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DEPARTMENT OF TRANSPORTATION

DEPARTMENT OF TRANSPORTATION

NOTICE TO CONTRACTORS,

PROPOSAL, SPECIAL PROVISIONS,

CONTRACT AND CONTRACT BOND

FOR

GRADING, INTERIM SURFACING, REPLACE STR RCBC (2-11'X9' CIP OR PRECAST RCBC)

FEDERAL **PROJECT NO.** **EM 0073(73)62**
(PCN 05HV, 08EH)

SD HIGHWAYS 73 & 248

IN JACKSON COUNTY

October 16, 2024

NOTICE TO ALL BIDDERS

TO REPORT BID RIGGING ACTIVITIES, CALL: 1-800-424-9071

THE U.S. DEPARTMENT OF TRANSPORTATION (DOT) OPERATES THE ABOVE TOLL-FREE "HOTLINE" MONDAY THROUGH FRIDAY, 8:00 A.M. TO 5:00 P.M., EASTERN TIME. ANYONE WITH KNOWLEDGE OF POSSIBLE BID RIGGING, BIDDER COLLUSION, OR OTHER FRAUDULENT ACTIVITIES SHOULD USE THE "HOTLINE" TO REPORT SUCH ACTIVITIES.

THE "HOTLINE" IS PART OF THE DOT'S CONTINUING EFFORT TO IDENTIFY AND INVESTIGATE HIGHWAY CONSTRUCTION CONTRACT FRAUD AND ABUSE AND IS OPERATED UNDER THE DIRECTION OF THE DOT INSPECTOR GENERAL.

ALL INFORMATION WILL BE TREATED CONFIDENTIALLY, AND CALLER ANONYMITY WILL BE RESPECTED.

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PLANS, PROPOSALS AND ADDENDA

AFTER AWARD OF CONTRACT, THE LOW BIDDER WILL RECEIVE TEN (10) COMPLIMENTARY SETS OF PLANS, PROPOSALS, PROJECT Q & A FORUM, AND ADDENDA FOR FIELD AND OFFICE USE. AN ELECTRONIC COPY WILL ALSO BE PROVIDED. ANY ADDITIONAL COPIES REQUIRED WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.

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Project Number: EM 0073(73)62

Revised 8/16/18
PCN 05HV, 08EH

NOTICE TO CONTRACTORS

Bid proposals for this project will be prepared, transmitted, and received electronically by the South Dakota Department of Transportation (SDDOT) via the South Dakota Electronic Bid System until 10 A.M. Central time, on October 16, 2024, at which time the SDDOT will open bids. All bids will be checked for qualifications with results posted on the SDDOT website. The South Dakota Transportation Commission will consider all bids at a scheduled Commission meeting.

The work for which proposals are hereby requested is to be completed within the following requirement(s):

FIELD WORK COMPLETION: **JUNE 19, 2026**

CONSTRUCTION SCHEDULE / PROJECT MANAGEMENT:

The project category is Category II
The project type is Grading
The geographic zone is Zone 4

THE DBE GOAL FOR THIS PROJECT IS: **NOT SPECIFIED**

WORK TYPE FOR THIS PROJECT IS: **WORK TYPE 1**

TERO/TECRO REQUIREMENTS AND FEES: See special provision(s) for Indian Employment and contracting.

Bidding package for the work may be obtained at:
http://apps.sd.gov/hc65bidletting/ebslettings1.aspx#no-back-button

An electronic version of the most recent version of the South Dakota Standard Specifications for Roads and Bridges may be obtained at https://dot.sd.gov/doing-business/contractors/standard-specifications/2015-standard-specifications

The electronic bid proposal must be submitted by a valid bidder as designated by their company's https://apps.sd.gov/HC65C2C/EBS/BidAdminAuthorizationForm.pdf. A bidding administrator will have privileges in the SDEBS to prepare bids, submit bids, and authorize additional company employees to prepare and submit bids. Additionally, a bidding administrator will be responsible for maintaining the list of authorized bidders for the company and will have the ability to add employees, remove employees, and set-up bidder identifications and passwords within the SDEBS. Bidding Administrator authorization will remain in full force and effect until written notice of termination of this authorization is sent by an Officer of the company and received by the Department.

A bidder identification and password, coupled with a company identification previously assigned by the Department, will serve as authentication that an individual is a valid bidder for the company.

Contact information to schedule a preconstruction meeting prior to commencing with the work on this project.

Doug Sherman
PO Box 771
Winner, SD 57580-0771
Phone: 605/842-0810

PROPOSAL Revised 8/10/11

SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION, STATE OF SOUTH DAKOTA:

Ladies / Gentlemen:

The following proposal is made on behalf of the undersigned and no others. It is in all respects fair and is made without collusion on the part of any other person, firm or corporation not appearing in the signature to this proposal.

The undersigned certifies that she / he has carefully examined the plans listed herein, the Specifications hereinbefore referred to, the Special Provisions and the form of contract, both of which are attached hereto. The undersigned further certifies that she / he has personally inspected the actual location of the work, together with the local sources of supply and that she / he understands the conditions under which the work is to be performed, or, that if she / he has not so inspected the actual location of the work, that she / he waives all right to plea any misunderstanding regarding the location of the work or the conditions peculiar to the same.

On the basis of the plans, Specifications, Special Provisions and form of contract proposed for use, the undersigned proposes to furnish all necessary machinery, tools, apparatus and other means of construction, to do all the work and furnish all the materials in the manner specified, to finish the entire project **within the contract time specified** and to accept as full compensation therefore the amount of the summation of the products of the actual quantities, as finally determined, multiplied by the unit prices bid.

The undersigned understands that the quantities as shown in the Bid Schedule are subject to increase or decrease, and hereby proposes to perform all quantities of work, as increased or decreased, in accordance with the provisions of the specifications, and subject to any applicable special provisions, and at the unit prices bid.

The undersigned understands that the "Total or Gross Amount Bid" as immediately hereinbefore set forth is not the final amount which will be paid if this proposal is accepted and the work done, but that such amount is computed for the purpose of comparison of the bids submitted and the determination of the amount of the performance bond.

The undersigned further proposes to perform all extra work that may be required on the basis provided in the specifications, and to give such work personal attention in order to see that it is economically performed.

The undersigned further proposes to both execute the contract agreement and to furnish a satisfactory performance bond, in accordance with the terms of the specifications, within twenty (20) calendar days after the date of Notice of Award from the South Dakota Department of Transportation that this proposal has been accepted.

CERTIFICATION REGARDING LOBBYING

I certify, to the best of my knowledge and belief, that: No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of a Federal contract, grant, loan, or cooperative agreement. If any funds other than Federal appropriated funds have been paid or will be paid to any of the above mentioned parties, the undersigned shall complete and submit Standard Form LLL, “Disclosure Form to Report Lobbying,” in accordance with its instructions.

The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty or not less than $10,000 and not more than $100,000 for each such failure.

REV 3/28/24

INDEX OF SPECIAL PROVISIONS

PROJECT NUMBER(S): EM 0073(73)62 PCN: 05HV, 08EH

TYPE OF WORK: GRADING, INTERIM SURFACING, REPLACE STR RCBC (2-11'X9' CIP OR PRECAST RCBC)

COUNTY: JACKSON

The following clauses have been prepared subsequent to the Standard Specifications for Roads and Bridges and refer only to the above described improvement, for which the following Proposal is made.

The Contractor's attention is directed to the need for securing from the Department of Environment & Natural Resources, Foss Building, Pierre, South Dakota, permission to remove water from public sources (lakes, rivers, streams, etc.). The Contractor should make his request as early as possible after receiving his contract, and insofar as possible at least 30 days prior to the date that the water is to be used.

Penny Kutz, Kara Palmer is the official in charge of the Pine Ridge, Hot Springs Career Center for Jackson County.

THE FOLLOWING ITEMS ARE INCLUDED IN THIS PROPOSAL FORM:

Special Provision for Contract Time, dated 9/4/24.

Special Provision for Prosecution and Progress, dated 1/21/21.

Special Provision for On-The-Job Training Program, dated 3/10/16.

Special Provision Regarding Section 404 of the Clean Water Act, dated 3/17/22.

Fast Sheet #23.

Special Provision for Indian Employment and Contracting on the Pine Ridge Reservation, dated 7/23/24.

Special Provision for Contractor Staking with Machine Control Grading Option, dated 1/9/24.

List of Utilities.

Water Maintenance & Conservation Oglala Sioux Rural Water Supply System, June 2024
Division 1 – General Requirements
Division 2 – Work Site
Division 5 – Metals

Division 13 – Special Construction
Division 15 – Mechanical

Special Provision for Acknowledgment and Certification Regarding Article 3, Section 12 of the South Dakota Constitution, dated 8/24/23.
Special Provision for Buy America, dated 5/1/24.
Special Provision for Liability Insurance, dated 4/21/22.
Special Provision for Responsibility for Damage Claims, dated 4/21/22.
Special Provision for Restriction of Boycott of Israel, dated 1/31/20.
Special Provision for Contractor Administered Preconstruction Meeting, dated 12/18/19.
Fuel Adjustment Affidavit, DOT form 208 dated 7/15.
Standard Title VI Assurance, dated 3/1/16.
Special Provision For Disadvantaged Business Enterprise, dated 2/9/24.
Special Provision For EEO Affirmative Action Requirements on Federal and Federal-Aid Construction Contracts, dated 2/5/24.
Special Provision For Required Contract Provisions Federal-Aid Construction Contracts, Form FHWA 1273 (Rev. October 23, 2023), dated 10/18/23.
Required Contract Provisions Federal-Aid Construction Contracts, Form FHWA 1273 (Rev. 10/23/23).
Special Provision Regarding Minimum Wage on Federal-Aid Projects, dated 10/24/19.
Wage and Hour Division US Department of Labor Washington DC. - US Dept. of Labor Decision Number SD20230032, dated 3/10/23.
Special Provision for Supplemental Specifications to 2015 Standard Specifications for Roads and Bridges, dated 9/7/22.
Special Provision for Price Schedule for Miscellaneous Items, dated 12/6/23.

Special Provision Regarding Storm Water Discharge to Waters of the United States Within Indian Reservations, dated 9/7/22.
National Pollutant Discharge Elimination System General Permit for Discharges from Large and Small Construction Activities.
https://www.epa.gov/system/files/documents/2022-01/2022-cgp-final-permit.pdf

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
CONTRACT TIME

PROJECT NH 0073(73)62 & P 0248(17)162, PCN 05HV & 08EH
JACKSON COUNTY

SEPTEMBER 4, 2024

2025 Work Limitation and November 21, 2025 Interim Completion Requirement

The seasonal limitation for the application of the Type 3 Cover Aggregate is September 15, 2025.

The Contractor's earth moving and interim surfacing operations will follow the requirements shown in the plans. The Contractor will apply prime oil on the finished base material in 2025 that is allowable by specifications or as approved by the Engineer. The Contractor will apply as much of the Type 3 cover aggregate as possible before the September 15, 2025 seasonal limitation.

The Department anticipates a portion of the project will not have the Type 3 cover aggregate applied by the September 15, 2025 seasonal limitation. The Contractor will apply dust control chlorides as a temporary interim surface on the remaining portion of the project by the November 21, 2025 interim completion date that has not had prime oil applied. The Contractor is responsible for all surface maintenance, except snow removal, of that portion of the project that does not have the Type 3 Cover Aggregate applied. This maintenance will include, but is not limited to, all blading and patching as deemed necessary by the Engineer to adequately maintain traffic. This maintenance will be continuous throughout the winter and spring, until the final surface is complete. The Department will not make payment for the maintenance required. The Contractor will reshape the base course surface in the spring of 2026 back to the plans shown typical section, at no additional cost to the Department.

If the Contractor places prime oil but does not cover the primed areas with the asphalt surface treatment by the September 15, 2025 seasonal limitation, the Contractor will be required to re-shape and re-prime these areas in the spring of 2026 at the discretion of the Engineer and at no additional cost to the Department.

The Contractor will apply the Type 3 cover aggregate on or before the June 19, 2026 field work completion date in all areas that do not have the asphalt surface treatment applied by the seasonal limitations of 2025.

Payment for the dust control chloride will be at the specified unit price in the Price Schedule for Miscellaneous Items.

The SDDOT reserves the right to eliminate the application of the Type 3 cover aggregate in the spring of 2026 on the remaining portion of the project regardless of which type of temporary interim surface selected.

If the Contractor does not complete the required work by the required interim completion date, the Department will make a disincentive assessment in the amount of $500 per calendar day until the required work is complete. A contract item for incentive/disincentive pay is included in the bid schedule for the Department's use in assessing disincentive. The Department will use a negative quantity of days for assessing disincentives. The Department will count calendar days in accordance with Section 8.6 B.

2026 Work Restriction

For work remaining following the November 21, 2025 interim completion requirement, the Contractor will not detour traffic off SD 73 prior to March 30, 2026 without approval from the Engineer.

Field Work Completion

The Contractor will complete the project by the June 19, 2026 field work completion date.

Failure to Complete on Time

The Contractor will complete all work on the project prior to the field work completion requirement. If the Contractor does not complete all work by the field work completion requirement, the Department will assess liquidated damages in accordance with Section 8.8. The Department will assess liquidated damages for each working day the work (project) is late until the Contractor completes all field work.

In the event the Contractor does not complete all field work on time, the Department will count working days in accordance with Section 8.6 C.

Expected Adverse Weather Days

The Department has provided Attachment 1 for information purposes only as a guide to bidders. This table depicts the typical number of adverse weather days expected for any given month, based on historical records. The Department will consider this project a grading project in Zone 4.

The Department will consider expected adverse weather days cumulative in nature over the time period when the Contractor is actively pursuing completion of the work. The Department will not consider adverse weather days during an extended period of time when the Contractor is not pursuing completion of the work. When considering a time

extension for interim completion or field work completion of the project, the Engineer will compare the total number of expected adverse weather days against the total number of actual adverse weather days for the time period during which the work was being completed.

* * * * *

ATTACHMENT 1

Figure A - Expected Adverse Weather Days for South Dakota

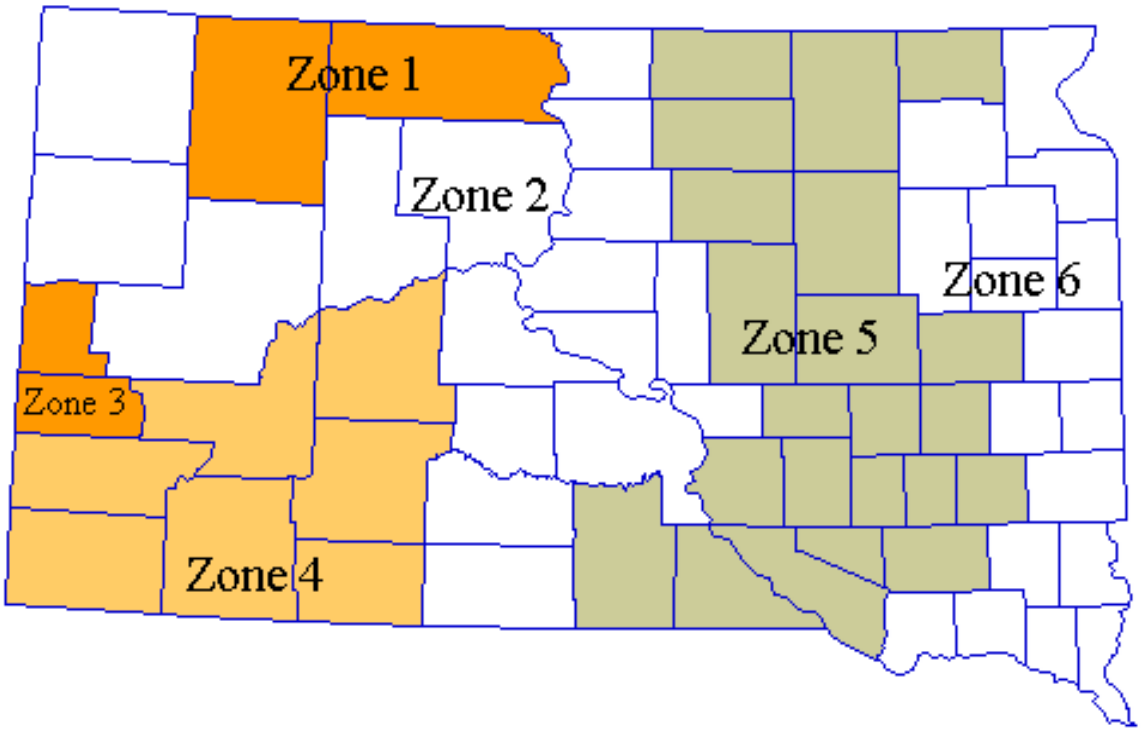

Table 1 - Expected Adverse Weather Days for South Dakota

	Grading Projects						Surfacing and Structural Projects					
	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
Jan	18	18	16	16	22	24	18	18	15	16	21	23
Feb	19	18	12	14	19	21	19	18	12	14	19	21
Mar	12	10	9	8	11	13	12	10	9	8	10	12
Apr	6	5	8	5	6	6	5	4	6	4	4	4
May	6	6	8	6	6	6	5	5	6	4	4	5
Jun	7	6	7	6	7	8	5	5	5	4	5	6
Jul	5	5	6	5	6	7	4	4	5	3	4	5
Aug	4	4	5	4	5	6	3	3	4	3	4	4
Sep	3	3	4	3	4	5	2	2	3	2	3	4
Oct	4	3	5	3	4	4	3	3	4	2	3	3
Nov	11	9	8	7	10	12	11	9	8	7	10	11
Dec	21	19	15	14	20	22	21	19	15	14	20	22

NOTE: Includes Holidays and Weekends.

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
PROSECUTION AND PROGRESS

JANUARY 21, 2021

Delete Section 8.3 of the specifications and replace with the following:

8.3 PROSECUTION AND PROGRESS - The Contractor will include the proposed starting date with the signed contract.

The Contractor will provide sufficient materials, equipment, and labor to complete the project within the contract time set forth within the contract.

Should the Contractor discontinue the work for any reason, the Contractor will provide at least a 24-hour notice to the Engineer prior to resuming operations.

A construction schedule is required. The project category, project type, and project geographic zone are defined in the Notice to Contractors.

For the purpose of this specification, work activities will include all Contractor, subcontractor, and utility company work related to the successful completion of the project.

This work consists of scheduling and monitoring all construction work activities. The construction schedule is an integral part of the project. The construction schedule is used as a resource for the Contractor to monitor and manage work progress. The construction schedule is also used as a resource for the Department to monitor work progress and as a resource used in time extension determinations in accordance with Section 8.7 and this specification. The Contractor will ensure operations are conducted such that the construction schedule is adhered to by all contracting parties involved regardless of the amount of work subcontracted.

A. Project Categories:

1. **Category I:** Represents the lowest level of the project ranking system with simple, low risk, short duration projects with minimal impacts on traffic.

    a. Types of projects typically include, but are not limited to, asphalt surface treatments, crack seals, rumble strip installation, bridge deck overlays, and other minor repair projects.

b. Construction schedule requirements for Category I projects are written narrative. The Department will also accept a Bar Chart Method (BCM), Critical Path Method (CPM), or Linear Schedule Method (LSM).

2. **Category II:** Represents the medium level of the project ranking system with slightly complex projects that typically involve a limited number of linear, repetitive operations with typical project constraints and some traffic impact.

   a. Types of projects typically include, but are not limited to, asphalt concrete resurfacing, grading, shoulder widening, bridge replacement, concrete pavement repair, major bridge repair projects, and interstate reconstruction.

   b. Construction schedule requirements for Category II projects are BCM, CPM, or LSM.

3. **Category III:** Represents the highest level of project ranking system with complex, high risk projects with major impacts on traffic and adjacent businesses. These projects may last for more than one construction season.

   a. Types of projects typically include, but are not limited to, urban reconstruction, and interstate interchanges.

   b. Construction schedule requirements for Category III projects are CPM or LSM.

B. General:

The following will apply to all scheduling methods:

The Contractor will submit a startup schedule or construction schedule to the Engineer prior to the scheduling of the preconstruction meeting.

For Category II and III projects, the Contractor may submit a startup schedule. The startup schedule must contain a detailed breakdown of all work activities for the first 15 working days from the start of work for Category II project or 30 working days from the start of work for a Category III projects. At a minimum, the startup schedule must meet the requirements of the BCM.

If the Contractor elects to submit a startup schedule, the Contractor will schedule a construction scheduling meeting between the Department and the Contractor at the time of submitting the startup schedule. The Contractor and Engineer will review the startup schedule and the proposed construction

schedule and collaborate to include all remaining work activities for the remainder of the project, or the season if the project is a multi-year project. For multi-year projects, the same submittal requirements and timelines will apply each year.

Work activities in the construction schedule will be in chronologic order.

The Contractor will include expected adverse weather days from the Expected Adverse Weather Days chart in Section 8.3 K. of this special provision in the construction schedule. The Contractor will also include an estimate of the duration of utility company work activities identified in the plans that impact the Contractor's critical path in the construction schedule.

The Engineer will accept or may suggest revisions to the construction schedule within 5 business days of the date of receiving the construction schedule. If the Engineer does not accept or does not provide suggested revisions to the construction schedule within 5 business days of receiving the construction schedule, or a longer timeframe if mutually agreed upon by the Contractor and the Engineer, the construction schedule as submitted will be the initial accepted construction schedule.

If revisions are needed prior to acceptance of the construction schedule, the Contractor will make the required revisions and submit the revised construction schedule to the Engineer within a mutually agreed upon amount of time. The Engineer will accept or may suggest further revisions to the revised construction schedule within 2 business days of the date of receiving the revised construction schedule.

Acceptance of the construction schedule by the Engineer does not modify the contract or constitute endorsement or validation by the Engineer of the Contractor's logic, activity durations, or assumptions in creating the schedule. Acceptance of the schedule also does not relieve the Contractor of the obligation to complete all work within the contract time completion requirements.

The Contractor will preface each construction schedule with the following information:

1. Project Number;

2. PCN;

3. Contractor;

4. Original contract time allowed including phase, interim, substantial, and field work completion requirement(s) specified;

5. Type of construction schedule (startup, construction, or update); and,

6. Date of the schedule (the date the schedule was updated to) as applicable by scheduling type.

C. **Written Narrative:** The written narrative consists of:

1. Estimated starting and completion dates of each work activity;

2. Description of work to be done within each work activity including the type and quantity of equipment and labor;

3. Description of the location on the project where each work activity occurs;

4. Description of planned production rates by major work activities (example: cubic yards of excavation per day/week);

5. Description of planned workdays per week, holidays, number of shifts per day, and number of hours per shift;

6. An estimate of any periods which a work activity is idle or partially idle including the beginning and end dates of the reduced production or idle timeframe;

7. Description of expected and critical delivery dates for equipment and materials that may affect timely completion of the project;

8. Description of critical completion dates for maintaining the construction schedule; and,

9. Identification of the vendor, supplier, subcontractor, or utility company to perform the work activity including stating all assumptions made by the Contractor in the scheduling of the subcontractor's, supplier's, or utility company's work.

D. **Bar Chart Method (BCM):** The BCM construction schedule consists of:

1. **Diagram:** The Contractor must show the following in the BCM diagram:

a. Planned start and completion dates for each work activity;

b. Define and relate principle and major work activities into manageable item with durations no longer than 15 working days;

c. Work activities related to the procurement of critical (major) materials and articles of special manufacture in the order the work is to be performed;

d. Contractor work activities related to the preparation and submission of working drawings, shop plans, and other data specified for review or approval by the Engineer and resubmittal, if required;

e. Activities related to specified activities by the Department and third parties (including, but not limited to, review of working drawings and material quality, mix design, mix design verification, and compatibility test results from the Department's Central Materials Laboratory);

f. Show all critical (major) work activities that are controlling factors in the completion of the work;

g. Show the time needed to perform each work activity and the work activity's relationship in time to other work activities; and,

h. Show the expected time to complete all work.

In addition, the Contractor will provide enough space for each work activity to permit 2 additional plots parallel to the original time span plot. The Contractor will use one spot for revision of the planned time span and one spot for showing the actual time span achieved.

2. **Written Narrative:** If all of the information required in Section 8.3 C. is shown in the BCM construction schedule, the Contractor will not be required to provide a written narrative. For those items not included in the diagram, the written narrative consists of the missing information required in Section 8.3 C.

E. Critical Path Method (CPM): The CPM construction schedule consists of:

1. **Diagram:** The Contractor must show the following in the CPM diagram:

a. Baseline start and baseline completion dates for each work activity;

b. Duration of each work activity (stated in working days with work activities of more than 15 working days in duration broken into two or more work activities distinguished by location or some other feature);

c. Completion requirement(s) specified in the contract as the only constraints in the schedule logic;

d. Work activities related to the procurement of critical (major) materials and articles of special manufacture;

e. Contractor work activities related to the preparation and submission of working drawings, shop plans, and other data specified for review or approval by the Engineer and resubmittal, if required; and,

f. Activities related to specified activities by the Department and third parties (including, but not limited to, review of working drawings and material quality, mix design, mix design verification, and compatibility test results from the Department's Central Materials Laboratory).

2. **Written Narrative:** If all of the information required in Section 8.3 C. is shown in the CPM construction schedule, the Contractor will not be required to provide a written narrative. For those items not included in the diagram, the written narrative consists of the missing information required in Section 8.3 C.

