve.
2. Sand-Sized Fraction: Minimum 20 percent to 60 percent passing No. 10 sieve.
3. Silt and Clay-Sized Fraction: Minimum 35 percent to 70 percent.

C. Organic Matter: Minimum 1.5 percent by dry weight as determined in accordance with ASTM D2974.

D. pH: Range 5.0 to 7.0.

E. Textural Amendments: Amend as necessary to conform to required composition by incorporating sand, peat, manure, or sawdust.

F. Source: Stockpile material onsite, in accordance with Section 31 10 00, Site Clearing. Import topsoil if onsite material is insufficient in quantity.

2.02 EROSION CONTROL BLANKET

A. General: A temporary biodegradable rolled erosion control product (RECP) composed of processed natural fibers mechanically bound together to form a continuous matrix used to provide erosion control and facilitate vegetation establishment.

B. Physical Characteristics:

1. Jute or coir natural fibers.
2. Double-Net: Processed slow degrading natural fibers mechanically bound between two slow degrading natural fiber nettings to form a continuous matrix.
3. Typical Longevity: 24 months.
4. Minimum "C" Factor: 0.05 (ASTM D6459).
5. Minimum Shear Strength: 2,00 lbs/ft^2 (ASTM D6460).
6. Minimum MD Material Tensile Strength: 100 lbs/ft (ASTM D6818).
7. Minimum TD Material Tensile Strength: 40 lbs/ft (ASTM D6818).
8. Material Thickness: > 0.25 inch to <0.5 inch (ASTM D6525).
9. Ground Coverage: > 50 percent to <95 percent (ASTM D6567).
10. Material Mass: > 8.0 oz/yd^2 (ASTM D6475).

C. Functional Characteristics:

1. Prevent soil erosion by holding soil in place when water flows over the slope.
2. Biodegradable materials releasing nutrients back into the soil as it degrades.

D. Performance Characteristics: None.[REV. 1][ADD1]

PART 3 EXECUTION

3.01 SUBGRADE PREPARATION

A. Scarify subgrade to minimum depth of 6 inches where topsoil is to be placed.

B. Remove stones over 2-1/2 inches in any dimension, sticks, roots, rubbish, and other extraneous material.

C. Limit preparation to areas which will receive topsoil within 2 days after preparation.

3.02 TOPSOIL PLACEMENT

A. Do not place topsoil when subsoil or topsoil is frozen, excessively wet, or otherwise detrimental to the Work.

B. Mix soil amendments, lime, and other soil additives, identified in analysis reports with topsoil before placement or spread on topsoil surface and mix thoroughly into entire depth of topsoil before planting or seeding. Delay mixing of fertilizer if planting or seeding will not occur within 3 days.

C. Place one-half of the total depth of topsoil and work into top 4 inches of subgrade soil to create a transition layer. Place remainder of topsoil to depth where seeding and planting are scheduled.

D. Uniformly distribute to within 1/2 inch of final grades. Fine grade topsoil eliminating rough or low areas and maintaining levels, profiles, and contours of subgrade.

E. Remove stones exceeding 1-1/2-inch diameter, roots, sticks, debris, and foreign matter during and after topsoil placement.

F. Remove surplus subsoil and topsoil from Site. Grade stockpile area as necessary and place in condition acceptable for planting or seeding.

3.03 EROSION CONTROL BLANKET PLACEMENT

A. Provide 2 weeks' notice to allow the NPS to apply seed to the disturbed slopes prior to the RECP installation.

B. Install RECP according to the manufacturer's recommendations and to the following minimum guidelines. Install on all disturbed slopes with a slope of 3H:1V and steeper.

C. Unroll the RECP parallel to the primary direction of flow and place it in direct contact with soil surface. Do not stretch or allow RECP to bridge over surface inconsistencies. Overlap edges of adjacent RECP by 3 inches to 4 inches. Use fasteners as recommended by the manufacturer and use enough fasteners to prevent seam separation. Overlap roll ends of joining RECP 6 inches in the direction of flow.

D. At the top of the slope anchor the RECP by one of the following methods:

1. Fasteners: Install the RECP 36 inches over the shoulder of the slope onto flat fixed grade. Secure with a single row of fasteners on 12-inch centers.
2. Anchor Trench: Construct a 6-inch by 6-inch trench. Extend the upslope terminal end of the RECP 36 inches past the trench. Use fasteners on 12-inch centers to fasten the RECP into trench. Backfill the trench and compact the soil. Secure the terminal end with a single row of fasteners on 12-inch centers and cover the end with soil.
3. Check Slot: Install two rows of staples 4 inches apart on 4-inch centers across the top edge of the RECP. Drive fasteners flush with soil surface.[REV. 1][ADD1]

END OF SECTION