F. Linear Schedule Method (LSM): The LSM construction schedule consists of:

1. **Diagram:** The Contractor must show the following in the LSM diagram:

a. Planned start and completion dates for each work activity;

b. All work activities longer than 3 days in duration, or an alternate longer or shorter duration per work activity as mutually agreed upon by the Contractor and the Engineer;

c. Completion requirement(s) specified in the contract as the only constraints in the schedule logic;

d. Work activities related to the procurement of critical (major) materials and articles of special manufacture;

e. Contractor work activities related to the preparation and submission of working drawings, shop plans, and other data specified for review or approval by the Engineer and resubmittal, if required; and,

f. Department activities related to specified activities by the Department (including, but not limited to, review of shop drawings by the Department and material quality, mix design, mix design verification, and compatibility test results from the Department's Central Materials Laboratory) and third parties.

2. **Written Narrative:** If all of the information required in Section 8.3 C. is shown in the LSM construction schedule, the Contractor will not be required

to provide a written narrative. For those items not included in the diagram, the written narrative consists of the missing information required in Section 8.3 C.

G. Construction Schedule Updates: The construction schedule and all construction schedule updates are intended to be a project management tool for the Contractor, Contractor's staff, subcontractors, suppliers, Department, and any utility companies involved. The Contractor will regularly review and continually maintain the construction schedule to verify actual start dates, actual finish dates of work activities, remaining duration of uncompleted work activities, and any proposed logic or time estimate revisions based on work production. The Contractor will keep the Engineer informed of the current construction schedule and all logic changes. The construction schedule and all construction schedule updates will be discussed during the weekly meetings or at a frequency agreed upon by the Contractor and Engineer.

The Contractor will submit an updated construction schedule for acceptance by the Engineer at least every month or when any of the following conditions occur:

1. A delay of 5 working days or 7 calendar days, as governed by the contract time requirements of the contract, occurs in the completion of a critical (major) work activity or which causes a change in a critical work activity for BCM schedules, causes a change in the critical path for CPM schedules, or causes work activity lines to cross in LSM schedules;

2. The actual prosecution of the work is different from that represented on the current construction schedule;

3. There is an addition, deletion, or revision of work activities caused by a contract change order; or,

4. There is a change in the construction schedule logic.

The Contractor will include all requirements listed in Section 8.3 B.1-6 on the updated construction schedule and will provide a comparison of the initial/baseline schedule to the current schedule of project completion.

When the construction schedule is updated, the Contractor will move the actual lost days (adverse weather days and adverse weather recovery days) from where the expected adverse weather days were originally shown, in accordance with Section 8.3 B, to the date the lost day or days occurred in accordance with Section 8.3 H.

For utility company work activities previously identified in the baseline construction schedule in accordance with Section 8.3 B, the following shall apply:

When the construction schedule is updated, the Contractor will move utility company work activity durations from where the work activities were originally shown, in accordance with Section 8.3 B, to the dates the utility company work activities actually occurred. The Contractor will also include any known delays due to utility company work activities in the construction schedule updates by showing the date of the lost day or days to identify the delays and show the impact to the critical path in accordance with Section 8.3 H. The Contractor will also include documentation of any attempts made by the Contractor to mitigate the delays caused by utility company work activities.

For unexpected or unplanned work activities which become an impact to the critical path not previously identified in the initial/baseline construction schedule including, but not limited to; 1) known utility company work activities, 2) utility conflicts not identified in the plans, 3) differing site conditions, and 4) significant changes in the character of work the following shall apply:

For each occurrence of a delay, the Contractor will add a new work activity in the line below and linked to the controlling work activity for the duration of the delay. The Contractor will include supporting information to document the delay and efforts to mitigate the delay.

The Engineer will accept or may suggest revisions to the updated construction schedule within 5 business days of the date of receiving the updated construction schedule. If the Engineer does not accept or does not provide suggested revisions to the updated construction schedule within 5 business days of receiving the updated construction schedule, or a longer timeframe if mutually agreed upon by the Contractor and the Engineer, the schedule as submitted will be the accepted updated construction schedule.

If revisions are needed prior to acceptance of the updated construction schedule, the Contractor will make the required revisions and submit the revised updated construction schedule to the Engineer within a mutually agreed upon amount of time. The Engineer will accept or may suggest further revisions to the revised updated construction schedule within 2 business days of the date of receiving the revised updated construction schedule.

Acceptance of the updated construction schedule by the Engineer does not modify the contract or constitute endorsement or validation by the Engineer of the Contractor’s logic, activity durations, or assumptions in creating the schedule. Acceptance of the updated construction schedule also does not

relieve the Contractor of the obligation to complete all work within the contract time completion requirements.

H. Contract Time: The Department will count contract time in accordance with Section 8.6 and any applicable special provision for contract time.

For the purpose of contract time related to weather delays and determining the actual adverse weather days, the Department will consider the following:

Continuing construction progress on the controlling item is defined as the Contractor's progress to complete remaining work identified as the controlling item or critical path in the current construction schedule. Remaining work is the work remaining to be completed prior to the adverse weather event. For this determination, rework caused by the adverse weather event will not be considered part of the remaining work.

Lost days are defined as the actual days lost during adverse weather and adverse weather recovery days, if applicable. An adverse weather recovery day will only be considered when continuing construction progress on the controlling item is delayed due to the effects of adverse weather.

An adverse weather recovery day must meet the following criteria:

1. Days following adverse weather days needed for project conditions to improve to a condition in which the Contractor is able to or would be expected to restart work.

2. Days following adverse weather days needed for rework of previously completed work conforming to the specifications. The Department will only consider rework necessary through no fault of the Contractor.

3. Days following adverse weather days in which the project conditions result in a delay to the Contractor in continuing construction progress on the controlling item as scheduled prior to the adverse weather.

The Contractor will submit a request by the end of the following week and the Engineer will determine if a day meeting the above criteria will be considered an adverse weather recovery day. The determination will be based on the amount of time the Contractor would be expected to do or does work on continuing construction progress on the controlling item.

In accordance with Section 8.6, no adverse weather recovery day will be considered for any day on which conditions are such that the Contractor would be expected to do or does 6 hours or more of work continuing construction progress on the controlling item. A 1/2 adverse weather recovery day will be considered for any day on which conditions are such

that the Contractor would be expected to do or does at least 2 hours but less than 6 hours of work continuing construction progress on the controlling item. A full adverse weather recovery day will be considered for any day on which conditions are such that the Contractor would be expected to do or does less than 2 hours of work continuing construction progress on the controlling item.

The Engineer will determine which days are actual lost working days during each bi-weekly statement and the Contractor will account for those lost working days by moving the agreed upon lost adverse weather days forward in the construction schedule to the date the working days were lost.

I. Extension of Contract Time:

When considering a time extension request for contract time completion requirements, the Engineer will base the time extension determination on the impact to the initial/baseline construction schedule and all construction schedule updates resulting from the basis (as defined in Section 8.7) for the time extension.

Time extension requests for Category II and III projects must include a construction schedule demonstrating the project schedule impacts to the critical item, the critical path, and completion of the entire project due to items beyond the Contractor's control.

When considering a time extension for contract time completion requirements due to adverse weather, the Engineer will compare the total number of expected adverse weather days against the total number of actual lost days (adverse weather days and adverse weather recovery days) in the current accepted construction schedule.

J. Construction Schedule Payment and Assessments:

1. **Construction Schedule Payment:** Payment will be full compensation for the work prescribed in this section. The Engineer will make progress payments for the construction schedule in accordance with the following:

   a. 25% of the lump sum contract unit price, not to exceed 1% of the original contract amount will be paid after the construction schedule is accepted.

   b. Payment of the remaining portion of the lump sum contract unit price will be prorated based on the total work completed.

2. **Assessments:**

a. **Construction Schedule:** If the Contractor begins work prior to submitting the construction schedule as required in 8.3 B., the Engineer will make an assessment of $100 for Category I projects, $250 for Category II projects, and $500 for Category III projects for each working day until the construction schedule is submitted.

   If the Contractor chooses to use the startup schedule option, the assessment will not apply until 30 working days from start of work

b. **Construction Schedule Updates:** If the Contractor does not submit the updated construction schedule by the agreed upon date each month or as required in 8.3 G., the Engineer will make an assessment of $100 for Category I projects, $250 for Category II projects, and $500 for Category III projects for each working day until the updated construction schedule is submitted.

K. Expected Adverse Weather Days:

The Department has provided Attachment 1. This table depicts the typical number of adverse weather days expected for any given month, based on historical records. The Contractor will consider expected adverse weather days cumulative in nature over the time period when the Contractor is planning to actively pursue completion of the work. The Contractor will not include adverse weather days during extended periods of time when the Contractor is not planning to pursue completion of the work. The Contractor will use the expected adverse weather days shown in the table when establishing and updating the construction schedule.

* * * * *

ATTACHMENT 1

Figure A. Expected Adverse Weather Days for South Dakota

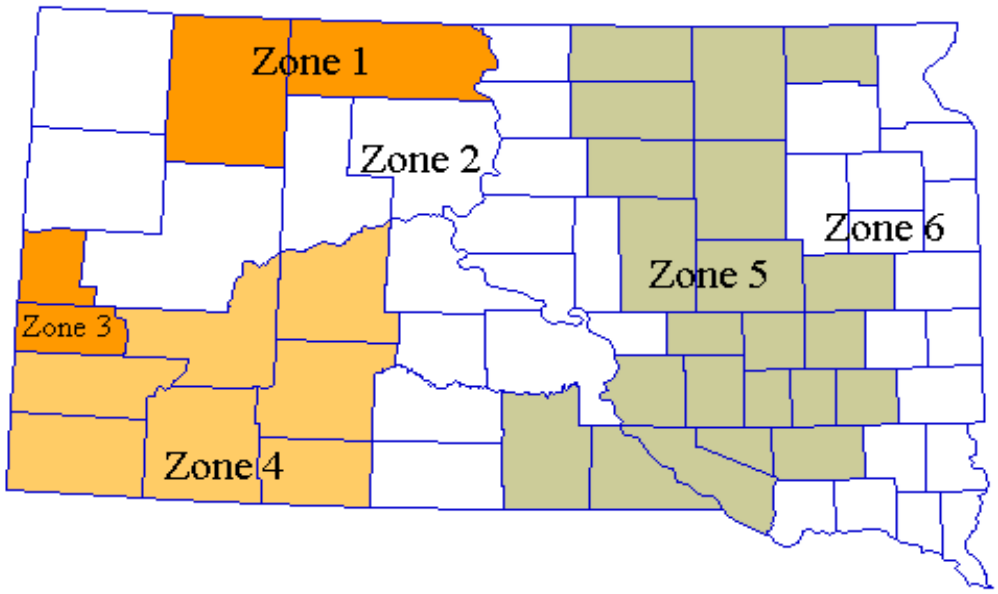

Table 1. Expected Adverse Weather Days for South Dakota

	Grading Projects						Surfacing and Structural Projects					
	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
Jan	18	18	16	16	22	24	18	18	15	16	21	23
Feb	19	18	12	14	19	21	19	18	12	14	19	21
Mar	12	10	9	8	11	13	12	10	9	8	10	12
Apr	6	5	8	5	6	6	5	4	6	4	4	4
May	6	6	8	6	6	6	5	5	6	4	4	5
Jun	7	6	7	6	7	8	5	5	5	4	5	6
Jul	5	5	6	5	6	7	4	4	5	3	4	5
Aug	4	4	5	4	5	6	3	3	4	3	4	4
Sep	3	3	4	3	4	5	2	2	3	2	3	4
Oct	4	3	5	3	4	4	3	3	4	2	3	3
Nov	11	9	8	7	10	12	11	9	8	7	10	11
Dec	21	19	15	14	20	22	21	19	15	14	20	22

NOTE: Includes Holidays and Weekends.

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION FOR ON-THE-JOB TRAINING PROGRAM

MARCH 10, 2016

This Training Special Provision supersedes Part II, Nondiscrimination, Section 6, Training and Promotion, paragraph "b" on Page 2 of the Required Contract Provisions Federal-Aid Construction Contracts (FHWA 1273 – Rev. 5/1/2012).

PURPOSE

The purpose of the On-the-Job (OJT) Program is to provide training in the highway construction industry for minority, female, and economically disadvantaged individuals, hereafter known as the target group. Pursuant to 23 Code of Federal Regulations Part 230, Subpart A, Appendix B – Training Special Provisions, this program provides for on-the-job training aimed at developing full journeyworkers in the type of trade or job classification involved.

INTRODUCTION

A signature from a bidder on the proposal sheet indicates that the bidder agrees to take part in the OJT Program and to follow the OJT Program Special Provision. Contractors that fail to follow the special provision will be subject to sanctions up to and including revocation of bidding privileges.

In order for the OJT Program to be successful, contractors must follow basic and uniform procedures in training such as, keeping monthly records of trainee progress towards journeyworker status and reporting trainee's successful completion/termination from the OJT Program.

SELECTION OF TRAINING PROGRAM

A. The minimum length and type of training for each classification will be as established in the training program selected by the Contractor and approved by the South Dakota Department of Transportation (Department or SDDOT) and the Federal Highway Administration (FHWA).

B. The Department and FHWA have currently approved one OJT program for use in South Dakota and that is the OJT program designed and implemented by the

department. Any trainee who has begun training in the previously approved OJT program will be allowed to transfer to the current approved OJT program.

C. There may be other training programs which some Contractors might wish to utilize. If the Contractor intends to use such a program to meet the OJT requirements on a federal-aid contract with training requirements, approval or acceptance of such program shall be obtained from the Department and FHWA **prior** to beginning training on any classification covered by that program.

It is the intention of these provisions that training is to be provided in the construction crafts rather than administrative support type positions or lower level management positions. Training for any job classification not listed in the current OJT program manual may be permitted provided that significant and meaningful training is provided and prior approval is obtained by the Department Civil Rights Office and the FHWA Division office.

RECRUITMENT AND SELECTION PROCEDURES

A. Prerequisite for Trainees

1. To be qualified for enrollment in the OJT Program, a trainee applicant should be a member of one of the targeted groups (unless an alternate selection is authorized by the Department), must possess basic physical ability for the work to be performed, should have demonstrated qualities of dependability, willingness to learn, ability to understand and follow instructions and an aptitude to maintain a safe work environment.

2. No person shall be employed as a trainee in any classification in which that person has successfully completed a training course leading to journeyworker status or in which the individual has been employed as a journeyworker. The Contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used, the Contractor's records should document the findings in each case.

B. Licenses

Truck driver trainees must possess appropriate driver permits or licenses for the operation of Class A, B, and C trucks. When an instructional permit is used in lieu of a license, the trainee must be accompanied by an operator who:

1. Holds a license corresponding to the vehicle being operated;

2. Has had at least one year of driving experience; and

3. Is occupying the seat next to the driver trainee.

C. Recruitment

1. Notices and posters setting forth the Contractor's Equal Employment Opportunity Policy and the availability of training programs will be placed in areas readily accessible to employees, applicants for employment and potential employees.

2. Training and upgrading of minorities, women, and socially and economically disadvantaged persons toward journeyworker status is the primary objective of this Special Provision. Accordingly, the Contractor shall make every effort to enroll minority trainees, women and disadvantaged persons by conducting systematic and direct recruitment through public and private sources likely to yield minority and female applicants to the extent that such persons are available within a reasonable area of recruitment.

3. Full consideration will be given to upgrading current minority and female employees.

D. Selection

1. The selection and employment of an eligible person by a participating Contractor, in accord with the above Parts A, B, and C, shall qualify the person of the OJT Program.

2. Employment of trainees will be in accordance with the work force requirements of the Contractor. Each Contractor will hire and train the trainees for use in his own organization.

3. Contractors must follow the registration procedures as set out for the South Dakota Department of Transportation. An original registration form must be sent to the Department Civil Rights Office for review and approval. In the event that the Department OJT Registration Form(s) are not received by the Civil Rights Office within two weeks of the date the contractor begins significant work on the project, progress payments may be suspended. This suspension will be lifted upon receipt and approval of the form(s).

4. To be acceptable as an economically disadvantaged trainee, the applicant must meet current disadvantaged guidelines (relative to employment and income) as set out by the United States Department of Labor. These guidelines are available from South Dakota Department of Labor offices and contractors must maintain the necessary documentation on file for review by the department.

5. The Department expects that Contractors will employ minority, female, and disadvantaged persons for all trainee positions assigned through this OJT Special Provision unless such persons are not available within a

reasonable area of recruitment. The Civil Rights office may withhold approval of any trainee who is not a member of one of the targeted groups unless the Contractor can demonstrate a good faith effort to recruit and select a minority, female, or economically disadvantaged person and was unsuccessful in recruiting from the target group.

DEPARTMENT RESPONSIBILITES

The Department (Civil Rights office):

A. Will monitor Contractor payrolls and OJT reports for payment of correct wage rates and for evidence of providing a continuing instructional process. The Civil Rights office will maintain records of Contractor participation in the program; names, and training classifications of trainees and other information necessary to assess program participation and results.

B. Will assist contractors with trainee recruitment, will encourage minority/female recruitment sources to refer suitable applicants, and will monitor Contractor instructional efforts and record keeping.

C. Reserves the right to do EEO (Equal Employment Opportunity) or OJT reviews on the contractor, at any time without prior notice, to ensure that trainees are getting the proper instruction from their trainer/supervisor.

CONTRACTOR RESPONSIBILITIES

The Contractor:

A. Will furnish the trainee a copy of the training program to be followed in providing the training and will provide each trainee graduate with a certificate showing the type of training satisfactorily completed.

B. Will identify all trainees on the registration forms, training reports and project payroll by proper classification title, (see SDDOT Training program booklet) e.g. *heavy duty mechanic, form builder,* etc. **Do not use** coding letters/numbers from the wage scale. On payrolls, contractors must include the designation “trainee” following the job classification title.

C. Will provide a monthly training report to the Department Civil Rights office within thirty (30) days of the last full pay period of the month on the form supplied by the Department and will use this same form to promptly notify the Department (within thirty days) whenever a trainee leaves the OJT program (voluntarily or involuntarily) or when a trainee completes the program.

D. Will pay not less than the minimum wage rates as set forth in the specific requirements of the applicable training program and as noted on the copy of the registration form returned to the contractor.

E. Assign the trainee to a skilled craftsman, foreman, supervisor or mentor who will be responsible for the day-to-day training and mentoring of the trainee and who will share the appropriate skills associated with the classification for which the trainee is enrolled. The contractor attests to providing verification, if requested, that the trainee is being trained and is gaining knowledge to achieve full journeyman status by a supervisor/trainer.

F. Shall only count, for credit; hours spent training within the classification for which the trainee is enrolled. If such classification is not necessary for a period of time or a particular project, the contractor should attempt to continue to employ the trainee by assigning him/her other duties. A percentage of hours worked on other pieces of equipment are required to be counted in the total hours worked. Approximately 25% of other duties can be counted towards graduation.

G. Shall count all hours worked in a training program regardless of whether the work was in South Dakota or outside the state. For trainees in required training slots, the contractor will only be reimbursed for eligible hours for work performed in South Dakota.

H. Will provide a program orientation to the training foreman, superintendent, and OJT trainee. This orientation shall include at a minimum, a review of individual responsibilities during the training program and copies of the training syllabus for the job classification.

I. Will instruct the trainee in safe and healthful work practices and shall ensure that the trainee is trained in facilities and other environments that are in compliance with all applicable safety and health laws and regulations of the United States and the State of South Dakota.

J. Provide the trainee a copy of the training program to be used. The contractor must also designate the employee as a “trainee” on weekly certified payrolls. The contractor is responsible for ensuring that proper training is taking place on the job by meeting with the supervisor/foreman of the project that the trainee is working.

K. In the event that a contractor may be unable to fill the required trainee slot during the current construction season, the Civil Rights Compliance Officer must be notified and contacted by December 1 of the current construction season. Proper documentation must be provided as to why the trainee position was not filled, such as project carry-over until next year.

L. Certify the trainee hours and be able to show that the trainee is receiving the proper training for their classification. Failure to do so may result in project sanction.

M. Is expected to begin training trainees on a project as soon as feasible after the start of work utilizing the job classification involved. After training has started the contractor should strive to provide monitoring efforts to retain and successfully train employees.

ADDITIONAL APPLICABLE PROVISIONS

A. The minimum number of hours of training to be provided on this project is as specified in the bid documents. The Contractor shall select whatever training classification specified in the current training program that best meet his employment needs and training hours and minimum wage shall be in accord with that classification.

B. For the purposes of bidding required trainee slots each trainee is assigned a bid quantity of 500 hours. For example if there is 1000 hours in the bidding documents, that is requiring 2 trainees. The contractor has the option to register multiple trainees to fulfill the training requirement. For example if there is a 1000 hour bid quantity, which equals 2 required trainees, the contractor could have three or more trainees registered in the program as long as there enough work for additional trainees to successfully complete the curriculum and not exceed the allowable ratio of trainees to journeyworkers (generally considered to fall between 1:10 or 1:4)

C. Please note that 500 hours for each training slot is for bidding purposes only. If a contractor does not achieve the bid quantity on a project, there is no penalty as long as a good faith effort was made to fulfill the training requirement. Also the contractor is not limited to just the bid quantity for reimbursement. If the total hours achieved on a project is higher than the bid quantity, the contractor will be reimbursed for all hours worked. For example if the bid quantity is 1000 hours and the total hours of the trainees are 1450 hours, the contractor will receive reimbursement for 1450 hours.

D. Registration and reporting requirements shall be as set forth in the program documents; printed instructions and this provision.

E. Contractors using the current training program may meet the training obligations by either 1) enrolling a new trainee in one of the classifications, or 2) using a trainee currently enrolled in one of the current training program classifications, provided that person has sufficient training hours remaining to meet the minimum project requirements as specified in bid documents. In either case, prospective trainees must meet the program requirements as set forth in “Recruitment and Selection Procedures” above.

F. The department is responsible for long term maintenance of records regarding trainee registration in various training classifications and for total trainee hours as provided by one or more contractors.

WAGE RATES

A. Minimum wage rates shall be in accord with program requirements for each classification and trainee placement within the training hours requirement. In no case shall the minimum wage be less than the common laborer classification of the applicable wage rate information contained in the bid documents. Where applicable, trainees shall be paid full fringe benefit amounts.

B. At the completion of the OJT program, the trainee shall receive the wages of a skilled journeyworker for that specific classification.

C. For the purpose of the OJT program, a quarter of the program is twenty-five percent (25%) of the training hours credited to the trainee for a particular classification and does not represent three months of the year. Other wage benchmarks are calculated in a similar manner.

BASIS OF PAYMENT

A. All program reimbursements will be made directly to the Contractor at the project conclusion. The Contractor will be paid, as reimbursement for the extra cost involved in providing the training, the amount per training hour bid for the item "Training" for each hour of training provided and reported.

B. All hours of onsite and approved offsite training provided in accordance with the approved program and this provision and as shown in trainee reports and on project payrolls will be credited as trainee hours for purpose of contract payment.

C. No payment will be made to the Contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyworker, is caused by the Contractor and evidences a lack of good faith on the part of the Contractor in meeting the requirements of this Special Provision.

D. Liquidated damages will be assessed the contractor for failure to make a good faith effort to enroll the number of trainees necessary to meet the training requirements of this Special Provision. For each trainee slot left unfilled, damages will be assessed at the rate of 100% of the bid amount for the training item times the minimum number of hours specified in the item quantity. For each trainee for whom contractor training is determined to be inadequate and which evidences a lack of good faith to fulfill the training requirements, damages will be assessed at the rate of 100% of the bid amount for the training item times the minimum number of hours specified in the item quantity.

E. Failure to furnish required documents and reports in the manner and time specified may result in forfeiture of all or a portion of the amounts due the Contractor for reimbursement for training.

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STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION REGARDING
SECTION 404 OF
THE CLEAN WATER ACT

NH 0073(73)62; PCN 05HV
Jackson County
SD73 - Fm S of the White River to Kadoka
Grading, Interim Surfacing, Replace Str RCBC

03/17/2022
NATIONWIDE PERMIT NO 23

The above referenced project is authorized by the Department of the Army Nationwide Permit Section (23), found in the January 6, 2017 Federal Register (82 FR 1860), Reissuance of Nation Wide Permits.

The following general conditions must be adhered to in order for any authorization by a nationwide permit to be valid:

Please refer to the attached ***Fact Sheet Nationwide Permit 23 and 2017 Nationwide Permits Regional Conditions***

The above authorization permits placement of fill in the drainage crossings or wetlands noted below:

Drainage Crossing(s) Permanent:

Station #	Tributary
39+50 LR	Tributary to White River
214+50 R	Tributary to White River
225+50-227+00 LR	Tributary to White River
241+00 L	Tributary to White River
280+00 L	Tributary to White River
295+00-298+00 LR	Tributary to White River
305+00 L	Tributary to White River
307+00 LR	Tributary to White River
310+00 LR	Tributary to White River
372+00-373+50 LR	Tributary to White River
426+50 R	Tributary to White River

PLEASE REFER TO THE TABLE OF WETLANDS IN THE SECTION A ENVIRONMENTAL COMMITMENTS.

Nationwide Permit 23
Approved Categorical Exclusions

Expires March 14, 2026

23. Approved Categorical Exclusions. Activities undertaken, assisted, authorized, regulated, funded, or financed, in whole or in part, by another Federal agency or department where:

(a) That agency or department has determined, pursuant to the Council on Environmental Quality's implementing regulations for the National Environmental Policy Act (40 CFR part 1500 et seq.), that the activity is categorically excluded from the requirement to prepare an environmental impact statement or environmental assessment analysis, because it is included within a category of actions which neither individually nor cumulatively have a significant effect on the human environment; and

(b) (b)The Office of the Chief of Engineers (Attn:CECW-CO)has concurred with that agency's or department's determination that the activity is categorically excluded and approved the activity for authorization under NWP 23.

The Office of the Chief of Engineers may require additional conditions, including pre-construction notification, for authorization of an agency's categorical exclusions under this NWP.

Notification: Certain categorical exclusions approved for authorization under this NWP require the permittee to submit a pre-construction notification to the district engineer prior to commencing the activity (see general condition 32). The activities that require pre-construction notification are listed in the appropriate Regulatory Guidance Letter(s). (Authorities: Sections 10 and 404)

Note: The agency or department may submit an application for an activity believed to be categorically excluded to the Office of the Chief of Engineers (Attn:CECW-CO). Prior to approval for authorization under this NWP of any agency's activity, the Office of the Chief of Engineers will solicit public comment. As of the date of issuance of this NWP, agencies with approved categorical exclusions are: the Bureau of Reclamation, Federal Highway Administration, and U.S. Coast Guard. Activities approved for authorization under this NWP as of the date of this notice are found in Corps Regulatory Guidance Letter 05-07. Any future approved categorical exclusions will be announced in Regulatory Guidance Letters and posted on this same web site.

Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his or her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Structures and Fills. Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued.

Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: http://www.rivers.gov/.

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR

402.02 for the definition of "effects of the action" for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding "activities that are reasonably certain to occur" and "consequences caused by the proposed action."

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), the pre-construction notification must include the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have "no effect" on listed species (or species proposed for listing or designated critical habitat (or critical habitat proposed for such designation), or until ESA section 7 consultation or conference has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation or conference with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take"

provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word “harm” in the definition of “take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.nmfs.noaa.gov/pr/species/esa/ respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring that an action authorized by an NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties. (a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR

330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect.

(d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106

consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by an NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only

after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the

required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f).)

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). If permittee-responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency

to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state or federal, dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. (a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge must be obtained or waived (see 33 CFR 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

(b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

(c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:

(a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank

stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

(b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the commercial development under NWP 39 cannot exceed 1/2-acre, and the total acreage loss of waters of United States due to the NWP 39 and 46 activities cannot exceed 1 acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____
(Transferee)

_____
(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires review by, or permission from, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission and/or review is not authorized by an NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification. (a) *Timing*. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee

cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification*: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) (i) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.

(ii) For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by an NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project, and does not change those non-PCN NWP activities into NWP PCNs.

(iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial and intermittent streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat (or critical habitat proposed for such designation), the PCN must include the name(s) of those endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible

inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the "study river" (see general condition 16); and

(10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

(c) *Form of Pre-Construction Notification*: The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) *Agency Coordination*: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were

considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

District Engineer's Decision

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the single and complete crossings of waters of the United States that require PCNs to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings of waters of the United States authorized by an NWP. If an applicant requests a waiver of an applicable limit, as provided for in NWPs 13, 36, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects.

2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by an NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource

functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters. The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure that the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) that the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is

required to comply with general conditions 18, 20, and/or 31), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

Further Information

1. District engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

US Army Corps of Engineers ®
Omaha District

2021 Nationwide Permits
Regional Conditions
Omaha District
State of South Dakota

The following Nationwide Permit (NWP) regional conditions will be used in the State of South Dakota. The issuance of the NWPs was announced in the January 13, 2021, issue of the Federal Register (86 FR 2744) and December 27, 2021, issue of the Federal Register (86 FR 73522). Regional conditions are placed on NWPs to ensure projects result in no more than minimal adverse impacts to the aquatic environment and to address local resources concerns.

A. PRECONSTRUCTION NOTIFICATION REQUIREMENTS APPLICABLE TO ALL NWPs OR LIMITED REVOCATION OF NWPs

For all NWPs, permittees must notify the Corps in accordance with General Condition 32 Preconstruction Notification (PCN) requirements for regulated activities located within or comprised of the following:

1. Wetlands Classified as Peatlands:

For the purposes of this condition, peatlands are permanently or seasonally waterlogged areas with a surface accumulation of peat (organic matter) 30 centimeters (12 inches) or more thick. Under cool, anaerobic, and acidic conditions, the rate of organic matter accumulation exceeds organic decay. Any peat-covered areas, including fens, bogs, and muskegs, are all peatlands.

a. PCN required for NWP 3, 5, 20, 27, 30, 32, and 38.

b. All NWPs not listed above are revoked for use in peatlands.

2. Waters Adjacent to Natural Springs:

PCN required for any regulated activity located within 100 feet of the water source in natural spring areas. For the purpose of this condition, a spring water source is defined as any location where there is flow emanating from a distinct point at any time during the growing season.

Springs do not include seeps and other groundwater discharge areas where there is no distinct point source of waters. Springs do not include drain tile outlets.

B. REQUIRED BEST MANAGEMENT PRACTICES APPLICABLE TO SOUTH DAKOTA

1. Suitable Material:

Permittees are reminded of General Condition No. 6 which prohibits use of unsuitable material. A list of materials prohibited or restricted as fill material in waters of the United States can be found at:
http://www.nwo.usace.army.mil/Media/FactSheets/FactSheetArticleView/tabid/2034/Article/12320/ prohibited-restricted-materials.aspx

2. Culvert Countersink Depth:

For all NWPs in jurisdictional streams and a stable stream bed, culvert stream crossings shall be installed with the culvert invert set below the natural stream channel flow line according to the table below. This regional condition does not apply in instances where the lowering of the culvert invert would allow a headcut to migrate upstream of the project into an unaffected stream reach or result in lowering the elevation of the stream reach.

Culvert Type	Drainage Area	Minimum Distance Culvert Invert Shall Be Lowered Below Stream Flow Line
All culvert types	< 100 acres	Not required
Pipe diameter <8.0 ft	100 to 640 acres	1/2-ft
Pipe diameter <8.0 ft	>640 acres	1-ft
Pipe diameter > 8.0 ft	All drainage sizes	20% of pipe diameter
Box culvert	All drainage sizes	1-ft

a. The stream flow line shall be defined as the longitudinal average of the low flow stream channel.

b. The slope of the culvert should be parallel to the slope of the stream flow line.

c. The culvert invert depression depth shall be measured at the culvert inlet for culverts installed at a slope less than the slope of the stream flow line.

d. Riprap inlet and outlet protection shall be placed to match the height of the culvert invert.

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION FOR INDIAN EMPLOYMENT AND CONTRACTING ON THE PINE RIDGE RESERVATION

PROJECT NO. EM 0073(73)62 & P 0248(17)162; PCN 05HV & 08EH
JACKSON COUNTY
JULY 23, 2024

PURPOSE

The purpose of the Indian Employment and Contracting Special Provision is to establish the specifications for Indian preference and the responsibilities of contractor and subcontractors for this project.

A portion of this project is located within the exterior boundaries of the Pine Ridge Reservation.

Title 23 United States Code (USC), Section 140(d), recognizes and permits the preferential employment of Indians living on or near a reservation on projects and contracts on Indian reservations roads. The State of South Dakota and the Department of Transportation, consistent with the intent of Section 140(d), affirms that it is their policy to encourage employment of minorities.

DEFINITIONS

For the purposes of this Special Provision, the following definitions will apply:

A. **Indian:** An enrolled member of a federally recognized Indian tribe.

B. **Qualified Indian Applicant** is defined as one or more of the following:

1) Applicants approved by the contractor based on job performance on other jobs.
2) Applicants who have demonstrated or are presently demonstrating their work qualifications during a probationary work period on this project.
3) Applicants certified by local referral agencies, including Tribal TERO offices, as having adequate skills and training necessary to perform the duties of the position.

C. **Core Crew Employee**: A contractor's or subcontractor's core crew is composed of full time employed individuals necessary to satisfy his/her reasonable needs for supervisory or specially experienced personnel to assure an efficient execution of the contract work. Any Indian already employed by a contractor will be included in the core crew, regardless of job function, to avoid the unintended results of having a contractor lay-off or terminate an Indian employee to hire another under this provision.

D. **Pre-Employment Standards**: Directly related job standards of fitness and ability which indicate that with a reasonable amount of job training a person would be capable of satisfactorily performing an entry level position as well as jobs at a higher level which, with a reasonable amount of training, are normally filled by progression from an entry-level position. This applies to those persons who, at the time of application for employment are not fully qualified for the available job but has general potential of becoming qualified through a reasonable amount of training.

DEPARTMENT RESPONSIBILITIES

The Department (Civil Rights Office or Area Office):

A. Will monitor contractor and subcontractors for compliance with the requirements of this special provision and will perform necessary reviews of contractors and subcontractors to ensure compliance with the Special Provision.

D. Will assist the contractor and subcontractor with any disputes with the TERO Office or other Tribal entity.

E. Will establish on-the-job training opportunities as specified in the On-the-Job Training Special Provision.

F. Will provide notification to the TERO Office of the name of the successful low bidder.

G. Will provide notification to the successful low bidder regarding the TERO requirements.

H. Will invite a representative of the TERO Office to attend the preconstruction meeting and provide a copy of the preconstruction meeting minutes to the TERO Office.

I. Will not allow a contractor or subcontractor to commence work until the contractor's or subcontractor's compliance plan has been approved and the Department's Area Office has received a copy of the approved compliance plan or verbal or written notification of approval by the TERO Office.

CONTRACTOR RESPONSIBILITIES

A. The contractor and subcontractor will give preference in employment opportunities under this Agreement to qualified Indian applicants who can perform the work required regardless of race, color, creed, age, sex, religion, national origin, disability, or tribal affiliation to the extent set out in the paragraphs below.

B. The contractor and subcontractor will not use pre-employment standards, qualifications, criteria, or other personnel requirements as barriers to Indian employment except when such criteria or standards are required by business necessity. The contractor and subcontractor have the burden of showing that such criteria or standards are required by business necessity.

C. The contractor and subcontractor agree that Indians will be given preference for at least eighty percent (80%) of the project work force provided that sufficient qualified Indian applicants are available. The phrase “work force” will not include “core crew employees”.

D. The contractor and subcontractor are required to complete a compliance plan and submit the compliance plan to the TERO Office at least two (2) weeks prior to beginning work. Prior to commencing work, contractors and subcontractors must contact the Oglala Sioux Tribe TERO Office concerning an identified core crew, project work force needs, and (sub)contractor/TERO interface. No contractor or subcontractor will begin work until the compliance plan has been approved by the TERO Office. The contractor and any subcontractor must submit a copy of the approved compliance plan to the Department’s Area Office prior to commencing work unless arrangements are made for the TERO Office to provide the copy of the compliance plan directly to the Department’s Area Office. In lieu of a copy of the approved compliance plan, the Department’s Area Office may seek approval directly from the TERO Office.

E. The contractor will provide the TERO Director at least forty-eight hours’ notice to locate and refer a qualified Indian applicant for any vacancy or new position except when circumstances require that the position be filled within a shorter period of time. If the TERO Office is unable to fill the vacancy, the contractor and subcontractor may recruit and hire workers from whatever sources are available and by whatever process, provided that the contractor and subcontractor notifies the TERO Office of any job vacancies, positions, or any negotiated positions.

F. The contractor and subcontractor will provide for maintenance of records and be prepared to furnish such periodic reports documenting compliance under this Special Provision as the Department determines necessary. The contractor and subcontractor will submit the following information on a weekly basis to the Tribal TERO Office:

    1. Weekly TERO Employment Report which includes the following data (forms for the weekly TERO Employment Report available from the TERO Office):
        a) Wage and hour reports
        b) New hires or terminations, and disciplinary action taken
        c) Promotions
    2. Copies of official payrolls.

G. The contractor and subcontractor agree that all qualified Indian employees will be adequately trained for the position for which they are hired. The contractor and subcontractor will evaluate and pay all Indian employees in accordance with current company policies and contract provisions.

H. Nothing in this Special Provision will be construed to interfere with the contractor’s ability to dismiss any employee for cause including, but not limited to, lack of adequate skills or training, inability to perform by virtue of state or federal law, or breach of the contractor’s standards of conduct.

OTHER PROVISIONS

This Special Provision supplements but does not replace the existing equal employment opportunity and disadvantaged business enterprise requirements, which may be included in this Agreement.

The Tribal TERO Office will maintain a Job Skills Bank, listing available Indians by job classification based on skill level as indicated on their TERO application. The contractor and all subcontractors agree to utilize the Tribal TERO Office to locate qualified applicants.

The contractor is authorized to include in the bid an amount necessary to cover the four percent (4%) employment rights fee, which is applicable to this project, based on the portion of the project located within the boundaries of the Pine Ridge Reservation. The Department has determined that twenty-nine and eight-tenths percent (29.8%) of the project is within those boundaries; therefore the contractor is authorized to include a TERO fee amount based on 29.8% of the total contract dollar amount.

The contractor is authorized to include in the bid an amount necessary to cover the work permit fee of $250.00 per employee based on the following criteria: 1) The Tribe has the right to dispute individuals listed as a core crew employee and require the prime contractor and subcontractor to provide evidence that the individual meets the definition of a core crew employee; 2) All approved core crew employees are exempt from work permit fees; and 3) All TERO Certified Tribal members are exempt from work permit fees whether considered a core crew employee or not. Contact the Tribal TERO Office for complete details at 605-867-5167.

The Department acknowledges that the Oglala Sioux Tribe issues a business license to contractors working on projects within the exterior boundaries of the Pine Ridge Reservation. The license has to be renewed yearly. If project work extends beyond the one year, the contractor is required to renew the business license each subsequent year. For further information regarding the business license, contact the Tribal Revenue Office at 605-867-8432.

The Oglala Sioux Tribe has an Indian Preference Subcontracting goal, which has been established at the same level as the Department's DBE goal for this project and is concurrent with the Department's DBE goal. The Tribe recognizes that FHWA policy does not permit the Department to extend Indian preference in subcontracting for this project and is satisfied the Department and the contractor will seek qualified and DBE-certified Indian firms for this project. The contractor will make every reasonable effort to inform certified Indian DBE firms of the subtracting opportunities of the project and to solicit bids from such firms. Contact the Tribal TERO Office at 605-867-5167 or the Department Civil Rights office at 605-773-3540 for assistance.

The Oglala Sioux Tribe Environmental Protection Agency (EPA) has directed that a permit fee of one percent (1%) based on the contract amount be imposed on all prime contractors for waste removal and disposal on the Pine Ridge Reservation. This permit fee is only applicable for the amount of the project within the reservation boundaries and not for the full contract amount. The contractor is authorized to include in the bid an amount necessary to cover the one percent (1%) EPA solid waste disposal permit fee which is applicable to this project, based on the portion of the project which is located within the boundaries of the Pine Ridge Reservation. The Department has determined that twenty-nine and eight-tenths percent (29.8%) of the project is within those boundaries; therefore, the contractor is authorized to include a permit fee amount based on 29.8%

of the total contract dollar amount. Contact the Tribal Environmental Protection Program offices at 605-867-5736.

ENFORCEMENT

The contractor and all subcontractors are made aware that this Special Provision is made part of the contract requirements, and that the Department of Transportation will monitor and enforce these provisions in a manner similar to other special provisions, as outlined in Division I, General Provisions of the Standard Specifications for Roads and Bridges, 2015 edition.

For all highway construction contracts which occur wholly or partially within the exterior boundaries of the Pine Ridge Reservation, and for all highway maintenance contracts where the majority of the project is within the reservation boundaries, this Special Provision will apply to the entire contract and not just the portion of the project located within the reservation boundaries. For contracts which occur partially within the reservation boundaries, any TERO fee will be based only on the portion of the project located within the reservation boundaries. For highway maintenance contracts where the majority of the project is outside the exterior boundaries of the Pine Ridge Reservation, this Special Provision will only apply to that portion of the project located within the reservation boundaries. Maintenance refers to work intended to preserve a highway's condition or function. Maintenance includes but is not limited to crack sealing, chip sealing, surface repairs, sign installation, pavement markings, and roadway lighting.

It is the intent of all parties that this Special Provision be implemented on a cooperative basis without regard to jurisdictional issues. Nothing in this Agreement will prevent the Tribe, the Department, or any contractor from instituting any litigation pertaining to any jurisdictional issue with regard to the employment rights code or any other matter.

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STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
CONTRACTOR STAKING
WITH MACHINE CONTROL GRADING OPTION

PROJECT NH 0073(73)62 & P 0248(17)162, PCN 05HV & 08EH
JACKSON COUNTY

JANUARY 9, 2024

Delete Section 5.8 of the specifications and insert the following:

SECTION 5.8
CONSTRUCTION STAKES, LINES AND GRADES
CONTRACTOR GRADE STAKING

A. DESCRIPTION

The Contractor will perform all construction staking. The Contractor may elect to use grading equipment with an automated machine control system for Machine Control Grading (MCG) provided the equipment and methods used provide the same results in the finished work as conventional construction staking. The Engineer may require the Contractor to revert to conventional staking methods for all or part of the work at any point during construction if, in the Engineer's own opinion, the MCG produces unacceptable results.

The Department will not allow the Contractor to use MCG as a substitute for conventional construction staking for slope staking and slope stake referencing, paving hub staking, structure staking, miscellaneous staking, or final cross section surveying.

The staking work includes, but is not limited to, establishing or re-establishing the project centerline; establishing control points and benchmarks as needed; setting additional benchmarks as needed; taking original and final cross sections of all Contractor secured borrow sources and State designated borrow sources; taking cross sections of all topsoil stockpiles; taking final cross sections for earthwork quantities at the slope stake stations and plus stations or by radial surveying methods; and staking right-of-way, easements, and fence.

The Contractor will perform all construction layout and reference staking necessary for the accurate control and completion of all structures, grading, paving, drainage, median crossovers, signing, pavement marking, permanent benchmarks, detours, fence, and all other appurtenances required for the complete construction and acceptance of the work. The layout will include, but is not limited to, staking clearing line, slope staking and slope stake referencing, grade staking (blue tops), structure staking, and performing the miscellaneous staking as described in the plans and in this specification.

The Department has established horizontal and vertical control as shown on the plans. Each horizontal and vertical control point will be preserved or reset out of the work limits and available during and after construction is complete. Prior to the Department's final acceptance of the project, the Contractor will replace or reset any control that is disturbed during the construction of the project. The Contractor will provide the Department a list of the in-place control points, including coordinates and elevations relevant to the project control, at the end of the project.

The Department will provide a MCG packet to all prospective bidders consisting of a XML file containing the original surface Digital Terrain Model (DTM) and 4 design files for each new alignment on the project. The electronic design files will include, a XML file containing mainline alignment data, a XML file containing mainline design surface DTM, a DGN file containing triangles for mainline surface, and a DWG file containing triangles for mainline surface. The MCG packet will be available on the Department's electronic bid letting website when the project is advertised for bid letting.

The Contractor will convert the electronic information provided by the Department into the format required by the Contractor's MCG system. The Department makes no guarantee the information provided is directly compatible with the Contractor's MCG system.

The information shown in the plans will govern over the provided electronic information. The Contractor assumes the risk of error if the information is used for any purpose for which the information was not intended. The Contractor assumes all risk of any assumptions made regarding the electronic information.

The Contractor bears all costs, including but not limited to the cost of actual reconstruction of work, that may be incurred due to errors in application of MCG techniques. Grade elevation errors, rework resulting from errors or failures of the MCG system, and associated quantity adjustments resulting from the Contractor's activities are at no cost to the Department. Delays due to late submittals or satellite reception of signals to operate the MCG system will not result in adjustment to any contract unit prices or be justification for granting contract extensions.

The electronic information is not to be considered a representation of actual conditions to be encountered during construction. Providing the Contractor this

information does not relieve the Contractor from the responsibility of making an investigation of conditions to be encountered, including but not limited to, site visits and basing the bid on information obtained from these investigations and the Contractor's professional interpretations and judgment. The Contractor assumes the risk of error if the information is used for any purposes for which the information was not intended. Any assumptions the Contractor makes from this electronic information or manipulation of the electronic information is at the Contractor's own risk.

The Contractor will perform the staking work in accordance with the Department's Survey Manual, except as modified by this specification.

If the Contractor elects to use MCG, the Contractor will submit a comprehensive written MCG work plan to the Engineer for review prior to scheduling the preconstruction meeting. The Department will review the plan to determine if the plan conforms to the requirements of the contract.

The Contractor will include in the MCG work plan how MCG will be incorporated into other technologies used on the project. The Contractor's MCG work plan will include, but is not limited to, the following:

1. A designation of which portions of the subgrade will be completed using MCG and which portions, if any, will be completed using conventional subgrade staking methods.
2. A description of the manufacturer, model, and software version of all MCG equipment.
3. Information on the qualifications of the Contractor's staff including, but not limited to, formal training and field experience.
4. A designation of a single person as the primary contact for MCG technology issues.
5. A description of site calibration procedures.
6. A description of site calibration and checking frequency and procedures for documenting site calibration and checking.
7. A description of the Contractor's quality control procedures including procedures for checking, mechanical calibration, and maintenance of equipment.
8. A description of the frequency and types of checks the Contractor will perform to ensure the constructed subgrade conforms to the contract requirements.

B. MATERIALS

The Contractor will furnish all staking materials of adequate quality for the purpose intended including all stakes, stake chasers, paint, field note books, and all other materials and equipment necessary to perform the required work.

C. CONSTRUCTION REQUIREMENTS

1. **General:** The Department will set control points. The Contractor is responsible for the preservation of ties and references to all control points necessary for the accurate re-establishment of all base lines and centerlines shown in the plans, whether established by the Contractor or found on or adjacent to the project. The Department will also establish benchmark elevations. It is the responsibility of the Contractor to verify the accuracy of the benchmark elevations prior to use on the project.

   The Engineer may check the accuracy and control of the Contractor's survey, staking work, and MCG at any time. The checks performed by the Engineer will not relieve the Contractor of the responsibility for the accuracy of the survey layout or the construction work. If the random checks show the grade is out of tolerance, the Engineer may require the Contractor to set additional stakes, and paving hub stakes at the discretion of the Engineer, at no additional cost to the Department. If the Engineer orders additional stakes, the Contractor will perform the additional staking until the Contractor can show the staking operations achieve the specified grade tolerances.

   Prior to any project staking, the Contractor will run a level circuit to check the plan benchmarks the full length of the project. At structure sites, the circuit will include two benchmarks, one on each end of the structure.

   The Contractor will perform all staking and MCG work under the supervision of a qualified surveyor or engineer who is experienced and competent in road and bridge construction surveying, staking, and MCG procedures. The surveyor or engineer will be available to review work, resolve problems, and make decisions in a timely manner. A crew chief, competent to perform all required surveying duties, will supervise the staking in the absence of the surveyor or engineer from the project. The Contractor will submit the qualifications and work experience history of the surveyor or engineer who will supervise the construction survey and MCG work to the Engineer for review at least 14 calendar days prior to beginning the staking or MCG work.

   a. **Conventional Construction Staking:** The Contractor will also submit the proposed starting date of the staking and the anticipated surveying work schedule.

      The Contractor will furnish, set, and properly reference all stakes, references, lines, grades, and batter boards required. Minimum reference notations will be for type, location, and alignment (when there are multiple alignments in the same area). The Contractor will perform the survey and staking work in a manner consistent with standard engineering practices and approved by the Engineer.

The Contractor is solely responsible for the accuracy of the survey and staking work. The Contractor will notify the Engineer of any errors and discrepancies found in previous surveys, plans, specifications, or special provisions prior to proceeding with the survey work.

The Contractor will be responsible for the supervision of the construction staking personnel. The Contractor will correct any deficient survey or staking work that results in construction errors at no additional cost to the Department.

The Contractor will keep field notes in conventional handwritten notebooks or in a computerized form acceptable to the Engineer in a clear, orderly, and neat manner. The notebooks will become the property of the Department upon completion of the project. The notebooks will provide enough information such that quantity measurements are verifiable by the Department. Field notes are subject to inspection by the Engineer at any time.

The Contractor is required to submit any remaining required quantity calculations and notes to the Engineer no later than 60 calendar days after completion of the survey and staking work.

The Contractor will furnish stakes and wooden hubs or steel pins of sufficient length to provide a solid set in the ground. The Contractor will place half-length lath stakes or stake chasers or an alternate, acceptable to the Engineer, adjacent to or on the blue top hubs for guards. Stakes set not meeting these requirements will be reset at the Contractors expense. The Contractor will replace stakes damaged, destroyed, or made unusable at no additional expense to the Department.

b. **Machine Control Grading:** If the Contractor elects to use MCG, the Contractor will confirm the design surface DTM agrees with the contract plans, make adjustments to the design surface DTM as approved by the Engineer, and will maintain the design surface DTM for all areas of the project where MCG is used. The Contractor will also provide constructed surface DTM information to the Department in LandXML or other Engineer approved format.

   The Contractor will notify the Department of any errors or discrepancies in Department provided information. The Department will determine what revisions may be required. The Department will revise the contract plans, if necessary, to address errors or discrepancies the Contractor identifies. The Department will provide the best available information related to those contract plan revisions.

The Contractor will revise the design surface DTM as required to support construction operations and to reflect any contract plan revisions the Department makes. The Contractor will perform checks to confirm the revised design surface DTM agrees with the contract plan revisions. The Contractor will provide a copy of the resultant revised design surface DTM to the Engineer in LandXML. The Department will pay for costs incurred to incorporate contract plan revisions as extra work.

The Contractor will designate a set of control points, including a total of at least 6 horizontal and vertical points or 2 per mile, whichever is greater, for site calibration for the portion of the project employing MCG. The Contractor will incorporate the Department provided control framework used for the original survey and design.

The Contractor will calibrate the site by determining the parameters governing the transformation of satellite information into the project coordinate system. The Contractor will use the control points provided by the Department for the initial site calibration. The Contractor will provide the resulting site calibration file to the Engineer before beginning subgrade construction.

In addition to the site calibration, the Contractor will perform site calibration checks at individual control points not used in the initial site calibration. At a minimum, the Contractor will check the calibration at the start of each day as described in the contractor's MCG work plan. The Contractor will report out-of-tolerance checks to the Engineer. The measured position must match the established position at each individual control point within the horizontal tolerance of ±0.1 foot and the vertical tolerance of ±0.05 foot.

The Contractor will construct the subgrade as the Contractor’s MCG work plan indicates and in accordance with the contract requirements. The Contractor will update the plan as necessary during construction of the subgrade. The Contractor will perform periodic sensor calibrations, checks for blade wear, and other routine adjustments as required to ensure the final subgrade conforms to the contract requirements.

The Department may use Department supplied GPS rover and data collector (GPS inspection equipment) to aid in the inspection of the work. The Department supplied GPS inspection equipment will require a connection to the Contractor’s Machine Control Grading (MCG) system, through the Contractor’s base station, used for MCG equipment.

The Contractor will configure the radio settings of the base station to allow the Department’s rover to receive corrections directly from the Contractor’s base station. The radio settings must be configured properly to ensure

continuous communication across multiple brands of GPS equipment. The radio settings will be as follows:

- Frequency: 461.050 to 464.750 MHz
- Narrow Bandwidth: 12.5 kHz
- Protocol: PDL or PDL Tx
- Modulation: 4fSK
- Forward Error Correction (FEC): On
- Scrambler: Off
- Free Channel Scan (FCS): On

The connection of the Department's GPS inspection equipment will allow the Engineer the ability to positively and efficiently determine plan station, offset, and elevations in all MCG sections.

The Department will not make payment for the ability to connect or the connection to the Contractor's MCG system.

2. **Slope Staking:** The Contractor will set slope stakes at the catch points. The slope stake reference hubs will be offset behind the slope stake. The Contractor will place slope stake reference hubs behind the slope stakes at a set distance, at the right-of-way line, or at the easement line, as approved by the Engineer.

   The slope stakes will be set at 100-foot intervals on tangents and at 50-foot intervals in horizontal curves. The horizontal tolerance is ±0.2 foot and the vertical tolerance is ±0.1 foot. The Contractor will reference the subgrade shoulders with slope stake reference hubs set with a horizontal tolerance of ±0.2 foot and a vertical tolerance of ±0.05 foot.

   The Contractor will retain the slope stakes and hub references until the final cross sections are completed and accepted by the Department.

   The Department will provide slope stake notes.

3. **Grade Staking:** In accordance with the requirements of this provision, the Contractor may elect to use MCG equipment or may use conventional construction staking methods for all or part of the grade staking work, excluding paving hub staking.

   a. **Conventional Blue Tops:** The Contractor will set grade finishing stakes (blue tops) for grade elevations and horizontal alignment on the roadway centerline and at each shoulder at the top of the subgrade. Where additional lanes or turnouts are to be constructed, The Contractor will set blue tops at centerline, the normal shoulder distance, and the extended shoulder distance or outside the additional lane edge.

The transverse distance between blue tops will not exceed 20 feet. The Contractor will be required to set intermediate blue tops when the transverse distance is greater than 20 feet. When intermediate blue tops are required, The Contractor will set the intermediate blue tops at locations approved by the Engineer.

The blue top grade stakes will be set at 100-foot intervals on tangents and 50-foot intervals on horizontal curves. The horizontal tolerance for blue tops is ±0.2 foot and the vertical tolerance is ±0.02 foot.

The Department will provide grade staking (blue top) notes.

The Contractor will retain the shoulder blue tops and guards through placement of the granular material.

The Contractor will not be required to set grade stakes at the top of the base course. If the Contractor deems it necessary to place grade stakes to achieve typical section as per section 260.3 A of the specifications, the staking will be incidental to the contract unit price for base course.

b. **Machine Control Grading:** The Contractor will set conventional construction staking grade finishing stakes (blue tops) for grade elevations and horizontal alignment on the roadway centerline and at each shoulder at the top of the subgrade (and gravel cushion for PCC paving projects) at a minimum of 1000 foot intervals on mainline or at least one location for sections less than 1000 foot long; at least two locations on side roads, side streets, and ramps; and at least one location within 100 feet of each bridge end. In addition, the Contractor will set blue tops for grade elevations and horizontal alignment on the roadway centerline and at each shoulder at the top of the subgrade (and gravel cushion for PCC paving projects) at critical transition points including, but not limited to, PC's, PT's, super elevations transition points, and other critical points required for the construction of drainage and roadway structures. The Contractor will also provide conventional construction staking grade finishing stakes (blue tops) at additional locations designated by the Engineer.

   The Contractor will establish these grade staking (blue top) grades using the Department provided grade staking (blue top) notes, plan typical sections, and cross sections. The Contractor will use these stakes to check the accuracy of the MCG during construction. The Contractor will notify the Engineer at least 3 calendar days before making subgrade checks to allow the Engineer to observe the process.

   The Contractor will ensure at least four of any five consecutive conventional construction staking grade finishing stakes (blue tops) locations are within the horizontal and vertical tolerances specified in Section 120.3. The

Contractor will notify the Engineer if more than one of any five consecutive conventional construction staking grade finishing stakes (blue tops) locations is not within the horizontal or vertical tolerance.

The Department may conduct periodic independent subgrade checks. The Department will notify the Contractor if any individual check is not within the horizontal or vertical tolerance.

4. **Structure Staking:** The Contractor will stake and reference bridges and box culverts to ensure adequate horizontal and vertical control of the substructure and superstructure components. The Contractor will stake and reference the bridge chord or the bridge tangent and centerline of each pier, bent, and abutments for bridges. The Contractor will stake the box culvert centerline(s) in both longitudinal and transverse directions.

   When the work requires bridge rehabilitation work, the structure staking will include all surveying and staking required for completion of the project. The staking work may include, but not be limited to, setting the rail for the deck overlay. The plans will indicate the grade line for the deck overlay; and if necessary, the Engineer may modify the grade line.

   When staking retaining walls (except Type C), the Contractor will survey and record the original ground profile along the front face of the proposed wall at the elevation break points. The Contractor will supply the wall designer the original ground profile data prior to the wall designer performing the design. Set adequate stakes and references for horizontal and vertical control during construction.

   For structures and retaining walls, the horizontal tolerance is ±0.04 foot and vertical tolerance is ±0.02 foot.

   The Contractor is responsible for all notes required to stake structures including bridges, box culverts, and walls.

5. **Miscellaneous Staking:** Miscellaneous staking includes the following work:

   a. Approach road staking and all tie-in checks. The Contractor will submit profiles and elevations of all approach roads and other tie-ins throughout the project to the Engineer at least 3 business days prior to staking;
   b. Topsoil measurement and computation of quantities;
   c. Special ditch staking;
   d. Staking of signs, delineators, pavement markings, guardrail, curb & gutter, light poles, conduit, junction boxes, and related items (Staking is for all aspects, i.e. detours, temporary and permanent);
   e. Right-of-way staking including easement lines and fence post panels;

f. Pipe and storm sewer staking including drop inlets, manholes, cattle passes, and related items. If additional pipe, storm sewer, drop inlets, manholes, or cattle passes are required which are not shown on the plans, the staking will be paid in accordance with the bid item Engineer Directed Surveying/Staking;

g. Mark limits of removal items (trees, foundations, curb & gutter, sidewalk, etc.);

h. Detours, roadway diversions, and crossovers. (This work includes all design and staking notes required to design and stake the detour, roadway diversion, or crossover in accordance with the plan requirements. The Contractor will submit the completed design including profile and alignment and staking notes to the Engineer at least 3 business days prior to staking.);

i. Final and original cross sections of Contractor and State furnished borrow pits and computations. The Contractor will perform earthwork computations by the average end area method, surface-to-surface method, or alternate computation method approved by the Engineer;

j. Resetting horizontal and vertical control, if disturbed;

k. Approach slab and sleeper slab staking;

l. Staking of sidewalks and curb ramps; and,

m. Staking of steps and wheel chair ramps.

The Contractor will perform the pipe staking so the pipe will fit the field conditions. The plans show only approximate pipe locations and grades. The Contractor will not install pipe prior to gaining the Engineer's approval of minor location and grade adjustments necessary for proper staking of the pipe.

The Contractor will stake the slope catch points to determine the inlet and outlet locations, set reference stakes for the inlet and outlet locations, and stake ditches and special inlet and outlet grades to ensure proper drainage. The staking of manholes and drop inlets will be included in pipe and storm sewer staking. The Contractor will stake precast cattle passes similar to drainage pipes.

The horizontal tolerance for the pipe and storm sewer staking is ±0.05 foot and the vertical tolerance is ±0.03 foot.

The Contractor will keep pipe staking notes on a DOT Form 214.

6. **Engineer Directed Surveying/Staking:** The use of the engineer directed surveying/staking contract item is intended for surveying/staking not included in the plan notes and this special provision. The Contractor may use a survey crew to perform additional survey/staking work caused or required by the Department. The Engineer will use a written order to authorize the hourly engineer directed surveying/staking item and describe the surveying/staking work required of the Contractor.

7. **Final Cross Section Survey:** Final Cross Section Survey includes the following work:

   Final earthwork (or terrain data) cross sections at the same intervals, stations, and plus stations as the slope stakes and computations of as-built quantities. The Contractor will include the blue top subgrade elevations, both shoulders and centerline, in the final earthwork (or terrain data). The Contractor will perform earthwork computations by the average end area method, surface-to-surface method, or alternate computation method approved by the Engineer.

D. METHOD OF MEASUREMENT

Refer to the Table of Contractor Staking in the plans for more detail on how quantities were calculated.

1. **Slope Staking:** The Department will not measure slope staking. The Department will pay the plan quantity as the final quantity unless the Engineer orders additional slope staking in writing.

   The Department will consider all combinations of roadway widths as one set of slope stakes. On projects with ramps, the Department will consider ramps as roadway and include the ramps in the slope staking quantity. All additional slope staking for intersections will be incidental to the contract unit price for slope staking.

2. **Grade Staking:** The Department will not measure grade staking. The Department will pay the plan quantity as the final quantity unless the Engineer orders additional grade staking in writing. The Department will make no adjustment to the plan quantity of grade staking regardless if the Contractor elects to use MCG on all or part of the project.

   The Department will consider a two-lane roadway as one set of grade stakes. The Department will proportionately increase the plan quantity for multi-lane roadways in excess to two-lanes as shown in the table of construction staking (lane factor). For example, a three-lane roadway is equivalent to 1.5 times the quantity for a two-lane roadway. On projects requiring grade staking on ramps, the Department will consider ramps as a two-lane roadway for measurement as shown in the table of construction staking. The Department will not consider Acceleration/deceleration lanes and turning lanes for intersecting roads, and median crossovers as an additional roadway. All cost for additional grade staking for acceleration/deceleration lanes, turning lanes, intersecting roads, grade adjustments, and median crossovers will be incidental to the contract unit price for grade staking. All additional grade staking for intersections and medians will be incidental to the roadway grade staking. Any additional staking the Contractor feels necessary to complete the grade staking work is the

responsibility of the contractor and will be incidental to the contract unit price for grade staking.

3. **Structure Staking:** The Department will measure structure staking by the each for bridges, box culverts, and retaining walls.

4. **Miscellaneous Staking:** The Department will not measure miscellaneous staking. The Department will pay the plan quantity as the final quantity.

5. **Engineer Directed Surveying/Staking:** The Department will measure engineer directed surveying/staking to the nearest 0.1 hour with the following restrictions:

   The use of engineer directed surveying/staking will be for the work ordered by the Engineer. The measured quantity will be the actual time the survey crew is working on the project, physically performing the field survey/staking work. The Department will not include travel time for the survey crew in the measurement.

   The Engineer will issue a DOT 75 ticket for the hours authorized for engineer directed surveying/staking.

6. **Final Cross Section Survey:** The Department will measure final cross section survey to the nearest 0.001 mile for the plan earthwork balances requiring a final survey to determine as-built unclassified excavation quantities. The Engineer will determine which balances (if any) require a final survey during construction. The plan quantity will be the length of the project mainline. This item may be decreased if the Contractor and Engineer agree to accept the plan unclassified excavation quantity for any or all earthwork balances.

E. BASIS OF PAYMENT

Payment for all survey items will be considered full compensation for furnishing all necessary personnel, vehicles, surveying equipment, software, supplies, materials, recording fees, transportation, and incidentals to accurately and satisfactory complete the work.

The Department reserves the right to omit any of these bid items without providing compensation to the contractor if the Department deems the bid prices are unreasonable.

1. **Slope Staking:** The Department will pay slope staking at the contract unit price per mile.

2. **Grade Staking:** The Department will pay grade staking at the contract unit price per mile.

3. **Structure Staking:** The Department will pay structure staking at the contract unit price per each.

4. **Miscellaneous Staking:** The Department will pay miscellaneous staking at the contract unit price per mile.

   The Department will make partial payment as follows:

   a. Upon submission of the name, experience, and qualifications of the surveyor or engineer who will supervise the staking, the proposed starting date, and the staking schedule, the Department will pay the Contractor 25 percent of the plan quantity for the miscellaneous staking.

   b. The Department will make intermediate payments based on the amount of the staking work completed.

   c. The Department will make full payment at the plan quantity for miscellaneous staking upon completion of all surveying and staking and when the Contractor has furnished all field notebooks and records to the Engineer.

   The Department will not adjust the contract unit price or plan quantity for miscellaneous staking due to overruns or under runs in the other contract items.

5. **Engineer Directed Surveying/Staking:** The Department will pay engineer directed surveying/staking on an hourly basis as per the Price Schedule for Miscellaneous Items. The value listed in the Price Schedule for Miscellaneous Items includes salaries, travel time, equipment, staking supplies, payroll additive, and all incidental expenses related to providing the survey crew.

6. **Final Cross Section Survey:** The Department will pay final cross section survey at the contract unit price per mile.

* * * * *

THE FOLLOWING UTILITY COMPANIES ARE INVOLVED ON

PROJECT NH 0073(73)62, P 0248(17)162, Jackson County, PCN 05HV. 08EH

The contractor shall contact the following utilities in a sufficient amount of time prior to starting work. The companies will identify their facilities and it is the responsibility of the contractor and the company to coordinate their work to avoid damage to existing facilities and to allow for relocation of facilities as may be required for grading work:

The following utilities were determined to be involved and were formally notified on July 20, 2021, that if their facility is located within the existing public right-of-way, any adjustment of their facility would have to be accomplished at no cost to the State, **within 90 days from receipt of the notice, unless other arrangements are made with the Area Engineer.**

(1) City of Kadoka
PO Box 58
Kadoka, SD 57543-0058
CONTACT: Nathan Riggins, TELE. #605-837-2140
The city has water and sanitary sewer lines within the project limits. At approximate station 419+24 the city has a waterline that will be lowered prior to construction. At approximate station 453+50 the city has waterline crossing they may need adjustment. They will work with contractor at the time of construction if needed. The city has a waterline at approximate station 454+85 no adjust is anticipated. The city placed a new sanitary sewer line at approximate station 454+48, when installed they went deeper to accommodate the upcoming construction project, this line was to replace the line crossing at approximate station 455+24. This line at 455+24 should be considered abandoned. As the City's facilities are in existing public Right-of-Way, any relocation/adjustment necessary to accommodate the highway construction will be accomplished at no cost to the State and performed in coordination with the highway construction.

(2) Golden West Telecommunication
2511 N Plaza Dr.
Rapid City, SD 57702
CONTACT: Andrew Boyd, TELE. #605-920-8842
The Company has underground facilities throughout the entire project. At approximate station 10+38 – 12+00 then at approximate station 23+40 – 26+00 the company will be lowering to accommodate grade changes. at approximately station 66+65 – 70+81 L the company will be lowering to accommodate grade changes. At approximate station 70+81 the company has a crossing from the west to the east that will be rebored deeper to avoid grade changes, this line will stay outside of the construction limits, and come back in at approximate station 106+00 R. from approximate station 106+00 – 113+41 R then at approximate station 116+24 -123+58 R the company will be lowering to accommodate grade changes. at approximate station 190 +00 R 380' (this varies but remains outside of the construction limits) the company will start to install new cable and abandoned the old cable until approximate station 261+30 R. at approximate station 301+00 – 30+75 R, then at approximate station 324+00 – 326+00 R, and at approximate station 326+82 – 329+89 the company will be lowering to accommodate grade changes. at approximately 363+86 – 368+30 the company will be lowering to accommodate grade changes. The company has a road crossing at approximate station 370+00 going from the east side to the west side, on the west side the company will start to lower as it continues

north to approximate station 370+90. Starting at approximate station 372+00 – 373+00 L the company will be lowering to accommodate grade changes. at approximate station 389+55 the company has a crossing going from the west side to the east, they will be boring in a new cable lower to accommodate the grade change. At approximate station 407+81 – 409+80 L, 411+23 – 412+31 L, and 415+5 – 419+70 L the company will be lowering to accommodate grade changes. at approximate station 422+83 the company has a crossing going from the west to the east, they will bore a cable in lower to accommodate the grade change. At approximate station 442+87 the company has a crossing; they don't anticipate any adjustments needed. Starting at this station at the right the company's replacing the cable to approximate station 451+75 to where they cross the highway going from the east to the west. The company has a crossing at approximate station 448+77 on the left they will start lowering approximately 19' – 90' left of centerline. The company plans to complete all of this prior to construction, there may be a few adjustments needed of pedestals or handholes during construction to accommodate grade changes.

(3) Lumen
612 MT Rushmore Rd
Rapid City, SD 57701-2753
CONTACT: ARTHUR TURNER, TELE. #605-645-3757
The Company has underground telecommunication cables located within the existing public Right-of-Way. At approximate station 449+09 the company has IOF cable that they plan to bore deeper and splice once they are clear of project limits. The company plans to have this done prior to construction. As the Company's facilities are in existing public Right-of-Way, any relocation/adjustment necessary to accommodate the highway construction will be accomplished at no cost to the State and performed in coordination with the highway construction.

(4) Lacreek Electric Association Inc.
PO Box 220
Martin, SD 57551-0220
CONTACT: Ryan Pettit, TELE. #605-685-6581 or CELL 605-515-1217
The Company has Overhead (OH) Electric Distribution lines along SD73 within private easement including an overhead crossing. The Overhead Power lines start at approximate station 10+00 to 30+00 where they leave the project area. There is one pole and guy wire that will need adjustment, at approximate station 24+60 L. the company plans to replace this pole with a longer pole set deeper into the earth. There will be a DND note placed in the plans. The contractor will work around the pole and be in contact with Lacreek Electric to make adjustment to the anchor and guy wire.

(5) MNI Wiconi (Morrison-Maierle Engineering)
1321 8th Ave NO Suite 104
Great Falls, MT 59401
CONTACT: MIKE KYNETT, TELE. #406-454-5104
BUREAU OF RECLAMATION: MIKE DORA, TELE. # 701-221-1218
The Company has Underground water lines located throughout the project limits. They have a consultant hired and have developed relocation plans and that project will be let in combination with the SD DOT project. These plans include both facilities owned and operated by MNI Wiconi and OST water maintenance.

(6) Oglala Sioux Tribe Water Maintenance & Conservation (Morrison-Maierle Engineering)
1321 8th Ave NO Suite 104
Great Falls, MT 59401
CONTACT: MIKE KYNETT, TELE. #406-454-5104
BUREAU OF RECLAMATION: MIKE DORA, TELE. # 701-221-1218
The Company has Underground water lines located throughout the project limits. They have a consultant hired and have developed relocation plans and that project will be let in combination with the SD DOT project. These plans include both facilities owned and operated by MNI Wiconi and OST water maintenance.

(7) West River Lyman\Jones Rural Water
PO Box 407
Murdo, SD 57559-0407
CONTACT: MICHAEL VETTER, TELE. #605-530-1141
The Company has Underground water lines located within existing Right-of-Way and private easements. At approximate station 190+50 the company has a crossing that will be lowered from the west ROW line to past the east ROW line 118' to be out of work limits. At approximate station 356+40 L the company has a valve at the edge of the work limits which, after Company's review of the highway construction plans, no adjustments/relocation should be necessary.at approximate station 368+00 – 369+00 L the company will lower the waterline to accommodate construction. At approximate station 369+50 the company has a crossing, and after the Company's review of the highway construction plans, no adjustments/relocation should be necessary. From approximate station 398+00 401+00 L the company will relocate waterline & associated PRV Vault to be outside of the work limits. The company is planning to complete these adjustments and relocations prior to construction.

(8) West Central Electric Cooperative Inc.
PO Box 17
Murdo, SD 57559-0017
CONTACT: Seth Geigle, TELE. #605-669-8100
The Company has Overhead (OH) Electric Distribution lines along SD73 within private easement. The company plans to remove poles and overhead line and place it temporarily outside of the temporary easements during construction at all the following locations. At approximate station 189+65 – 215+00 R. Poles at approximate station 257+00 and 260+51 will be replaced with taller poles to accommodate grade changes. at approximate station 277+30 – 280+81 R, 286+27 – 290+18, and 292+34 – 298+27 R. at approximate station 298+27 the company crosses on skew going northwest until approximate station 304+00 L 312' where relocation will stop, as the company's facilities exit the project limits. At approximate station 398+71 L the company has a pole they plan to move south out of the grading limits. From approximate station 416+70 – 430+00 L this section of poles and cable will shift to the west out of the work limits. From approximate station 442+74 – 447+7 L the company will shift poles, lights, and cable to the west outside of the work limits. From approximate station 445+69 – 446+17 R the company will shift poles, lights, and cable to the east outside of the work limits.at station 442+74 R the company has a pole with a three-phase riser they would like to leave in place and have contractor work around.

The requirements relating to Cooperation Between Contractors, as set forth in Section 5.7 of the Standards Specifications for Roads and Bridges, 2015 edition, shall prevail throughout the limits of this project.

CONTRACT DOCUMENTS

for

WATER MAINTENANCE & CONSERVATION OGLALA SIOUX RURAL WATER SUPPLY SYSTEM

US HIGHWAY 73 WATERLINE RELOCATIONS OGLALA LAKOTA COUNTY, SOUTH DAKOTA

PCN 05HV

prepared by

OGLALA SIOUX TRIBE
PINE RIDGE, SOUTH DAKOTA

DESIGN ASSISTANCE:
MORRISON-MAIERLE, INC.
PROJECT NO. 2246.029.08

June 2024

APPROVED:_____

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OGLALA SIOUX RURAL WATER SUPPLY SYSTEM
US HIGHWAY 73 WATERLINE RELOCATIONS

TECHNICAL PROVISIONS

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PART 1 GENERAL

1.01 SCOPE

A. This section describes the method of measurements and basis of payment for all work covered by the Contract Documents for the US Highway 73 Watermain Relocation project.

1.02 GENERAL

A. The bid price for each item of the Contract shall cover all work shown on the Contract Documents and required by the specifications and other Contract Documents. All costs in connection with the work, including taxes and insurance, furnishing all materials, equipment, supplies and appurtenances; providing all required construction support plants, equipment, and tools; constructing and maintaining dewatering systems; and performing all necessary labor and supervision to fully complete the work, shall be included in the unit and lump sum prices bid in the Bid Proposal. The amounts shown on the Bid Proposal shall be the Contract price.

B. No item that is required by the Contract Documents for the proper and successful completion of the work will be paid for outside of or in addition to the prices submitted in the bid. All work not specifically set forth as a pay item in the Bid Proposal shall be considered a subsidiary obligation of the Contractor and all costs in connection therewith shall be included in the prices bid.

1.03 ESTIMATED QUANTITIES

A. All estimated quantities stipulated in the Contract Documents are approximate and are to be used (1) only as a basis for estimating the probable cost of the work and (2) for the purpose of comparing the bids submitted for the work.

B. The actual amounts of work done and materials furnished under unit price items may differ from the estimated quantities. The basis of payment for work and materials will be the actual amount of work done and materials furnished to the paylines defined in this section.

C. The Contractor agrees that he will make no claim for damages, anticipated profits, or otherwise on account of any difference between the amount of work actually performed and materials actually furnished and the estimated amounts herein except as allowed in the Supplementary Conditions.

1.04 SURVEYS AND MEASUREMENTS

A. All quantity measurements shall be the responsibility of the Contractor, and will be checked by the Owner or Engineer.

1.05 BASIS OF PAYMENT

Item	Description
451E0616	16" PVC Water Main shall include excavation, bedding, backfill, pigging, testing, disinfection and all fittings, measured in lineal feet of pipe installed. Payment will be at the contract unit price. A partial payment of 85 percent will be allowed for pipe installed but not yet tested and disinfected.
451E0620	20" PVC Water Main shall include excavation, bedding, backfill, pigging, testing, disinfection and all fittings, measured in lineal feet of pipe installed. Payment will be at the contract unit price. A partial payment of 85 percent will be allowed for pipe installed but not yet tested and disinfected.
451E3903	3" Air Release Valve Assembly shall be measured in units each installed including the air valve vault assembly with lid, ring, cover, steps, and insulation; service saddle, ball valve, combination air valve, valve and air vent piping, fittings, and bracing; adjacent mainline couplings and joint restraints with cathodic protection; excavation, gravel and concrete footings; backfill and compaction; enclosure; and appurtenances required for complete installation. Payment will be at the contract unit price.
451E3904	4" Air Release Valve Assembly shall be measured in units each installed including the air valve vault assembly with lid, ring, cover, steps, and insulation; service saddle, ball valve, combination air valve, valve and air vent piping, fittings, and bracing; adjacent mainline couplings and joint restraints with cathodic protection; excavation, gravel and concrete footings; backfill and compaction; enclosure; and appurtenances required for complete installation. Payment will be at the contract unit price.
451E4585	Fire Hydrant with Auxiliary Valve and Box shall be measured in units each installed and shall include the tee, gate valve and box, piping, hydrant, adjacent mainline joint restraints, cathodic protection, thrust blocking, drain gravel, building paper, enclosure, and other items required for a complete installation. Payment will be at the contract unit price.
451E4918	Imported Trench Backfill shall be measured in cubic yards of loose (not compacted) material furnished, placed, compacted and graded, for the depth directed by the Engineer or Owner. Payment will be at the contract unit price.
451E5100	Bore and Jack 1.5" Pipe shall be measured lineal feet of pipe installed for 1.5" carrier pipe and shall include boring and receiving pits, dewatering, skids/casing chocks if required, casing pipe, HDPE carrier pipe, and cathodic protection if required. Payment will be at the contract unit price.
451E5116	Bore and Jack 16" Pipe shall be measured lineal feet of pipe installed for 16" carrier pipe and shall include boring and receiving pits, dewatering,

skids/casing chocks if required, casing pipe, HDPE carrier pipe, and cathodic protection if required. Payment will be at the contract unit price.

451E5120 Bore and Jack 20" Pipe shall be measured lineal feet of pipe installed for 20" carrier pipe and shall include boring and receiving pits, dewatering, skids/casing chocks if required, casing pipe, HDPE carrier pipe, and cathodic protection if required. Payment will be at the contract unit price.

451E6100 Reconnect Water Service shall include connection of new water service piping to existing water service piping measured in units each connected and shall include excavation, cutting and removal of existing pipe, capping of the abandoned existing service pipe, new coupling and fittings as required, cathodic protection, bedding, backfill, compaction, and other items necessary or incidental to making the connection. Payment will be at the contract unit price.

451E6105 Connect to Existing Water Main shall include connection of new water main piping to existing water main piping measured in units each connected and shall include excavation, cutting and removal of existing pipe, capping of the abandoned existing pipe, new coupling and fittings as required, cathodic protection, bedding, backfill, compaction, and other items necessary or incidental to making the connection. Payment will be at the contract unit price.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION 01150

PART 1 GENERAL

1.01 WORK INCLUDED

A. The work of this section covers all excavation, backfill, and embankment associated with the construction of combination air valve pit assemblies and any other structures included in this project.

1.02 CLASSIFICATION OF EXCAVATED MATERIAL

A. Unclassified Excavation: Materials except those which fall within the classification of rock excavation encountered during the construction of the work regardless of their nature or the manner in which they are removed, will be considered unclassified excavation.

B. Rock Excavation: Rock excavation shall include hard, solid rock in ledges, bedded deposits, unstratified masses and conglomerate deposits so firmly cemented as to present the characteristics of solid rock which must be removed by drilling and/or blasting. Shale, regardless of the nature of deposit, will not be considered rock excavation unless so designated in the Contract Documents. The responsibility and costs of satisfactorily demonstrating to the Owner that the materials being considered for rock excavation cannot be removed by means other than drilling and/or blasting shall be the obligation of the Contractor.

1.03 QUALITY ASSURANCE

A. The Contractor shall perform earthwork operations in compliance with these specifications and within the applicable requirements of governing authorities having jurisdiction.

B. Over-excavation made by the Contractor in earth or rock beyond the specified line and grade shall be corrected, at the expense of the Contractor, by filling with excavated soil and compacted to 95 percent of maximum density at optimum moisture as determined by AASHTO Method T99. Any other costs incurred by the Owner, or the Engineer as a result of the over-excavation, such as professional engineering or construction inspection services or additional materials, shall be the responsibility of the Contractor. If the over-excavation is directed by the Owner or Engineer, the excavation will be paid to the lines and grades specified by the Owner or Engineer.

C. Under-compacted soil placed by the Contractor shall, at the expense of the Contractor, be corrected by additional compaction effort or excavation, replacement, and compaction. Any costs incurred by the Owner or the Engineer as a result of the under-compaction, such as additional professional engineering services, materials testing or construction inspection services, shall be the responsibility of the Contractor.

D. Field density testing will be the responsibility of the Contractor and will be at the expense of the Contractor.

E. BRACING AND SHORING: Safe temporary cut slopes are the responsibility of the Contractor who shall meet all appropriate O.S.H.A. regulations including but not limited to; "Constructions Standards for Excavations" (29 CFR Part 1926.650-.652) Subpart P, effective March 5, 1990.

PART 2 PRODUCTS

2.01 EQUIPMENT

A. The Contractor may use any type of earthmoving and compacting equipment he may choose; except only hand compaction equipment will be utilized within 5 feet of structure walls and provided the equipment is in satisfactory condition and of such capacity as to fulfill the requirements of this section.

2.02 MATERIAL

A. Suitability: Backfill material shall be free of detrimental quantities of organic material, such as vegetation, roots, or peat. Rocks larger than 3-inches in average dimension shall not be used in backfill and structural embankment.

B. Gravel Backfill: Where required by the Owner or Engineer, gravel fill shall be clean (less than 10 percent passing the 200 sieve) crushed rock or gravel graded from 1/2-inch to No. 4 sieve. Sand fill will not be permitted. Fill shall be free from dirt, clay balls, and organic material and shall be well graded from coarse to fine, containing sufficient finer material for proper compaction.

C. Riprap: Hard and durable quarry stone with less than 35 percent wear when tested for resistance to abrasion in conformance to ASTM C 535. Bulk density shall not be less than 160 pounds per dry cubic foot. The least dimension of any one piece shall not be less than 1/3 the greatest dimension. A minimum of 50 percent of the volume shall be in pieces ranging in size from 1/2 cubic foot to 2 cubic feet. Smaller pieces will be allowed only to fill in the voids in the larger stone.

PART 3 EXECUTION

3.01 EXCAVATION

A. General: Excavation shall be performed to the lines, grades and elevations shown on the Drawings, Details, or in specific Work Delivery Orders. The Owner reserves the right to make minor adjustments or revisions in lines or grades. Perform all excavation regardless of the type, nature, or condition of the material encountered. The method of excavation used is optional; however, no equipment shall be operated within 5 feet of existing structures or newly completed construction. Excavation that cannot be accomplished without endangering the present or new structures shall be done with hand tools.

B. Limits of Excavation: Excavation shall extend a sufficient distance from walls and footings to allow for placing and removal and inspection of forms, except where the Contractor is authorized to place concrete directly against excavated surfaces. Undercutting will not be permitted. Where suitable bearing is not encountered at the

detailed elevation, the Owner or Engineer may direct that additional depth as required by excavated. Such authorized over-excavation shall be compensated for on a supplemental agreement or work order basis, if not specifically provided for in the Bid Proposal. Unauthorized over-excavation by the Contractor shall be corrected by the Contractor using approved materials as specified herein before at no cost to the Owner.

C. Protection of Excavation: All necessary bailing, drainage, and sheeting shall be included as part of the excavation. Excavations over four feet in depth, unless in well compacted, stable material, shall be shored, sheeted and braced as may be necessary for the protection of the work and the safety of the personnel, or sloped to the angle of repose of the material when saturated per OSHA standards.

D. Dewatering of Excavation: Adjacent areas shall be graded so that surface drainage is away from excavations. Any water accumulating within the excavation shall be promptly removed. No pumping will be allowed during the placing of concrete and for 24 hours thereafter, unless it is done from a suitable sump separated from the concrete work by a water tight wall.

E. Approval of Excavation By Owner: Prior to placing of concrete for footings, walls, or slabs the compacted excavation shall be inspected and approved by the Owner.

3.02 BACKFILLING

A. General: Backfilling shall be performed where indicated to the grades and elevations shown on the Drawings, Details, or in specific Work Delivery Orders. No backfilling shall be commenced without approval of the Owner.

B. Compaction: Backfill material shall be placed in continuous horizontal layers not to exceed 6-inches in thickness. Each layer shall be compacted to 95 percent of maximum density at optimum moisture as determined by AASHTO Method T99. Where backfill is placed on both sides of a wall or column, both sides shall be backfilled in such a manner so that the difference in compacted grade does not exceed 18 inches at any time.

C. Watering: Water may be added only to bring the backfill material to optimum moisture content. Jetting or ponding of the backfill material will not be permitted.

3.03 CLEANUP

A. All excess material not required for backfill, unsuitable material, waste sheeting or forming, and debris shall be removed from the site and disposed of in approved areas as directed by the Owner or Engineer. The area shall be graded to required elevations and all rocks and boulders bladed into a furrow and removed for disposal. Topsoil stripped during clearing and stockpiled shall be spread in such a manner as to restore the area surface to its original condition.

END OF SECTION 02220

DIVISION 2 – SITEWORK

PART 1 GENERAL

1.01 WORK INCLUDED

A. This section covers excavation, trenching and backfilling for pipelines and appurtenances complete. This item shall consist of all necessary handling and storage of materials to be used for fill and backfill; all necessary bracing, shoring, and protection; pumping and dewatering as necessary; all backfill; preparation of subgrades; and final grading, dressing and cleanup of the site.

PART 2 PRODUCTS

2.01 GENERAL

A. Provide all labor, materials, and equipment necessary to accomplish the work specified in this section.

2.02 CLASSIFICATION OF EXCAVATED MATERIAL

A. Unclassified Excavation: Materials except those which fall within the classification of rock excavation encountered during the construction of the work regardless of their nature or the manner in which they are removed, will be considered unclassified excavation.

B. Rock Excavation: Rock excavation shall include hard, solid rock in ledges, bedded deposits, unstratified masses and conglomerate deposits so firmly cemented as to present the characteristics of solid rock which must be removed by drilling and/or blasting. Shale, regardless of the nature of deposit, will not be considered rock excavation unless so designated in the Contract Documents. The responsibility and costs of satisfactorily demonstrating to the Engineer that the materials being considered for rock excavation cannot be removed by means other than drilling and/or blasting shall be the obligation of the Contractor.

C. Suitable material from the onsite excavations may be processed to meet the requirements for trench backfill above pipe bedding.

2.03 PIPE BEDDING MATERIAL

A. Imported Type 1 pipe bedding is generally not required for pipe unless specifically directed by the Engineer or where existing conditions consist of hard clay, shale, stones, rock or large gravel, and suitable excavated material is not available. No additional payment will be made for Type 1 bedding.

B. Type 1 Pipe Bedding: Type 1 pipe bedding shall consist of the bedding material under the pipe and the bedding material around and over the pipe to a point 6 inches above the top of the pipe. It is recognized, in many soil conditions, that the excavation process with a chain trencher or a wheel trencher naturally deposits a layer of fine material in the trench bottom. This material may serve as bedding under the pipe if approved by the Owner and it is not comprised of the aforementioned

hard clay, shale, stones, or rock. The same type and condition of spoil material is also subject to approval for bedding over the pipe. If the excavated material is not suitable or made suitable, imported bedding material shall be used. This bedding material shall generally be described as consisting of sand, sandy gravel, or fine gravel having a maximum size of 3/4 inch and having a maximum plasticity index of 6 as determined by AASHTO Methods T89 and T90.

C. Type 2 Pipe Bedding: Type 2 pipe bedding shall be used as directed by the Engineer to replace soft, spongy or other unsuitable material encountered in the trench bottom, and shall extend from the bottom of the Type 1 bedding material to the depth necessary to support the pipe. The Type 2 bedding material shall consist of suitable granular material meeting the following gradation, with a maximum plasticity index of 6.

Sieve Opening	% Passing
3 inch	100
Number 4	0 - 25
Number 8	0 - 10

2.04 PIPELINE WARNING TAPE

A. Material: Non-detectable, inert polyethylene plastics impervious to known alkalis, acids, chemical reagents, and solvents likely to be encountered in soil.

B. Thickness: Minimum 4 mils.

C. Width: 6 inches wide for pipe installations 3-inch through 10-inch, 12-inches for pipe installations 12-inch and larger.

D. Color: In accordance with APWA Uniform Color Code for Temporary Marking of Underground Utility Locations.

E. Identifying Lettering: Minimum 1-inch high, permanent black lettering imprinted continuously over entire length. Tape shall read “CAUTION: WATER LINE BURIED BELOW”.

F. Manufacturer and Model:

1. Reef Industries, Terra Tape.

2. Allen Markline.

2.05 TRACER WIRE

A. Provide in accordance with Section 13901, CORROSION PROTECTION PLASTIC PIPE.

2.06 TRENCH BACKFILL MATERIAL ABOVE PIPE BEDDING

A. Backfill material from the top of pipe bedding to 1.5 feet above the top of the pipe shall be materials from the excavation containing no particles greater than 3-inches in diameter and free from roots, debris, organic material, cinders, ashes, frozen material, boulders and other unsuitable materials. Trench backfill from 1.5 feet above the top of the pipe to 6 inches below the ground surface may contain stones up to 8 inches in diameter.

B. Imported Backfill Material: Imported backfill material shall be from borrow source(s) outside the project limits. Imported backfill material shall be used when, in the opinion of the Engineer or Owner, an adequate volume of suitable backfill material is not available within the project limits. This will generally be in improved areas such as driveways, residential yards, and parking areas. Imported Backfill Materials must comply with the requirements of Section 2.05 A., Trench Backfill Material Above Pipe Bedding. Imported Backfill Material will be used where directed by the Engineer or Owner. Separate payment will be made for this imported backfill.

2.07 WATER FOR COMPACTION

A. Furnish as required.

2.08 COMPACTION EQUIPMENT

A. Compaction equipment shall be of suitable type and adequate to obtain the densities specified, and shall provide satisfactory breakdown of materials to form a dense fill.

PART 3 EXECUTION

3.01 TRENCH EXCAVATION:

A. General:

1. All excavation, trenching and shoring, and the like, under this Contract shall be performed in a manner that meets with the OSHA Department of Labor, Safety and Health Regulations for Construction.

2. The Contractor shall excavate as necessary at the locations shown on the Drawings, staked in the field or otherwise specified for the installation of pipelines.

3. The Contractor shall take precautions and protect all adjoining private and public property and facilities, including underground and overhead utilities, structures, and fences. Any disturbed or damaged facilities will be suitably restored or replaced at no cost to the Owner.

4. Stream crossings shall be by open cut excavation unless noted otherwise. It shall be the Contractor's responsibility to develop the means and methods for the stream crossing as well as trench shoring and dewatering.

5. During excavation, materials suitable for backfilling shall be piled in an orderly manner a sufficient distance from the banks of the trench to avoid overloading and to prevent slides or cave-ins. Excavated material shall be piled on one side of the trench only. Surface drainage of adjoining areas shall be unobstructed.

6. All excavated materials not required or suitable for backfill shall be removed and wasted at a site selected and secured by the Contractor at his expense. The disposal site shall be subject to the Owner's approval.

7. Grading shall be done as may be necessary to prevent surface water from flowing into excavations, and any other water accumulating therein shall be promptly removed. Under no circumstances shall water be permitted to rise in unbackfilled trenches until after the pipe has been placed, tested and covered with backfill. Any pipe having its alignment or grade changed as a result of a flooded trench shall be relaid at no additional cost to the Owner.

8. The bottom of the trenches shall be accurately graded to provide required bury depth. Bedding material shall provide uniform bearing and support for each section of the pipe at every point along its entire length. Unauthorized over excavation shall be backfilled with bedding material at the Contractor's expense.

9. Stream crossings, where constructed by open cut excavation, shall be constructed perpendicular to the axis of the stream channel. Stream crossings shall be selected at sites where the channel is relatively stable and not side-cutting. These sites generally occur at inflection points between meanders and along straight channel segments with vegetated banks. The Contractor shall be required to restore the original contours of the streambed and streambank. It shall be the Contractor’s responsibility to develop the means and methods for the river crossing as well as trench shoring and dewatering. Instream flows shall be maintained during construction of stream crossings. Type 2 bedding shall be required along all crossings, below Type 1 bedding.

B. Excavation: The sides of all trenches shall be benched, shored, and/or supported in accordance with OSHA Construction Standards for Excavation, Part 1926, Subpart P.

C. Trench Dimensions: Trench dimensions shall be as specified below:

1. The width of the trench shall be such to provide adequate working room to install and join the pipe in the specified manner where workers must enter the trench. Where workers do not enter the trench, the width of that portion of the trench from the bottom of the trench to a maximum of 5 feet above the bottom of the shall be as follows:

   a. A minimum of 4 inches for ¾ and 1-inch pipe.

b. A minimum of 6 inches plus outside diameter for 1½ -inch to 3-inch pipe.

c. A minimum of 8 inches plus the outside diameter for 4-inch to 12-inch pipe or greater minimum width as specified by the pipe manufacturer.

d. A maximum of 2 feet plus the outside diameter of the pipe.

2. Trench depth shall be as required for 6 feet of cover in most areas, at least 6.5 feet of cover at road crossings, or as shown on the Drawings, plus the additional depth for Type 1 Pipe Bedding. Care shall be taken not to excavate below the required depth. If ledge rock, boulders or large stones are encountered at the bottom of the trench, excavating shall be carried a minimum of 6-inches below the bottom of the pipe for backfilling with Type 1 Pipe Bedding. When soft or unstable material is encountered at the subgrade which will not uniformly support the pipe, such material shall be excavated to an additional depth as directed by the Engineer and backfilled with Type 2 Pipe Bedding.

D. Equipment: The use of trench digging machinery will be permitted except in places where its operation will cause damage to existing structures or features, in which case hand methods shall be employed. Any equipment operating on tracks, which is to be used on pavement, shall be equipped with suitable pads to prevent damage to the pavement. All pavement damaged during construction by the Contractor's equipment shall be restored to its original condition by the Contractor. No compensation will be allowed for pavement replacement.

E. Dewatering: Where ground water is encountered in excavation, it shall be removed to prevent unstable trench conditions, laying of pipe in water, water entering the installed pipe, or any other interference with pipe laying and other construction operations. The cost of dewatering operations will not be paid for as a separate item, but shall be considered a part of the excavation cost.

3.02 TRENCH BACKFILL

A. General: All trenches shall be backfilled immediately after grade, alignment and jointing of the pipe has been inspected and approved by the Owner or Engineer. Leakage tests and pressure tests shall be performed after backfill. If any test fails, the Contractor shall be responsible for work required to correct the defects at no additional cost to the Owner.

B. Pipe Bedding Material:

1. Bedding material under and around the pipe to 6 inches above the top of the pipe shall be placed by hand or other careful manner so as not to damage or disturb pipe. Depth of bedding material under the pipe shall be no less than three (3) inches for pipe 6 inch and larger and no less than two (2) inches for

pipe smaller than 6 inch. Backfill material shall be placed in the trench for its full width on each side simultaneously.

2. Water settling will not be allowed. The addition of water shall be limited to that required for optimum moisture for maximum compaction of the material.

C. Trench Backfill Above Pipe Bedding:

1. Unimproved and Cultivated Areas: No special compaction will be required in unimproved and cultivated areas. Backfill material shall be placed in the trench and mounded neatly over the trench. Compaction shall be by wheel rolling a minimum of three passes with a rubber tired tractor over the full width of the trench. Backfilling shall be completed by grading a neatly ridged mound over the centerline of the trench. The mounds shall be measured from the original ground surface and be a minimum of 8 inches in height. Where backfill material is not available, the required material shall be obtained from a borrow area arranged for by the Contractor. No topsoil shall be stripped from the adjacent area of the trench. Any settlement of the trench surface below original surface grade during the warranty period shall be remedied by the Contractor at no additional cost to the Owner.

2. In areas where the trench runs along a slope of 3H:1V or steeper for 50 feet or more, or where directed by the Owner, a runoff diversion berm will be required. A runoff diversion berm shall intersect the trench diagonally and extend 3 feet beyond both sides of the trench excavation. The berm shall also be a minimum of 8 inches in height as measured from the original ground surface. One diversion berm will be required for every 50 feet of excavation on sloped surfaces at no additional cost to the Owner.

3. Improved Areas: Backfill material in improved areas such as roads, driveways, utility crossings, and where directed shall be carefully deposited in layers not to exceed 8-inches. Material shall be wetted to within 3 percent of optimum moisture content and compacted to at least 95 percent of maximum dry density as determined by AASHTO T99, or for material which does not exhibit a typical well defined moisture-density curve, 70 percent relative density as determined by ASTM D4253 and D4254. Backfilling shall be completed by replacing gravel surfacing or other site specific surface restoration. Any settlement of the trench surface below original surface grade during the warranty period shall be remedied by the Contractor at no additional cost to the Owner.

4. Compaction by flooding will not be permitted. Wherever the trenches have not been properly filled, or if settlement below final grade occurs, they shall be reopened to the depth required for proper compaction, refilled and recompacted.

5. Trench excavation in improved areas where the native trench material consists of peat, soft clay, quicksand, or other material which, in the opinion of the Engineer, is unsuitable for use as backfill material or which cannot

readily be conditioned or dried to be made suitable; such material shall be removed and disposed of by the Contractor. The material thus removed shall be replaced with suitable surplus material obtained from trench excavation materials from other areas within fives miles and within the limits of the project at no additional cost. If suitable surplus material is not available within five miles and within the limits of the project, or when directed by the Engineer or Owner, the Contractor shall furnish suitable material from an approved borrow source as defined in Section 2.05 A., Trench Backfill Material Above Pipe Bedding. Separate payment will be made for this imported backfill.

D. Backfilling For Appurtenances: Backfill around appurtenances shall be deposited in such a manner as not to disturb the appurtenance from its proper alignment, and then compacted to the finished grade. Material shall be wetted to within 3 percent of optimum moisture content and compacted to at least 95 percent of maximum dry density as determined by AASHTO T99, or for material which does not exhibit a typical well defined moisture-density curve, 70 percent relative density as determined by ASTM D4253 and D4254.

E. Backfill Above Original Ground For Minimum Cover Requirements: Where shown on the Drawings, the Contractor shall provide embankment over the pipe, above the original ground surface, to a height which will satisfy the minimum depth of cover requirements. Such embankment shall be constructed to the cross section shown on the Drawings.

F. Testing: Field density tests of the compacted backfill shall be performed at all levels. The Contractor shall be responsible for all laboratory and field density testing. No additional payment will be made for testing.

G. Pipeline Warning Tape

1. No pipeline warning tape is required for 1½ - and 2-inch buried pipe installations.

2. Pipeline warning tape shall be provided for all buried 3-inch and larger pipe installations for this project. Bury tape over pipe between 18 and 36 inches below the original ground surface.

H. Tracer Wire

1. Tracer wire shall be provided for all buried 3-inch and larger pipe installations for this project.

3.03 EROSION AND SEDIMENT CONTROL MEASURES AND WORKS

A. The erosion and sediment control work and measures shall include but not be limited to the following.

1. Soil shall be slightly rounded over trenches to compensate for settling.

2. Provide sediment barriers along slopes greater than 5% grade and before stream crossings in accordance with Section 01560 Articles 3.01.I and 3.03, and all federal, state, and local requirements.

B. Control of Earthwork Activities:

1. The excavation and moving of soil materials shall be scheduled so that the smallest possible areas will be unprotected from erosion for the shortest time practical.

2. Excavated materials or other construction materials shall not be stockpiled or deposited near or on stream banks, lake shorelines, or other watercourse perimeters where they can be washed away by high water or storm runoff or can in any way encroach upon the actual watercourse itself.

3.04 STORM WATER DISCHARGE PERMIT

A. State law and federal law requires an appropriate storm water discharge permit be obtained prior to the start of construction on any project that will result in one or more acres of surface disturbance. The Contractor shall meet all requirements for storm water discharges from construction activities as administered by the Oglala Sioux Tribe/U.S. Environmental Protection Agency (USEPA) on the Pine Ridge Reservation and by the State of South Dakota for off-Reservation work.

The Contractor shall submit a Notice of Intent (NOI) (EPA Form 3510-9 Rev. 6/03) for the on-Reservation portion and a Notice of Intent (Notice of Intent – Construction General Permit, Revised August 15, 2023) and associated Certification of Applicant for off-Reservation work. Construction involving surface disturbance may begin upon authorization from the permitting authority, either EPA or State of South Dakota as applicable regarding the location of the work.

Notice of Intent forms are available at:

EPA:
https://www3.epa.gov/npdes/pubs/cgp_appendixe.pdf

State of South Dakota:
https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/stormwater/StormWaterConstruction.aspx (Construction General Permit 2023 link)

Note that the Owner, State of South Dakota, will prepare the State of South Dakota NOI form. The Contractor is responsible for preparing the Contractor Authorization form located at the website above.

The Contractor shall also submit a Notice of Termination (NOT) (EPA Form 3510-7 Rev. 09/2008) for the on-Reservation portion and a Notice of Termination (Notice of Termination Construction General Permit, Revised August 15, 2023) and associated Certification of Applicant for off-Reservation work. Construction involving surface

disturbance may begin upon authorization from the permitting authority, either EPA or State of South Dakota as applicable regarding the location of the work.

Notice of Termination forms are available at:

EPA:
https://www.epa.gov/npdes/notice-termination-not-form-3510-7

State of South Dakota:
https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/stormwater/StormWaterConstruction.aspx (*Construction General Permit* 2023 link)

B. The Contractor shall also be responsible for developing a written site-specific Storm Water Pollution Prevention Plan (SWPPP) for both on-Reservation work and off-Reservation work. The SWPPP must:

1. Be in writing.
2. Be followed during construction of this project.
3. Be modified as may be necessary depending on changing site conditions.
4. Be maintained at the project site at all times.
5. Be available for review upon request by the regulatory authorities.

A copy of the SWPPP shall be submitted to the Owner prior to the start of construction.

A template for the EPA SWPPP can be download from the following address:

- https://www.epa.gov/system/files/documents/2022-01/swppp-template.docx

Instruction for preparing the SWPPP for the State of South Dakota are available at:

- https://dot.sd.gov/doing-business/environmental/stormwater#listItemLink_1458

3.05 CONTRACTOR'S SAFETY RESPONSIBILITIES

A. Whether utilizing Type 1 or Type 2 Trench Excavation, the Contractor shall be responsible for enforcing safety and maintaining safe working conditions in all trenching and shoring operations to conform to OSHA regulations and any applicable local requirements.

B. The Contractor shall employ qualified, properly trained personnel to design shoring, perform safety inspections of the trenches, and other operations involving safety procedures, as prescribed by OSHA.

3.06 TRAFFIC CONTROL AND WARNING DEVICES

A. The Contractor shall construct the project in such a manner as to minimize the interruption of the use of roads, highways or streets involved and shall provide access for emergency vehicles at all times. School bus routes shall remain open as required so as not to delay buses.

B. The Contractor is responsible for providing traffic control devices in adequate numbers and locations to alert the public, motorists and pedestrians of hazardous conditions. The Manual on Uniform Traffic Control Devises (MUTCD) shall be followed for use of traffic control.

3.07 PROTECTION OF EXISTING PROPERTIES

A. Prior to beginning construction, the Contractor must contact all utility companies and/or public utilities having underground installations that may be encountered during the excavation. The Contractor must locate any underground installations and shall preserve intact any underground pipes or other utilities encountered during construction (except as hereinafter permitted) provided their location is such that they do not interfere with new pipelines or structures being installed. In case such utilities or other structures are accidentally broken, they shall be immediately replaced in the condition conforming to the standard repair practice of the utility, all at the Contractor's expense.

B. Maintenance of Flows: Adequate provisions shall be made for maintaining the flow of drains and water courses encountered during construction. Culverts, ditches, fences, and structures which are disturbed by this construction shall be satisfactorily restored to their original condition upon completion of the work.

C. Structures: The Contractor shall exercise every precaution to prevent damage to existing buildings or structures in the vicinity of his work. In the event of such damages, he shall repair them to the satisfaction of the owner of the damaged structure and at no cost to the Owner or the structure owner.

D. Overhead Utilities: The Contractor shall use extreme caution to avoid a conflict, contact, or damage to overhead utilities, such as power lines, telephone lines, television lines, poles, or other appurtenances during the course of construction of this project.

3.08 CLEANUP

A. As work progresses, that portion of the work completed shall be cleared of debris and brought to the finished grade. Upon completion of the work, the entire site shall be cleared of all debris and ground surfaces shall be finished to smooth, uniform slopes and shall present a neat and workmanlike appearance. All rocks brought to the ground surface by excavation or backfilling operations shall be removed.

END OF SECTION 02221

PART 1 GENERAL

1.01 WORK INCLUDED

A. This item of work shall consist of furnishing all labor, materials, and equipment necessary to do all work and related items as shown on Drawings, herein specified, or incidental to proper execution of the work to complete the boring and jacking at the required locations.

B. Areas requiring boring and jacking for water main and service line installation include:

1. Paved roadway crossings.

2. Graveled roadway crossings where specifically noted.

1.02 SUBMITTALS

A. The Contractor shall submit for approval manufacturers' information on the type of casing pipe and skid units he proposes to use as well as a plan of construction methods proposed.

PART 2 PRODUCTS

2.01 CASING PIPE

A. Casing pipe shall be either steel or high density polyethylene (HDPE) as specified herein. Casing pipe diameters shall be properly sized to allow installation of the carrier pipe with minimum nominal diameters as listed below:

Carrier Pipe	Steel Casing Pipe Nominal Diameter	HDPE Casing Pipe Nominal Diameter
1½-inch (PVC)	6 inches	6 inches
16-inch (PVC)	24 inches	30 inches
20-inch (PVC)	30 inches	36 inches

B. Steel Pipe. Steel casing pipe shall be smooth steel pipe, ASTM A570 Grade B, having a minimum yield strength of 35,000 PSI with a minimum wall thickness of 0.25-inches. Ends shall be beveled for field butt welding, and joints shall be welded around the entire circumference and ground smooth.

C. HDPE Pipe. High density polyethylene casing pipe shall be IPS size and have a minimum pressure rating of 100 PSI, maximum of SDR 17. Joints shall be fusion welded.

2.02 PIPE SKIDS

A. Pipe skids shall be installed on all carrier pipes. Pipe skids shall be of sufficient depth to prevent the bell end of the pipe from coming in contact with the casing pipe. Skid depth shall exceed the outermost edge of the pipe bell by a minimum of 3/4-

inch. Pipe skids shall be either wood skids or composite stainless steel/ polyethylene casing chocks as specified herein.

B. Wood Skids. Redwood timber skids shall be required where wooden skids are used. Pipe 3-inch and smaller in size require two skids. Pipe 4-inch to 12-inch in size require four skids and pipe larger than 12-inch require six skids. Skids shall be evenly spaced and shall run the full length of the pipe except at pipe joints. Ends shall be notched for securing with stainless steel straps. Wooden skid materials shall not be treated with creosote in order to prevent damage to PVC pipe.

C. Casing Chocks. Metal components of casing chocks shall be Type 304 (18-8) stainless steel. The liner shall be neoprene rubber or PVC, and the runners shall be UHMW polyethylene with a low friction factor. Casing chocks shall be designed for center restraint and maintain a minimum clearance of 1.0 inch between the casing ID and the carrier pipe bell OD. Casing chocks shall be CCI Pipeline Systems Model C558, Power Seal Model 4810, APS (Advance Products and Systems), or equal.

2.03 END SEALS

A. End seals on casing pipes shall be 1/8-inch synthetic rubber, CCI pipeline Systems, Pipeline Seal and Insulator (PSI) or equal.

PART 3 EXECUTION

3.01 GENERAL INSTALLATION PROCEDURES

A. Casing Pipe: Casing pipe shall be so constructed as to prevent leakage from the casing throughout its entire length. Casing pipe shall be installed to prevent the formation of a waterway along its length. Casing shall have an even bearing on the surrounding soil throughout and shall have a slight slope to one end.

B. Install the casing by jacking it through the earth, while excavating by boring or mining methods, to the lines and grades shown on the drawings, or as staked by the Engineer. No open excavation will be permitted where jacking or boring is specified and shown on the plans.

C. Provide adequate equipment so as to insure a smooth, continuous and uniform operation leaving no exterior voids along the casing pipe.

D. As pipe is jacked forward, excavate and remove soil through the pipe. Do not allow excavation to precede jacking operation.

E. If voids occur, provide grout holes and fill with pressure grout before installing the carrier pipe.

F. After each section of casing pipe has been jacked to the limits, the following section shall be connected to the preceding by a full penetration butt weld or in the case of HDPE by a full circumference butt fusion weld around the entire circumference of the joint.

G. The Contractor may elect to provide a casing pipe larger than that shown on the plans to facilitate his excavation. However, the thickness of the casing actually used must meet the approval of the Engineer. No additional payment shall be made for any increase in the size of the casing pipe.

3.02 HIGHWAY ROAD CROSSINGS

A. General Guidelines: In addition to the requirements specified herein, the Contractor shall conform to the following provisions for boring and jacking and pipe installation on highway road right of ways.

1. Roadway Crossings: The top of the casing pipe shall be installed at sufficient depth to provide a minimum of 6.5 feet of cover in roadways. A minimum of 6.0 feet of pipe cover is required in adjacent areas. The boring and jacking operation shall be perpendicular to the roadway. No portion of the excavated pit shall be closer than a point 15 feet measured horizontally outside the shoulder line or the toe of the inslope whichever is greater. Traffic signage shall be erected in accordance with the respective highway authority. Crossing permits will be obtained by the Owner.

2. Protection to the free and safe flow of the highway traffic shall be required in accordance with the "Manual on Uniform Traffic Control Devices", current edition. During construction, a flag person will be on site for safety and to assist in traffic control whenever men and equipment are working closer than 45 feet to the roadway centerline and if directed by the Engineer.

3. Vehicles and other work equipment used to install or maintain said facilities within the highway right of way shall use established access points, service roads, driveways and approaches to enter and leave the right of way for the performance of necessary work. Vehicles and work equipment shall not be parked on the through-traffic lanes or shoulders of the highway during construction or maintenance of said facilities.

4. Trenches and pits opened within the highway right of way shall be of a minimum width necessary to accommodate installation of said facilities. Any open trench or pit left unattended shall be properly marked and barricaded.

5. Trenches and pits opened within the highway right of way shall be backfilled, compacted to a density equal to that of the adjacent undisturbed soil and restored to the original profile. The backfill, for all work on the inslope or closer than 45 feet to centerline, shall be tamped and tested for 95 percent compaction in accordance with American Association of State Highway and Transportation Officials (AASHTO) test procedure T99, latest edition. Consolidation of the backfill by saturation or ponding water is not permissible.

6. The top of manholes, valve boxes, or service boxes installed within the highway right of way shall be flush with the existing ground line of the ditch section, highway or surface of the street or approach.

7. Waste or unused excavated material shall not be placed on the road, shoulder, or inslope of the highway where it could interfere with traffic. Unused excavated material will be graded to match existing slopes on the rights of way or removed. In areas where bench cuts are made, the original profile shall be restored.

8. All areas disturbed by construction of facilities shall be restored to the original profile and reseeded with a blend of natural grasses as soon as practicable following the grading. Mulch and fertilizer shall be applied uniformly to insure proper growth in all areas disturbed by construction.

9. Jacking and boring pits shall be located twice the depth of the waterline measured perpendicular from the roadway shoulder. No hydraulic excavation will be permitted.

10. No uncased pipeline or portion of the pipeline shall be closer than the toe of inslope or 45 feet whichever is greater, measured perpendicular to the road centerline.

11. The Contractor shall be responsible for all coordination with the appropriate highway agency.

12. The Contractor shall be responsible for all cost related to damage of the right-of-way or road due to construction of the facilities. Method of repairs shall be settled with the appropriate highway agency representative.

3.03 PIPE SKIDS

A. Wood Skids. Wood skids shall be evenly spaced around the pipe perimeter. Skids shall be secured with 2-3/4 inch stainless steel straps at each end. Skids shall be sized to fit snugly against the casing pipe interior. If not sized for a snug fit, the annulus between the casing and carrier pipes shall be hydraulically or pneumatically filled with sand after the carrier pipe has been installed.

B. Casing Chocks. Casing chocks shall be installed in accordance with the manufacturer's recommendations. Chock spacing shall also be in accordance with the manufacturer's recommendations. Filling of the annulus is not required if casing chocks are installed.

3.04 END SEALS

A. Install end seals on each end of the casing pipe per manufacturer’s recommendations.

END OF SECTION 02225

PART 1 GENERAL

1.01 WORK INCLUDED

A. This item of work shall consist of furnishing all labor, materials, and equipment necessary to do all work and related items as shown on Drawings, herein specified, or incidental to proper execution of the work to complete the directional drilling at the required locations.

B. Areas requiring directional drilling for water main and service line installation include:

1. Paved roadway crossings as an option to boring and jacking, where Engineer approved.

2. Graveled roadway crossings where specifically noted as an option to boring and jacking, where Engineer approved.

3. Stream crossings as an option to open cut excavation, where Engineer approved or where specifically noted.

1.02 SUBMITTALS

A. The Contractor shall submit manufacturers' information on the casing pipe, if required, and carrier pipe he proposes to use. Included in this information shall be the maximum bending radius allowable as recommended by the manufacturer. Manufacturer's literature on pipe couplings shall also be submitted.

B. The Contractor shall submit shop drawings showing the proposed alignment of the pipeline to be installed by directional drilling methods. Included in these shop drawings shall be a plan view showing the site location, pipeline alignment, work area for drill rig, and work area for pipeline string; and a profile of the alignment showing key elevations, entry and exit locations, and the maximum radius of curvature at the entry/exit and crossing of the carrier pipe.

PART 2 PRODUCTS

2.01 CARRIER PIPE AND FITTINGS

A. Carrier Pipe. Carrier pipe installed with directional drilling shall be high density polyethylene pipe as specified in Section 15060, PIPE AND PIPE FITTINGS.

B. Couplings. Couplings to connect PVC and polyethylene pipe shall be mechanical joint couplings a minimum of 12 inches in length, except for 2-inch pipe for which couplings shall be a minimum of 8-inches in length.

2.02 CASING PIPE

A. Casing pipes are only required on road crossings unless otherwise noted. Casing pipe shall be high density polyethylene (HDPE) as specified herein. Casing pipe diameters shall be properly sized to allow installation of the carrier pipe with minimal inside diameters as listed below:

CARRIER PIPE		HDPE CASING PIPE	
DIAMETER	SDR	DIAMETER	SDR
1½-inch	11/9/7	6-inch	17
16-inch	11/9/7	30-inch	17
20-inch	11/9/7	36-inch	17

B. HDPE Pipe. High density polyethylene casing pipe shall be manufactured from high density, very high molecular weight (VHMW) pipe resin designated by PPI as PE4710. Casing pipe shall have a minimum pressure rating of 125 PSI and a minimum SDR of 17. Joints shall be fusion welded.

C. End Seals. End seals on casing pipes shall be 1/8-inch synthetic rubber, Pipeline Seal and Insulator (PSI) or equivalent.

PART 3 EXECUTION

3.01 GENERAL INSTALLATION PROCEDURES

A. Casing Pipe: Casing pipes are only required on road crossings unless otherwise noted. Casing pipe shall be so constructed as to prevent leakage from the casing throughout its entire length. Casing pipe shall be installed to prevent the formation of a waterway along its length. Casing shall have an even bearing on the surrounding soil throughout. Each end of the casing pipe shall be sealed with an end seal to prevent entrance of backfill material.

B. Roadway Crossings: The top of the casing pipe shall be installed at sufficient depth to provide a minimum of 6.5 feet of cover in roadways. A minimum of 6.0 feet of pipe cover is required in adjacent areas. The directional drilling operation shall be perpendicular to the roadway. No portion of the drill rig shall be closer than a point 15 feet measured horizontally outside the shoulder line or the toe of the inslope whichever is greater. Traffic signage shall be erected in accordance with the respective highway authority. Crossing permits will be obtained by the Owner.

C. Stream and River Crossings: The top of the carrier pipe shall be installed at sufficient depth to provide a minimum of 6.0 feet of cover in stream and river beds. A minimum of 6.0 feet of pipe cover is required in adjacent areas. The directional drilling operation shall be perpendicular to the stream.

D. Specific details of the drilling operation shall be left to the discretion of the Contractor.

E. The location of the exit point of the drill bit shall be accurate within 2-percent of the length of the drill hole (i.e. if the length of the drill hole is 500 feet, the exit point of the drill bit shall be within 10 feet of the targeted exit location). In addition, accuracies of 2-percent of the total length of the drill hole are required along the drill hole alignment. The onsite inspector will review the acceptability of the pilot hole alignment and profile with the Contractor. If unacceptable, the Contractor will be instructed to correct alignment/profile.

F. Contractor shall utilize surface locators during the drilling operation to ensure that location and alignment of drill holes stay within specified tolerances. Surface locators shall be utilized on land, so the drilling assembly can be located as it passes under the stream bank.

G. Final diameter of reamed hole shall be no more than 4-inches larger than the outside diameter of the pipe to be installed. Drill mud shall be left in the hole to fill all voids around the pipe.

H. Several passes with the reamer may be required to enlarge the hole to final size. The type and size of reamer used, and the number of passes required shall be at the Contractors discretion.

I. The pipe pullback operation shall be carried out as soon as possible following the final preream.

J. Any excess drilling mud shall be disposed of by the Contractor at his own expense in a matter consistent with local environmental regulations.

3.02 HIGHWAY CROSSINGS

A. General Guidelines: In addition to the requirements specified herein, the Contractor shall conform to the following provisions for pipe installation on highway road right of ways.

1. Protection to the free and safe flow of the highway traffic shall be required in accordance with the "Manual on Uniform Traffic Control Devices", current edition. During construction, a flag person shall be on site for safety and to assist in traffic control whenever men and equipment are working closer than 45 feet to the roadway centerline and if directed by the Owner.

2. Vehicles and other work equipment used to install or maintain said facilities within the highway right of way shall use established access points, service roads, driveways and approaches to enter and leave the right of way for the performance of necessary work. Vehicles and work equipment shall not be parked on the through-traffic lanes or shoulders of the highway during construction or maintenance of said facilities.

3. Trenches and pits opened within the highway right of way shall be of a minimum width necessary to accommodate installation of said facilities.

Any open trench or pit left unattended shall be properly marked and barricaded.

4. Trenches and pits opened within the highway right of way shall be backfilled, compacted to a density equal to that of the adjacent undisturbed soil and restored to the original profile. The backfill, for all work on the inslope or closer than 45 feet to centerline, shall be tamped and tested for 95 percent compaction in accordance with American Association of State Highway and Transportation Officials (AASHTO) test procedure T99, latest edition. Consolidation of the backfill by saturation or ponding water is not permissible.

5. The top of manholes, valve boxes, or service boxes installed within the highway right of way shall be flush with the existing ground line of the ditch section, highway or surface of the street or approach.

6. Waste or unused excavated material shall not be placed on the road, shoulder, or inslope of the highway where it could interfere with traffic. Unused excavated material will be graded to match existing slopes on the rights of way or removed. In areas where bench cuts are made, the original profile shall be restored.

7. All areas disturbed by construction of facilities shall be restored to the original profile and reseeded with a blend of natural grasses as soon as practicable following the grading. Mulch and fertilizer shall be applied uniformly to insure proper growth in all areas disturbed by construction.

8. Where water lines cross under state or BIA roads, they shall be installed inside a casing pipe that is placed by jacking or boring or directional drilling. Jacking and boring pits or drill rig shall be located twice the depth of the waterline measured perpendicular from the roadway shoulder. No hydraulic excavation will be permitted.

9. No pipeline or portion of the pipeline shall be closer than 45 feet, measured perpendicular, to the road centerline.

10. The Contractor shall be responsible for all coordination with the appropriate highway agency.

11. The Contractor shall be responsible for all cost related to damage of the right-of-way or road due to construction of the facilities. Method of repairs shall be settled at the field level with the appropriate highway agency representative

END OF SECTION 02226

PART 1 GENERAL

1.01 WORK INCLUDED

A. This item of work shall consist of tree planting and final grading, spreading topsoil over, and seeding disturbed areas.

B. Areas requiring restoration and seeding are described as follows but not limited to:

1. Pipe trenches and excavations

2. Boring pits/excavations within Highway right-of-ways

3. Borrow and stockpile areas

4. Haul and access roads and staging areas developed by the Contractor.

1.02 SUBMITTALS

A. The Contractor shall submit a description of the fertilizer and the seed mix he plans to use and the methods he intends to use to do the finish grading, prepare the seed-bed, and apply the seed.

1.03 PAYMENT

A. Surface restoration is incidental to the water line work. Payment will be made through the applicable water line bid items.

PART 2 PRODUCTS

2.01 TOPSOIL

A. The topsoil shall be obtained from that stockpiled during the clearing and grubbing and excavation activities. The topsoil shall not contain gravel pieces larger than 3-inches.

2.02 SEED

A. The seed shall be a mixture of grass seed applied at the rate given below. Application rate is for drilling. Rates for broadcasting or hydro-seeding shall be twice the given rate. Seeding mixture shall be applied at the rates specified for Rangeland or Conservation Reserve Program (CRP) land, whichever is applicable.

RANGELAND	
Type of Seed	**Pounds/Acre**
Western Wheatgrass	4.0
Green Needlegrass	1.5
Big Blue Stem	1.0
Little Blue Stem	0.8
TOTAL	7.3 pounds/acre

CONSERVATION RESERVE PROGRAM	
Type of Seed	**Pounds/Acre**
Intermediate Wheatgrass	12.5
TOTAL	12.5 pounds/acre

B. Calculations of pure live seed may be made on the basis of either a germination test or a tetrazolium test in addition to the purity analysis. Seed shall be applied on a pure "live seed" basis. The quantity of pure "live seed" in a 100-pound container shall be determined by the formula:

100 x (% Germination x % Purity)

For example, if the seed is 85 percent pure and test 90 percent germination, then a 100-pound container would contain 76.5 pounds of pure "live seed".

C. All seed must be adapted to the central plains of South Dakota. Grass seed shall contain no prohibited noxious weed seeds as defined by the South Dakota State Department of Agriculture.

2.03 FERTILIZER

A. The following commercial fertilizer application rates shall apply:

Type of Fertilizer	Pounds/Acre
Nitrogen	40
Phosphate	40
TOTAL	80 pounds/acre

2.04 MULCH

A. Mulch shall consist of pliable grass hay having a minimum length of 8-inches. Chopped or ground material is not acceptable. Mulch material is not acceptable if it is musty, moldy, or rotted, or if it contains seed bearing stalks of noxious weeds or grasses. It shall be free of stones, dirt, or other foreign material.

PART 3 EXECUTION

3.01 FINISH GRADING

A. The Contractor shall finish grade all disturbed areas. The finish grading shall leave the graded areas relatively smooth and suitable for reseeding. The finish graded surface shall blend with adjacent contours.

3.02 PLACING TOPSOIL

A. Spreading shall not be done when the ground or topsoil is frozen, excessively wet, or otherwise in a condition detrimental to the work. Surfaces designated to be covered shall be lightly scarified just prior to the spreading operation. After placement is completed, the surface of the topsoil shall be finished to a reasonably smooth surface.

3.03 SEEDING

A. Applications: Previously grassed areas designated in the field or specified herein shall be seeded with grasses. All access roads developed by the Contractor shall be seeded and fertilized. Contractor staging areas shall also be reseeded but at no additional cost to the Owner. The seed shall be drilled by no-till, mechanical seeding equipment approved by the Engineer. Areas that are too steep to drill shall be broadcast seeded with a mechanical seeder or hydro-seeded.

B. Seed Cover: After broadcast application, the seed shall be covered with 1/2 to 3/4-inch of soil. The seed may be covered by dragging or by other appropriate mechanical means.

C. Seeding shall be done at times of the year when climatic conditions including temperature and soil moisture are conducive to growth. These periods occur in the spring of the year after the frost leaves the ground and until May 31st; and in the period of approximately September 1 through October 15. These periods vary depending on the climatic conditions and are subject to approval by the Engineer.

D. Maintenance: Any portion of the ground surface on which the expected stand of seed has not produced within the first year shall be restored to a satisfactory condition and reseeded with the same seed and procedures as originally specified.

3.04 FERTILIZER

A. The fertilizer shall be applied separately from the seed at the rates given herein.

B. If the fertilizer is spread dry, it shall be spread uniformly and worked into the soil immediately.

3.05 MULCHING

A. Mulch application rate shall be 4000 pounds per acre. Mulching shall not be done during adverse weather conditions or when wind prevents uniform application. Application shall be in a manner to not seriously disturb the seed bed. Mulch shall

not be applied in the presence of free water, but may be applied to damp ground. Mulch shall be crimped into the top three inches of soil material using a mulch tiller or other implement approved by the Owner or Engineer. Mulching is required only in those areas where the ground surface exceeds a 3:1 slope.

3.06 CLEANUP OF AREA

A. Upon completion of the work, the entire project site shall be cleared of all debris, and ground surfaces shall be finished to smooth, uniform slopes and shall present a neat, workmanlike appearance. Any existing utilities, structures, landscaping, grass areas, etc. which are damaged due to negligence of the Contractor shall be repaired or replaced at the Contractor's expense and as directed by the Owner or Engineer.

END OF SECTION 02575

PART 1 GENERAL

1.01 WORK INCLUDED

A. This section includes the work necessary to furnish and install, complete, fabricated metalwork and castings as shown or as required to secure various parts together and provide a complete installation.

1.02 GENERAL

A. Like items of materials provided hereunder shall be the end products of one manufacturer in order to achieve standardization for appearance, maintenance, and replacement.

1.03 STANDARDS

A. "Code for Welding in Building Construction," American Welding Society.

B. "Fastener Standards," Industrial Fastener Institute.

C. "Code and Specifications" of the American Institute of Steel Construction.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Preparation for Shipment:

1. Insofar as practical, factory assemble items specified herein.

2. Package and clearly tag parts and assemblies that are of necessity shipped unassembled, in a manner that will protect materials from damage, and facilitate identification and field assembly.

1.05 GENERAL FABRICATION

A. Fabrication shall be coordinated with connecting work.

B. The fabrication shall be done in units as large as practicable for finishing, handling and installation.

C. All welding shall conform to the requirements of the American Welding Society.

D. Connections:

1. Shop connections shall be welded after removing all scale, and ground smooth.

2. Field connections shall be bolted, unless otherwise specified or detailed.

3. Punch or drill holes shall not be cut with a torch.

4. Joints exposed to weather shall be formed so as not to trap water.

5. Butt joints shall use the mill square end and be smoothed.

6. Corners shall use a cope and weld technique.

PART 2 PRODUCTS

2.01 GENERAL

A. Like Items of Materials: End products of one manufacturer in order to achieve standardization for appearance, maintenance, and replacement.

B. Where applicable, the structure and appurtenant facilities have been designed around the first named manufacturer's equipment. Metalwork furnished by all qualified interested manufacturers will be considered, provided that necessary structural, electrical, and mechanical changes required are submitted in conformance with the requirements of CONDITIONS OF THE CONTRACT and Division 1, GENERAL REQUIREMENTS. The Contractor shall bear all costs for necessary changes for a complete and satisfactory installation.

C. Furnish miscellaneous items:

1. Miscellaneous metalwork and castings as shown, or as required to secure various parts together and provide a complete installation.

2. Items specified herein are not intended to be all inclusive. Provide metalwork and castings shown, specified, or which can reasonably be inferred as necessary to complete the project.

D. Unless otherwise indicated, materials shall meet the latest issue of ASTM Specifications as follows:

Item	ASTM Specification
Steel Shapes & Plates:	A36
Steel Pipe Columns:	A501 or A53, Type EDRS, Grade B
Structural Steel Tubing:	A500, Grade B
Stainless Steel:	
Bars & Shapes:	A276, Type 316
Steelplate, Sheet & Strip:	A167, Type 316
Bolts:	A193, Type 316, B8MN, B8M2 or B8M3
Nuts:	A194, Type 316, B8MN, B8M2 or B8M3
Aluminum, Structural Shapes and Plates:	Alloy 6061-T6, meeting referenced specifications and ASTM sections

	found in Aluminum Association Construction Manual Series
Connection Bolts for Steel Members; Use Compressible-Washer Type Direct Tension Indicators @ All Connections; Use Hardened Washers also Under Head and Nut:	A325-F, F959-85, F436 (Washers)
Anchor Bolts & Nuts:	
Carbon Steel:	A307 or A36
Stainless:	A193, Type 316
Galvanized Steel Bolts and Nuts:	A153, Zinc Coating for A307, or A36
Flat Washers (Unhardened)	F844, Use A153 for Zinc Coating
Threaded Bars:	A36
Connection Bolts for Wood Members:	
Dry Environment:	A307 Uncoated
Wet Use or Exterior Use:	A307 w/A153 Galvanizing
Connection Bolts for Aluminum:	A2024-T4; or use appropriate Stainless Steel
Cast Iron:	A48, Class 30

2.02 ANCHOR BOLTS

A. Anchor bolts for equipment and machinery, where permanently anchored into concrete (nonsubmerged use), shall be galvanized steel, unless otherwise shown. The diameter, length, and any bend dimensions shall be as required by the equipment or machinery manufacturer. Unless otherwise required, use 3/4-inch minimum diameter and other geometry shown on the Drawings. Furnish a minimum of two nuts and a washer of the same material for each bolt. Provide sleeves as required or as shown for location adjustment.

B. Anchor bolts for equipment, as hereinafter defined, machinery or other connections that are to be for submerged use shall be as specified for nonsubmerged use except that the bolts shall be Type 316 stainless steel.

C. Submerged use is defined as any connection to concrete from a point 1 foot 6-inches above the maximum water surface and any connections below that point.

D. Anchor bolts for other uses to anchor fabricated metal-work or structural building columns, or other components where the connections will be protected or dry, shall be galvanized steel. Minimum size shall be 3/4-inch diameter by 12-inches long, unless otherwise shown. Furnish two nuts and one washer per bolt of the same material as the bolt, unless otherwise shown.

E. Anchor bolts for other uses to anchor fabricated metalwork or structural building, or structural frame components in areas of wet use, washdown areas, or areas outside heated buildings, shall be galvanized steel. Minimum size shall be 3/4-inch diameter by 12-inches long, unless otherwise shown. Furnish two nuts and one washer per bolt of the same material as the bolt, unless otherwise shown.

2.03 STAINLESS STEEL FASTENERS LUBRICANT (ANTI-SEIZING)

A. Where stainless steel nuts and machined bolts, anchor bolts, concrete anchors, and all other threaded fasteners are used, Contractor shall apply an anti-seizing lubricant to the threads prior to making up the connections. The lubricant shall contain substantial amounts of molybdenum disulfide, graphite, mica, talic, or copper, as manufactured by Lot Tite Co., Permatex, or approved equal.

2.04 ANCHORING SYSTEMS FOR CONCRETE

A. Wedge Anchors:

1. Wedge anchors shall be 100 percent 316 stainless steel and shall not be used below a point of 1-foot 6-inches above the peak (maximum) water surface. See epoxy anchors or coated anchor bolts specified elsewhere in this Specification.

2. Wedge anchors shall be 316 stainless steel, manufactured by ITT Philips Drill Division, Michigan City, IN; Hilti Kwik-Bolt, stud type, manufactured by Hilti, Inc., Tulsa, OK; Parabolt Concrete Anchors, manufactured by Molly Division of Emhart Corp., Temple, PA; or equal. Furnish sizes shown on Drawings. Provide ICBO (International Conference of Building Officials) or other similar building code organization recommendations regarding safe allowable design loads.

B. Expansion Anchors:

1. Expansion anchors shall not be used except in dry areas where future corrosion is not a problem.

2. Self-drilling anchors, snap-off type or flush type. Provide anchors for use with hot-dipped galvanized bolts. Nondrilling anchors shall be flush type for use with a bolt or stud type with projecting threaded stud. Provide ICBO or other similar code organizations' recommendation regarding safe allowable design loads. ITT Phillips Drill Division, Michigan City, IN; Hilti HDI Drop-In anchors, Hilti, Inc., Tulsa, OK; or approved equal.

C. Epoxy Anchors:

1. Provide for anchoring metal components at or below a point 1-foot 6-inches above maximum water surface elevation or buried in earth conditions.

2. Anchor rod shall be 316 stainless steel threaded rod free of grease, oil, or other deleterious material with a 45-degree chisel point.

3. Epoxy Adhesive:

   a. Meet ASTM C881, Type 1, Grade 3, Class A, B, or C.

   b. Two-component, 100 percent solids, nonsag, paste, insensitive to moisture, designed to be used in adverse freeze/thaw environments and gray in color.

   c. Cure Temperature, Pot Life, and Workability: Compatible for intended use and environmental conditions.

4. Mixed Epoxy Adhesive:

   a. Nonsag paste consistency with ability to remain in a 1-inch diameter overhead drilled hole without runout, holding the following properties:

      i. Slant Shear Strength, ASTM C881/882, No Failure In Bond Line, Dry/Moist Conditions: 5,000 psi.

      ii. Compressive Strength, ASTM D695: 14,000 psi minimum.

      iii. Tensile Strength, ASTM D695: 4,500 psi.

      iv. Heat Deflection Temperature, ASTM D648: 135 degrees F, minimum.

5. Epoxy Adhesive Packaging:

   a. Disposable, self-contained cartridge system capable of dispensing both epoxy components in the proper mixing ratio, and fit into a manually or pneumatically operated caulking gun.

   b. Dispense components through a mixing nozzle that thoroughly mixes components and places epoxy at base of predrilled hole.

   c. Mixing Nozzles: Disposable, manufactured in several sizes to accommodate sizes of anchor rods.

6. Manufacturers:

   a. Adhesives Technology Corp., 21850 88th Place South, Kent, WA, 98031, Anchor-It Fastening Systems, HS 200 Epoxy Resin.

   b. ITW Ramset/Red Head, P.O. Box 90, Paris, KY 40361, Epcon Ceramic 6 Epoxy Anchor System.

   c. Or Equal.

2.05 MISCELLANEOUS STRUCTURAL STEEL SUPPORTS

A. Provide all structural steel supports of the sizes and weights shown. All connections shall be welded, unless otherwise shown.

2.06 BOLTS AND FASTENERS

A. Bolts and fasteners not permanently embedded in concrete, but located outdoors in areas subject to the weather; equipment rooms subject to drainage and leakage, and in galleries and trenches, shall be Type 316 stainless steel as hereinbefore specified.

B. Bolts and fasteners not permanently embedded in concrete, not used for structural steel or piping, but located indoors where leakage and drainage are not likely to occur may be ASTM A 307 or A 36 with ASTM A 153 Galvanized.

C. Bolts for flanges of piping, valves, and other similar connections shall be as specified in other sections or as shown on the Drawings.

2.07 PIPE SLEEVES

A. Provide hot-dip galvanized, Schedule 40 steel pipe sleeves where shown for piping passing through concrete or masonry. Holes drilled with a rotary drill may be provided in lieu of sleeves in existing walls.

B. Support pipe sleeves by formwork to prevent contact with reinforcing steel. Do not weld reinforcing to pipe sleeves.

2.08 ALUMINUM ITEMS

A. General: Aluminum 6063 alloy extruded bar, rod, shapes, type and wire shall conform to Federal Specification QQ-A-200. Aluminum 6061 alloy seamless drawn tubing shall conform to Federal Specification WW-T-700.

B. Anchor Bolts, Nuts and Washers: Aluminum anchor bolts, nuts and washers shall conform to the applicable requirements of Section 5 of the Aluminum Association Specifications for Aluminum Structures. Where aluminum anchor bolts are embedded into the concrete, use stainless steel bolts as specified hereinbefore.

2.09 MISCELLANEOUS FABRICATED METALS

A. The following additional items are listed as a guide. Some items on the list may not be required, and list may not be all-inclusive. Submittal data for materials and products must be approved before they are incorporated in the work.

1. Vents with screens.

2. Pipe Supports.

3. Pump Motor Platforms.

4. Steel Bases and Anchors.

2.10 SHOP PAINTING

A. Clean ferrous metal items not galvanized and apply shop coat of metal primer.

PART 3 EXECUTION

3.01 GENERAL

A. Workmanship and finish of all metalwork specified under this section shall be the highest grade and equal to the best practice of modern shops for the respective work. Exposed surfaces shall have smooth finish and sharp, well-defined lines. Provide all necessary rabbets, lugs, and brackets so that the work can be assembled in a neat, substantial manner. Conceal fastenings where practical. Drill metalwork and countersink holes as required for attaching hardware or other materials. Fabricate materials as specified. Weld connections, except where bolting is directed. Items requiring special fabrication methods are mentioned herein. Fabrication of all other items shall be of equal quality. Methods of fabrication not otherwise specified or shown shall be adequate for the stresses and as directed by the Engineer.

B. Grind all exposed edges of welds smooth. All sharp edges shall be rounded to a 1/8-inch minimum radius; all burrs, jagged edges, and surface defects shall be ground smooth.

C. Welds and adjacent areas shall be prepared such that there is (1) no undercutting or reverse ridges on the weld bead, (2) no weld spatter on or adjacent to the weld or any other area to be painted, and (3) no sharp peaks or ridges along the weld bead. All embedded pieces of electrode or wire shall be ground flush with the adjacent surface of the weld bead.

D. Aluminum: Fabricate aluminum as shown, and in accordance with the Aluminum Association Standards and the manufacturer's recommendations as approved. Grind smooth sheared edges exposed in the finished work.

3.02 WELDING

A. The technique of welding employed, appearance, quality of welds made, and the methods of correcting defective work shall conform to codes for Arc and Gas Welding in Building Construction of the AWS and AISC. Surfaces to be welded shall be free from loose scale, rust, grease, paint, and other foreign material, except that mill scale which will withstand vigorous wire brushing may remain. A light film of linseed oil may likewise be disregarded. No welding shall be done when the temperature of the base metal is lower than zero degrees F. Finished members shall be true to line and free from twists.

B. Aluminum: Aluminum shall be welded with Gas Metal Arc (MIG) or Gas Tungsten Arc (TIG) processes in accordance with the manufacturer's recommendations as approved, and in accordance with the recommendations of the American Welding Society contained in the Welding Handbook, as last revised. Grind smooth all exposed aluminum welds.

3.03 INSTALLATION OF FABRICATED METALWORK

A. Install in accordance with the shop drawings, the Drawings and these Specifications. Perform field welding and erection work by skilled mechanics. Install fabricated

metalwork plumb or level as applicable. The completed installations shall, in all cases, be rigid, substantial, and neat in appearance. Erect structural steel in accordance with the applicable portions of AISC Code of Standard Practice, except as modified. Install commercially manufactured products in accordance with manufacturer's recommendations as approved.

B. Aluminum: Erection of aluminum shall be in accordance with the Aluminum Association. Mill markings shall not be removed from concealed surfaces. Exposed surfaces not otherwise coated shall have the inked or painted identification marks removed after the material has been inspected and approved by the Engineer.

3.04 ANCHOR BOLTS

A. All anchor bolts shall be accurately located and held in place with templates at the time the concrete is poured.

3.05 CONCRETE ANCHORS

A. Installation shall not begin until the concrete or masonry receiving the anchors has attained its design strength. Anchor shall not be installed closer than six times its diameter to either an edge of the concrete or masonry, or to another anchor, unless specifically detailed otherwise on the Drawings. Install in strict conformance with manufacturers written instructions. Use manufacturer's recommended drills and equipment.

3.06 GALVANIZING AND REPAIR

A. Galvanizing of steel plates, shapes, bars (and products fabricated from these items), and strip 1/8-inch thick or thicker, shall conform to ASTM A 123. Pipe, welded or seamless steel, shall conform to ASTM A 120. Material thinner than 1/8-inch shall either be galvanized before fabrication in conformance with the requirements of ASTM A 525, Coating Designation G 210; or after fabrication, in conformance with the requirements of ASTM A 123, except that the weight of zinc coating shall average not less than 1.2 ounces per square foot of actual surface area with no individual specimen having a weight of less than 1.0 ounce. Unless otherwise provided, galvanizing shall be done before or after fabrication, for material which is thinner than 1/8-inch, at the option of the Contractor. Galvanizing will not be required for stainless steel, monel metal, and similar corrosion-resistant parts.

B. All welded areas shall be thoroughly cleaned prior to galvanizing to remove all slag or other material that would interfere with the adherence of the zinc. When it is necessary to straighten any sections after galvanizing, such work shall be performed without damage to the zinc coating.

C. Galvanizing of chain link fence fabric, when specified or shown on the Drawings, shall conform to ASTM A-392. In like manner, galvanizing of iron and steel hardware, and nuts and bolts, shall conform to ASTM A 153. Galvanizing shall be performed after fabrication. Galvanizing of tapped holes will not be required.

D. Fabrication shall include all operations such as shearing, cutting, punching, forming, drilling, milling, bending, welding, and riveting.

E. Components of bolted assemblies shall be galvanized separately before assembly.

F. The minimum pitch diameter of the threaded portion of all bolts, anchor bars, or studs shall conform to ANSI B1.1, having a Class 2A tolerance before galvanizing. After galvanizing, the pitch diameter of the nuts or other internally threaded parts may be tapped over ANSI B1.1, Class 2B tolerance, by the following maximum amounts:

3/8-inch through 9/16-inch	0.016-inch oversize
5/8-inch through 1-inch	0.023-inch oversize
1-1/8-inch and larger	0.033-inch oversize

G. All edges of tightly contacting surfaces, where galvanized is required, shall be completely sealed by welding before galvanizing.

H. Galvanized surfaces that are abraded or damaged at any time after the application of the zinc coating shall be repaired by solvent cleaning the damaged area (Steel Structures Painting Council SP 1) and hand or power tool (Steel Structures Painting Council SP 2 or SP 3) the damaged areas removing all loose and cracked coating; after which the cleaned areas shall be painted with one of the following coatings:

1. One coat of Inorganic Zinc Silicate (MPL-P-23236, Class 3).

2. Two coats of Galvanizing Repair Paint (MIL-P-21035).

3. Two coats of Zinc Dust Paint (MIL-E-15145, Formula 102).

I. Paint should be applied to a cleaned surface. Abrasive blasting is required for inorganic zinc silicate.

3.07 ELECTROLYTIC PROTECTION

A. Where aluminum is in contact with dissimilar metals, or to be embedded in masonry or concrete, protect surfaces in accordance with System No. 6 of Section 09900, PAINTING. Allow paint to dry before installation of the material. Protect painted surfaces during installation; should coating become marred, prepare and touch up surface per paint manufacturer's instructions.

3.08 PAINTING

A. Thoroughly clean all ferrous metal items not galvanized and give a shop coat of metal primer. Preparation of surfaces and application of primer shall be in accordance with the paint manufacturer's printed directions and recommendations as approved; utilizing the appropriate painting system.

END OF SECTION 05500

PART 1 GENERAL

1.01 WORK INCLUDED

A. Provide coatings and cathodic protect all buried, submerged, or immersed ferrous metal (steel, ductile iron, and cast iron) piping and fittings used in conjunction with plastic pipe sections.

B. Install tracer wire and tracer wire access boxes on all non-metallic pipe sections. Install test and tracer wires for test stations and tracer wire access boxes only during pipe construction at time pipe is being installed. Install test station or tracer wire access box type at location as shown on the Drawings and/or listed on Test Station Schedule. Install pipe marker signs next to test station or tracer wire box locations as specified.

C. Buried stainless steel appurtenances shall be cathodic protected. Connections to stainless steel components shall only be by silver solder or physically with a ring tongue terminal under a bolted location per Engineer's approval.

D. The select backfill used around metallic pipe, valves, fittings, appurtenances, etc. shall be non-angular with no sharp edges and shall be non-corrosive with no concentrations of chloride or sulfate salts. The select backfill shall have a minimum soil resistivity of 5,000 ohm-cm or greater, when tested in accordance with ASTM G57. This select backfill requirement shall also be for metallic fittings on non-metallic pipe.

E. Coat, then concrete encase buried metallic pipe sections next to or under pump stations, reservoirs, vaults, buildings, or tanks or as required to provide protection between dielectric coated pipe electrical insulator and building, pump station, tank, vault, or concrete pipeline connections as shown on Drawings.

1.02 COATING AND LINING OF MISCELLANEOUS METALLIC PIPE PIECES AND FITTINGS

A. Below Grade Fittings and Appurtenances Coating:

1. Where coating and lining specified for main pipeline is not feasible, coat and line all buried metallic (steel, ductile iron, and cast iron) valves, fittings, flexible couplings, incidental metallic piping, glands, blow-offs, and hydrants etc. internally and externally with liquid epoxy or fusion bonded epoxy coating in accordance with AWWA C116 or AWWA C550 and this specification. All internal coating and lining materials shall be NSF approved for potable water service.

2. Provide Series 300 stainless steel materials or coat all other miscellaneous buried metallic items, (tie rods, thrust restraints, tapping saddles, harnesses, etc.). Coat tie rods and rebar when directly exposed to soil. Provide with factory applied epoxy coating, fusion bonded epoxy coating, thermo-plastic coating, heat shrink sleeves, or with coating

recommended by coating manufacturer for buried application and approved by Engineer for intended exposure.

B. Coat above-grade piping, vent pipe, bollards, etc. exposed to atmospheric conditions with two coats of polyamide epoxy and one top coat of polyurethane enamel or with a fusion bonded epoxy coating system. Color as selected by Owner.

1.03 RELATED WORK

A. Section 02221: Trench Excavation and Backfill

B. Section 15060: Pipe and Pipe Fittings.

C. Section 15160: Valves

1.04 GENERAL

A. Like items of materials provided hereunder shall be the end product of one manufacturer in order to achieve standardization for appearance, maintenance, and replacement.

B. Materials and workmanship as specified in this section shall be coordinated and completed in conjunction with other applicable sections. Coordinate all work specified herein with other crafts and related sections.

C. The Contractor shall make a careful examination of the nature and location of the project, the Contact Documents, and the applicable permits and regulation requirements before submitting a bid. Bid submission shall act as conclusive evidence that the Contractor has investigated and is fully aware of the local conditions and difficulties to be encountered and of the character, quality, and quantities of the work to be performed.

1.05 REFERENCE STANDARDS

A. General: The latest revision of the following minimum standards shall apply to the materials and installation included in this specification, except where more stringent standards are applicable. In case of conflict, the most stringent requirements shall apply.

1. American National Standards Institute (ANSI):

a. C80.1-90, Rigid Steel Conduit-Zinc Coated.

b. ANSI/NSF Standard 61 Drinking Water System Components – Health Effects

2. American Society for Testing and Materials (ASTM):

a. ASTM -A380, Standard Practice for Cleaning, Descaling and Passivation of Stainless Steel Parts, Equipment and Systems

b. ASTM -A967 Standard Specification for Chemical Passivation Treatments for Stainless Steel Parts

c. ASTM B418, Standard Specification for Cast and Wrought Galvanic Zinc Anodes.

d. ASTM C94, Standard Specification for Ready-Mixed Concrete.

3. American Society of Mechanical Engineers (ASME):

a. ANSI/ASME B31.8, Gas Transmission and Distribution Piping Systems.

b. ANSI/ASME B31.4, Liquid Petroleum Transportation Piping Systems.

4. American Water Works Association (AWWA):

a. AWWA C116, Protective Fusion-Bonded Epoxy Coatings for the Interior and Exterior Surfaces of Ductile-Iron and Gray-Iron Fittings for Water Supply Service.

b. AWWA C210, Liquid Epoxy Coating System for the Interior and Exterior of Steel Water Pipelines.

c. AWWA C213, Fusion Bonded Epoxy Coating for the Interior and Exterior of Steel Water Pipelines.

d. AWWA C217, Cold-Applied Petrolatum Tape and Petroleum Wax Tape Coatings for the Exterior of Special Sections, Connections, and Fittings for Steel Water Pipelines.

e. AWWA C550, Protective Epoxy Interior Coatings for Valves and Hydrants.

5. American Wood Preservers Association (AWPA):

a. C2, Commodity Standards for Lumber and Timber

b. P5, Waterborne Preservatives

6. National Association of Corrosion Engineers International (NACE),

a. Recommended Practice SP0169, Control of External Corrosion on Underground or Submerged Metallic Piping Systems.

7. National Electrical Manufacturers Association (NEMA):

a. I-10, Type R and 4X Enclosures

b. TC 2-83, Electrical Plastic Tubing (EPT) and Conduit (EPC-40 and EPC-80).

c. WC 3-80, Rubber-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy (R 1986).

d. WC 5-73, Thermoplastic-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy (R 1985).

e. WC 7-88, Cross-Linked-Thermosetting-Polyethylene-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy.

8. National Fire Protection Association, National Electrical Code (NEC), NFPA 70.

9. Occupational Safety and Health Administration (OSHA)

10. Underwriters Laboratories (UL) ANSI/UL 467 “Grounding and Bonding Equipment”.

1.06 DEFINITIONS

A. Anode: The electrode or metallic surface location where DC current is discharged into a surrounding electrolyte and corrosion (oxidation with a loss of electrons) occurs in a corrosion cell. The opposite of a cathode.

B. Appurtenances or Fittings: Items including but not limited to valves, fittings, elbows, tees, glands, angles, bends, blow offs, restrained joints, flanges, couplings, spool pieces, miscellaneous piping, tapping saddles, blow-offs, or hydrants, including metallic glands, etc.

C. Cathode: The electrode or metallic surface location where DC current is received or collected from a surrounding electrolyte and protection (reduction with a gain of electrons) occurs in a corrosion cell. The opposite of an anode.

D. Cathodic Protection, (Cathodic Protect, Cathodically Protected, etc.): An electrical method of reducing or eliminating corrosion by making previous anodic areas on a structure surface, turn into a cathode by creating a DC current flow to the structure surface.

E. Cathodic Protection System: Two common cathodic protection methods are galvanic anodes and impressed current cathodic protection systems. A galvanic anode system consists of galvanic anode materials (usually magnesium or zinc) that naturally corrodes or sacrifices itself and does not require an outside power source. An impressed current type system utilizes an outside power source usually a rectifier (that converts AC to DC current) and forces (impresses) current

from a number of anodes (or groundbed) through the environment to the structure to be protected.

F. Electrically Continuous Wire: A wire that demonstrates the ability to conduct current and that has a linear resistance (ohms) equal to or less that printed literature values for the different wire gauges and wire types. Resistance of 1,000 feet of stranded copper wire at 77 degrees F for No. 12 AWG wire is 1.65 ohms and for No. 10 AWG wire is 1.04 ohms.

G. Electrical Isolation: The condition of being electrically isolated from other metallic structures (including, but not limited to, piping, reinforcement, casings, etc.) and the environment as defined in NACE PR0286, The Electrical Isolation of Cathodically Protected Pipelines.

H. Exothermic (Thermite) Welds: A metallurgical method of making electrical connections based on an exothermic reaction, which turns a mixture of copper oxide and aluminum into molten copper using specially designed graphite molds, steel or cast iron (ductile iron) charges, and wire sleeves.

I. Ferrous or Metallic Pipe: Any pipe of fitting made of steel or iron, or pipe containing steel or iron as a principal structural material (such as steel, ductile iron, and cast iron), except reinforced concrete pipe or stainless steel.

J. Fasteners: To include but not be limited to bolts, nuts, washers, tee-bolts, tie-rods, restraining devices, etc.

K. Foreign Owned: Any buried pipe or cable not specifically owned or operated by the Owner.

L. Functional and Performance Testing: Tests necessary to demonstrate that installed equipment and systems function as specified and operate in the manner intended. Functional testing is a prerequisite to performance testing for equipment and systems specified to have a performance test.

M. Joint Bonds: A method of making the pipeline electrically continuous by connecting insulated copper wire(s) or strap(s) across each side of the pipe joint or fitting.

N. Lead, Lead Wire, Joint Bonds, Pipe Connecting Wires, Cable: Insulated copper conductor; the same as wire.

O. Manufacturer's Representative: Employee of manufacturer who is factory trained and knowledgeable in technical aspects of their products and systems.

P. Petrolatum: A purified mixture of semisolid hydrocarbons obtained from petroleum jelly.

Q. Petroleum Wax: A refined mixture of solid hydrocarbons, paraffin in nature, obtained from petroleum. Provided as a refined paraffin wax or microcrystalline wax forms.

R. Pin Brazing: A metallurgical method of making electrical connections based on an electric-arc silver solder brazing method using a specially designed portable brazing unit and gun with a hollow brazing pin containing silver solder and flux.

S. Plastic Reference Pipe: Plastic conduit or pipe placed in soil next to structure to allow a portable reference electrode to be inserted into for structure-to-reference electrode potential measurements.

T. Potential, Structure-to-Reference Electrode Potential (also structure-to-reference electrode voltage): Common method to determine corrosion protection levels by measuring the difference in voltage (potential) between the subject metallic structure and the electrolyte in which it is buried or submerged, as measured to the standard specified reference electrode (usually a copper/copper sulfate reference electrode) placed in contact with the electrolyte.

U. Raceways: Conduit, sheath, plastic or metal pipe, or electrical metallic conduit (EMT) for casing of electrical or cathodic protection cables.

V. Test Station: Insulated lead wire connections to the structure, which are brought to a test station terminal board or box in order to allow an electrical connection to be made to the structure for location, and corrosion and cathodic protection testing.

W. Tight Bonded Coatings: A dielectric coating that is bonded or physically attached to the pipe surface. Ductile iron pipe bituminous asphaltic shop coating does not qualify as an approved factory or shop applied tight bonded coating.

1.07 SUBMITTALS DURING CONSTRUCTION

A. Provide catalog cuts and other information for all proposed products proposed for use that shows compliance of those materials with these Specifications. Contractor submittals shall be made in accordance with General Conditions of these Specifications. In addition the following specific information shall be provided.

B. Submittal information shall clearly show manufacturer name and model number of specified item to be provided, not just supplier name, if only supplier name is provided, then entire submittal shall be rejected and a new resubmittal will be required. Materials provided with only supplier’s name shall be relabeled with original manufacturer’s name, model number, etc., or be returned at Engineer’s discretion at no additional cost to Owner.

C. Submit required information on a system-by-system basis with items clearly marked for specific products or models to be used. Indiscriminate submittal of manufacturer's literature only is not acceptable.

D. Installation, material, and safety requirements for thermite weld wire connections.

E. Quality Assurance Submittals:

1. Manufacturer's Certificates of Compliance.

2. Field Test Reports.

3. Certificate of Compliance with independent laboratory analysis stating that galvanic anode and backfill material supplied meets the requirements of this Specification.

F. Certificate of Compliance with independent laboratory analysis stating that galvanic anode and backfill material supplied meets the requirements of this Specification.

G. Certificate of Compliance from fitting and appurtenance manufacturer and supplier verifying that bolting, fasteners, nuts, and washers were provided with stainless steel Series 300 materials as specified.

H. Submit as-built and field test report information to Engineer at end of project as one condition to be received and accepted by Engineer prior to application for substantial completion.

I. Contract Closeout Submittals: Special guarantees as specified hereinafter.

1. Submit record drawings and field test report information to Engineer at end of project as one condition to be received and accepted by Engineer prior to application for substantial completion.

2. The cathodic protection system and corrosion control monitoring systems including tracer wire and access tracer wire boxes, joint bonding, test stations, insulators, etc. shall be fully operational and a functional test performed prior to acceptance of and issuing substantial completion of the corrosion protection portions of the project.

1.08 QUALITY ASSURANCE

A. Contractor's Competency: Contractor shall have a minimum of two (2) years of practical experience in the type of work called for in this specification, and shall have knowledge about soil conditions in the local area. Contractor may be required to show proof and furnish a list of references substantiating this requirement to the satisfaction of the Engineer and Owner.

B. The Contractor shall provide at all times a thoroughly experienced and competent field foreman, who will be present to supervise this portion of construction at the site. This person shall be responsible for the field test reports and have the authority to represent the Contractor and shall be the point of contact with the Engineer for this section of the specifications.

C. Functional testing shall be completed by the Contractor only in the Engineer's representative's presence on the installed cathodic protection and corrosion protection items.

D. The final testing shall be completed by the Engineer's representative.

E. At Engineer's option, Engineer may randomly select one of each type of anode supplied, for Contractor to obtain independent laboratory analysis on.

1.09 OBSERVATION OF WORK

A. Provide access to the project site for Owner, Engineer, and manufacturer at all times during installation and to observe finished work.

B. The Contractor shall give the Engineer a minimum of twenty-one (21) days advance notice of the start of any work to allow scheduling for field observation of the construction.

C. All materials and installations shall be subject to observation for suitability as the Engineer may elect, prior to, during, or after incorporation into the work. Observation or testing by the Engineer or the waiver of observation or testing of any particular portion of the work shall not be construed to relieve the Contractor of his responsibility to correctly perform the work and testing required in accordance with these specifications and the product manufacturer's recommendations.

D. The Contractor is in charge of and solely responsible for all of the quality control and final inspections required. Observation of or spot testing by the Engineer or product manufacturer does not meet the quality control inspection requirement or relieve the Contractor from doing the quality control testing required by the product manufacturer, this specification, or the Contractor's quality control program.

E. The Engineer reserves the right to reject all work that does not meet the minimum requirement of this specification. This may be done either during or after completion of the work, during subsequent observations or testing, warranty inspection testing, or at anytime when discovered during the warranty period.

1.10 RECORD DRAWINGS

A. Contractor shall maintain an accurate record of the construction and a marked-up drawing of all construction modifications. Drawings shall show actual number of pipe or fitting joints per each test span, and installed location of corrosion control items as specified. At completion of project, the Contractor shall provide a copy of the record drawings of the corrosion control installations to the Engineer.

1.11 SPECIAL GUARANTEE

A. The Contractor, Corrosion Sub-Contractor, and Product Manufacturer shall jointly and severally warrant to the Owner and guarantee the work under this section against defective workmanship and materials for a period of one (1) year(s) or longer if required by the General Conditions commencing on the date of final acceptance of the work.

1. Functional and final testing and warranty inspection(s) of the corrosion protection systems shall be made at the end of the project and within the warranty period, respectively. The Contractor, Sub-Contractor, and/or Product Manufacturer Representatives at their option if desired may be present during the functional or final testing or warranty inspections by the Engineer and Owner.

2. Any construction defects identified by the Engineer during energizing and testing or during warranty inspections shall be located and corrected by the Contractor at his sole expense including all additional Engineering time, full time inspection, and re-testing time.

3. Any defects in the corrosion protection system discovered at or during the functional, final, and/or warranty inspection(s) shall immediately be repaired and retested in a timely manner (repairs starting within 30 days and completely completed, tested, and approved within 60 days of notice) by the Contractor. All repairs shall be in accordance with the written product manufacturer's instructions as reviewed and approved by the Engineer. Provide the Engineer with a minimum of 14 days' advance notice before beginning repairs.

4. For all repairs, the Contractor shall provide an extended warranty (equal to the original warranty period length) of one (1) year(s) or longer if required by the General Conditions commencing on the date of final acceptance of the repair work.

5. All repairs or any damage to other work caused by such defects or repairing of the defects including additional Engineering, full-time observation during repairs, and retesting or re-warranty inspections shall be at sole cost to Contractor.

PART 2 PRODUCTS

2.01 GENERAL

A. Unless otherwise indicated, provide all first-quality, new materials, free from defects, in first class condition suitable for the intended use. Provide materials and equipment, which are the standard products of manufacturers regularly engaged in the production of such materials and equipment for a minimum of three (3) years on a full time basis. Provide the manufacturer's latest standard design that conforms to these specifications.

B. All materials and equipment shall show evidence of U.L. approval where U.L. standards exist and product listings are available. All materials, equipment, and installations shall conform to National Electrical Code (NEC), and all applicable federal, state, and local laws, codes, and regulations.

C. Provide new materials intended for this type of service in accordance with this specification and the referenced standards. Whenever the requirements of the Specifications or Drawings exceed those of the codes or manufacturer's instructions, the requirements of the Specifications or Drawings shall prevail. Where a larger size, higher quality, or better grade of material or a higher standard of workmanship is required, the most stringent requirement shall apply.

D. The use of a manufacturer's name and model or catalog number is solely for the purpose of establishing the standard of quality and general configuration desired. Products of other manufacturers of equal standard and quality will be considered in accordance with the General Conditions.

2.02 MATERIAL SUPPLIERS

A. Suppliers listed below can usually supply the types of materials specified in this section. Alternate suppliers will be considered, subject to approval of the Engineer. Address given is that of offices in the Western United States; contact these offices for information regarding the location of their representative nearest the project site:

1. Farwest Corrosion Control, Denver, CO (888-532-7937).

2. Goudy Engineering, Tucson, AZ (520-298-1104)

3. Hoff Company, Denver CO (800-736-4546)

4. MESA Products, Inc., Tulsa, OK (918-627-3188).

5. Total Corrosion Services, TCS, Billings, MT (406-248-6985).

2.03 WIRES

A. General: All cathodic protection wires, joint bond wires, bonding cables, leads, and cables provided shall be insulated **STRANDED** copper wire. Wire size, type, and insulation type as specified in this section. Wire shall conform to applicable requirements of NEMA WC 3-80, WC 5-73, and WC 7-88.

B. Joint Bonds:

1. General: Type of joint bonds shall depend on pipe joint coating and shall be either:

a. Bare copper straps for pipe joint bond locations only where installed under pipe joint heat shrink sleeves.

b. Insulated copper joint bond wires or insulated copper bond straps for all other pipe joint bond locations.

c. Metallic Fitting Pig Tail Bond Wires: Provide No. 12 AWG metallic fitting bonding wires shall be single-conductor, stranded copper wire with 600-volt, TW, THWN, THHN or HMWPE insulation. Provide with a sleeve on each end of No. 12 AWG metallic fitting pig tail bonding wire used for bonding of metallic fittings including but not limited to fittings, valves, couplings, mega-lugs, metallic fitting glands or restraint rings, etc. for metallic and plastic pipe.

2. Insulated Joint Bond Wires: Provide joint bond wires consisting of single-conductor, stranded insulated copper wire. Supply all joint bonds complete with a formed copper sleeve on each end of the wire. Wire conductor for field-applied sleeves shall extend 1/4 inch beyond end of copper sleeve. End of factory formed copper sleeves shall be angled so as to allow end of wire to be exposed to thermite weld material.

a. Wires equal to or smaller than No. 10 AWG shall be provided with 600-volt, TW, THWN, THHN or HMWPE insulation.

b. All other joint bond wires larger than No. 10 AWG wire shall be provided with 600-volt high molecular weight polyethylene (HMWPE) insulation.

3. Bond Lengths: Length of bond strap and joint bond wire may have to be increased for different pipe size and joint type per pipe manufacturer's recommendations so as to provide sufficient slack (one (1)-inch minimum on each end or two (2)-inches total) for pipe or joint movement between each thermite weld connection. Larger couplings than for 36-inch OD pipe may require longer strap or wire bond lengths.

a. Generally the minimum bond length for different type of bond and joint and fitting types shall be as listed below.

b. For Pipe 16-inch or Larger Diameter:

i. For Push-on, Mechanical, or Flanged Joints: No. 2 AWG wires, 18-inches long minimum.

ii. For Flexible Coupling Joints: No. 2 AWG wires, 24-inches long minimum, with two 12-inch long minimum insulated No. 12 AWG wire pigtails. Smaller couplings than 24-inch OD pipe may allow shorter lengths. Larger couplings than for 36-inch OD pipe may require longer bond wire lengths. Confirm that bond wire length supplied provides a minimum of 1-inch slack on each end (2-inch total).

a) Bond wires with pig-tail wires can be utilized at not only flexible couplings, but at fitting or valve locations, where it is easier to bond over the fitting or valve with the larger bond wire. At these locations, the pig tail wires shall be bonded to the fitting or valve body.

b) For multiple piece fittings, No. 12 AWG pig tail wires shall be utilized to bond different pieces to pipe. Pig tail wire length as required.

iii. For Insulated Flexible Coupling Joints: No. 2 AWG insulated copper wire, 18-inch long minimum, with one 12-inch long minimum No. 12 AWG wire pigtail.

c. For pipe smaller than 15-inch diameter, Contractor can utilize No. 4 AWG wire size instead of No. 2 AWG wire size, if desired.

d. Acceptable pre-made insulated copper joint bond wires are available from:

i. J-Four Pipeline Products (Hoff Company), (800-331-3404), Broken Arrow, OK;

ii. Erico Products Inc. (Cadweld - 800-248-9356) Cleveland, OH;

iii. Continental Industries, Inc. (Thermoweld – 800-558-1373), Tulsa, OK;

iv. Or approved equal.

4. Cathodic Protection Bond Wires or Bonding Straps shall be continuous. Bolted, inline sleeve, or compression type connections are **NOT** acceptable.

C. Pump Station, Vaults, Test Station, and Cross Bond Pipe Connecting Wires:

1. Single-conductor, No 2 AWG, No. 4 AWG, No. 6 AWG, and No. 8 AWG cathodic protection cables shall be single-conductor, stranded copper wire with 600-volt high molecular weight polyethylene (HMWPE) insulation. Insulation shall be 7/64-inch (110 mils) minimum thickness in accordance with ASTM D 1248, Class C, Grade 5.

2. Bonding of buried and abovegrade appurtenances may be required to minimize stray current, safety hazardous, and corrosion effects.

D. Test Wires:

1. No. 12 AWG wire for prepackaged galvanic anode and No. 12 AWG test leads and No. 12 AWG and No. 14 AWG reference electrode lead wires shall be single-conductor, stranded copper wire with 600-volt, TW, THWN, THHN or HMWPE insulation.

2. No. 2, No. 4, No. 6, or No. 8 AWG leads shall be single-conductor, stranded copper wire with 600-volt, HMWPE insulation.

E. Wire Identification:

1. Wire insulation color shall indicate the function of each wire and shall be as shown on the Drawings and as follows:

a. Pipeline test wires:

i. Water Pipeline: Blue.

ii. Waste Water Pipelines: Green or Purple if Reuse

iii. Foreign Pipeline: White or as requested by Foreign pipeline company.

iv. Unprotected Pipe: Black.

b. Anode lead wires: Black.

c. Reference electrode wires: Yellow.

d. Tracer wires on plastic, concrete, or non-metallic pipe: Green with two strips of black tape.

2. Identify north (1 strip) or west (2 strips) structures or parallel pipelines of purple tape and south (1 strip) or east (2 strips) structures or parallel pipelines of gray tape.

2.04 EXOTHERMIC THERMITE WELD MATERIALS

A. Electrical connection of copper wire or copper strap to metallic (steel, ductile iron, and cast iron) fittings, pipe, and structures shall be by the thermite weld, (exothermic) method. The thermite weld materials shall be UL listed to ANSI/UL 467 “Grounding and Bonding Equipment”.

B. The thermite weld metal shall consist of a mixture of copper oxide and aluminum material ignited by magnesium starting powder with a spark or by an electronic type ignition. Thermite weld materials shall be designed for connection of copper to steel or ductile iron and cast iron surfaces. The materials and exothermic process shall provide a completed permanent type connection that will not loosen or develop high resistant connection points and have a resistance equal to or

lower than the strap or wire, be durable, be corrosion resistant, and have a high adhesion connection to both the surface and strap or wire.

C. Supply the proper size and type of wire sleeves, cartridges, and welder molds as required for each type of connection and pipe material in accordance with the thermite weld manufacturer's written recommendations. Material and equipment shall be from the same manufacturer and utilized throughout the entire project. Weld materials from different manufacturers shall not be interchanged.

D. The individual thermite weld metal charges shall be sealed in a moisture-resistant plastic container (tube or cartridge) with tight fitting caps with the separate steel disks or in a prepackaged sealed container. The starting (ignition) material shall be packed in the bottom of the tube with the weld material on top or for the electrical ignition type intermixed as required. The individual plastic containers shall be packed in sealed boxes so as to protect the individual containers and keep their contents dry. The size (weight in grams) and type of the charge shall be clearly marked on the plastic package and individual sealed containers.

E. Provide type of charges required for each pipe, fitting, or structure base material.

1. Provide steel charges for steel materials. Charge (cartridge) size shall be minimum of 15 grams and maximum of 25-grams for steel materials.

   a. Cadweld F-33 (Green Top) or Thermoweld P Standard Powder,

   b. Electronic ignition materials, Cadweld Plus CA15PLUS33 with black top or CA25PLUS33 with red top,

   c. Or approved equal.

2. Provide cast iron charges for all ductile iron and cast iron materials. Charge (cartridge) size shall be a minimum of 25 grams and maximum of 32-grams for ductile and cast iron materials.

   a. Cadweld XF-19 (Orange top) or Thermoweld CI Cast Iron Powder,

   b. Electronic ignition materials, Cadweld Plus CA25PLUSXF19 with red top or CA32PLUSXF19 with white top,

   c. Or approved equal.

3. Maximum cartridge size for natural gas and petroleum pipelines and structures shall be 15-grams.

4. Minimum cartridge size for strap bonds shall be 25 grams for ½-inch and 5/8-inch diameter hole sizes to steel and 32-grams for 5/8-inch diameter holes for ductile iron pipe per manufacturer recommendations.

F. Welder molds shall be graphite molds sized for each type and size of charge and pipe size and type to be used as recommended by the cadweld manufacturer. Each mold shall have permanent identification showing manufacturer name, mold part number, wire size, and weld metal type and size.

1. Ceramic "One-Shot" molds will not be acceptable.

2. Special welders and materials are required for copper strap, formed joint bond wires, and flexible coupling bonds.

3. Vertical type connections require special welders and materials as recommended by the weld manufacturer.

G. For horizontal type connections to smaller pipe sizes, different molds to match the different pipe curvature are required according to the manufacturer's recommendations. These molds for small pipe sizes shall be identified by each pipe size (PS).

1. For steel pipe or fittings, different molds are required for pipe up to 3-1/2-inch diameter. Different steel mold sizes are required for 4-inch and 6-inch to 8-inch pipe sizes. For steel pipe ten-inch (10") or larger, flat steel molds can be used or for other flat surfaces.

2. For ductile iron pipe or fittings, different size of molds are required for different pipe sizes (PS) up to 24-inch and they have to be obtained for each pipe size to be welded. The same welder for flat surfaces can be used for all ductile iron pipe or fitting sizes 30-inch or larger or flat structures.

H. Electronic Ignition - Cadweld Plus Exothermic or ThermOwelds EZ Lite Remote: - Connections with prepackaged containers with electronic type ignition can be substituted for standard cadweld spark type ignition connections provided that equal or better low resistance, durability, adhesion, and performance characteristics are proven. Electronic type ignition materials shall be able to be used in standard graphite molds for wire and strap type connections for each structure type and size. Electronic ignition material manufacturer shall provide independent test results that show performance characteristics are equal or better than standard type thermite connection. Manufacturer shall provide a reference table with corresponding molds and charge sizes and types. Spark type and electronic ignition type materials from different manufacturers shall not be intermixed.

I. Weld Mold Sealer shall be heavy duty, clay-like, mold sealer putty material, specially designed for that use such as Electrical Duct Seal as manufactured by Ideal Industries, Duct Seal Compound from Gardner Bender, Cadweld Mold Sealer as manufactured by Erico Products, Inc. or approved equal.

J. Cleaning Wheels shall be self-cleaning and leave no resin or residue on surface to be bonded to as recommended by the weld manufacturer. The use of resin,

rubber, or shellac-impregnated type grinding wheels are not recommended by the weld material manufacturers and shall not be used. Weld manufacturer approved vitrified type-grinding wheels, ERICO's organic cleaning wheels, or approved equal.

K. Mold cleaner shall be type and size recommended by weld manufacturer for each type of graphite weld mold being used.

L. Adapter Sleeves:

1. Install adapter sleeves (Cadweld CAB 1331H, Thermoweld A200, or approved equal) for all No. 12 AWG wires. Provide sleeve type as recommended by thermite weld manufacturer and attach in the field.

2. Install adapter sleeves for all No. 4 AWG and No. 2 AWG wires. Either premade factory sleeved wires or wires with sleeves made in the field with the appropriate sized sleeves and hammer die are acceptable.

a. Factory formed sleeves shall be beveled to allow molten thermite weld material to directly contact wire.

b. Field formed sleeves shall be attached with the appropriate sized and type of hammer die and method as recommended by the thermite weld manufacturer. Wire conductor for field installed adapter sleeves shall extend 1/4 inch beyond end of the sleeve to allow molten thermite weld material to directly contact wire.

M. Thermite weld materials are available as specified from:

1. Erico Products Inc. (Cadweld - 800-248-9353) Cleveland, OH;

2. Continental Industries, Inc. (Thermoweld – 800-558-1373), Tulsa, OK;

3. Or approved equal

N. Acceptable Materials:

1. Thermite weld materials for **STRANDED** copper wire test leads and joint bonds with factory and field formed sleeves and copper bond straps are given below for reference:

FORMED JOINT BOND OR SLEEVED WIRE THERMITE WELD MATERIALS HORIZONTAL TYPE CONNECTIONS				
STRANDED TEST LEAD OR BOND WIRE SIZE (AWG)	CADWELD		THERMOWELD	
	SLEEVE MODEL No.	HAMMER DIE MODEL No.	SLEEVE MODEL No.	HAMMER DIE MODEL No.
No. 12 AWG	CAB-1331H	Crimped	A-200	Crimped
No. 10 AWG	CAB-1331H	Crimped	A-201	38-6019-00
No. 4 AWG	CAS-20-F	CAD-11	A-204	38-4859-00
No. 2 AWG	CAS-09-F	CAD-09	A-203	38-0310-00

Welder Part Mold Number for Pipe Larger Than 10-Inches	CADWELD		THERMOWELD	
	MOLD >10-Inch Diameter Pipe Surface	MAX. SIZE CHARGE & TYPE	MOLD >10-Inch Diameter Pipe Surface	MAX. SIZE CHARGE & TYPE
INSULATED STRANDED COPPER WIRE:				
No.12 AWG w/sleeve to Steel	With Sleeve CAB 1331H Mold No. CAHAA-1G	15 gram F-33 with green caps	With Sleeve No. A-200, Mold No. 100	15 gram P
No.12 AWG w/sleeve to Ductile Iron and Cast Iron	With Sleeve CAB 1331H Mold No. CAHBA-1G-PS Above 30" pipe size use Mold CAHBA-1G	25 gram XF-19 with orange caps	With Sleeve No. A- 200, Mold No. 156 per each pipe size	25 gram CI
No. 4 AWG w/sleeve to Steel	With Sleeve CAS-20-F Mold No. CAFSA-1L	25 gram F-33 with green caps	With Sleeve No. A- 204 Mold No. 7345	25 gram P
No. 4 AWG w/sleeve to Ductile Iron and Cast Iron	With Sleeve CAS-20-F Mold No. CAFCA-1L-PS Above 30" pipe size use Mold CAHBA-1G	32 gram XF-19 with orange caps	With Sleeve No. A- 204 Mold No. 154	32 gram CI
No. 2 AWG w/sleeve to Steel	With Sleeve CAS-09-F Mold No. CAFSA-1V	25 gram F-33 with green caps	With Sleeve No. A- 203 Mold No. 129	25 gram P
No. 2 AWG w/sleeve to Ductile Iron and Cast Iron	With Sleeve CAS-09-F Mold No. CAFCA-1V-PS Above 30" pipe size use Mold CAHBA-1G	32 gram XF-19 with orange caps	With Sleeve No. A- 203 Mold No. 175	32 gram CI

P.S. = Note Pipe Size at end of Mold Number per each pipe size for steel up to 3 1/2" diameter pipe size and for ductile iron for 4" to 24" diameter pipe size for each mold.

Utilize Molds for sleeved wire per specifications.

Mold sizes for small diameter ductile iron and cast iron shall be adjusted based on actual pipe type and pipe diameter per manufacturer recommendations.

2.05 THERMITE WELD CAPS

A. Primerless Weld Caps: Thermite weld caps shall consist of a minimum 4-inch by 4-inch size prefabricated weld cap filled with elastomeric mastic coating and a layer of protective adhesive with an integrated primer.

1. Primerless thermite weld cap materials for No. 10 AWG and smaller wire connections shall be Handy Cap IP available from Chase Tapecoat/Royston Laboratories, thermOcap “PC” Primed Cap from ThermOweld, or approved equal.

2. Larger sized primerless thermite weld caps shall be utilized for No. 8 and larger wire and Pin Weld type connections such as the Handy Cap XL IP (extra large) available from Chase Tapecoat/Royston Laboratories, or approved equal.

B. One Hundred Percent (100%) Epoxy Repair Coating

1. Locations where thermite weld caps are not suitable for use due to physical constraints (i.e. too small of flat area for thermite weld cap) such as on sleeve-type coupling rings, mechanical joint follower gland rings, or bolted restraint joint rings, will require an 100-percent fast cure epoxy, polyurethane, or polyurea type pipe repair coatings. Field repair material shall be fast cure, high build, low temperature (cure down to 0° F.), moisture tolerant (cure underwater), one-hundred percent material that can be distributed in a two component repair cartridge tubes with a dispensing gun. Repair coating shall be compatible with original pipe or fitting coating and exhibit minimum 2,000 psi adhesion values. Acceptable field epoxy repair type coating is Denso North America Protal 7125 Repair Cartridge, or approved equal.

2.06 GALVANIC ANODES

A. Zinc Anode:

1. Zinc anodes for buried soil conditions shall meet the requirements of ASTM B 418, Type II, composition as follows:

ELEMENT	CONTENT
Aluminum (Al)	0.0050% maximum
Cadmium (Ca)	0.0030% maximum
Iron (Fe)	0.0014% maximum
Lead (Pb)	0.0030% maximum
Copper (Cu)	0.0020% maximum

Zinc (Zn)	Remainder

2. Prepackaged Zinc Anode Dimensions

   a. The anode size and weight may differ slightly because of variations in casting and mold shapes, but shall be the manufacturer's standard and should approximate the following:

BARE ANODE SIZE Shape	**5 POUND ANODE** ZUR-5	**18 POUND ANODE** ZUR-18
Bare Anode Nominal Dimensions	1.4 inches by 9 inches long minimum	1.4 inches by 36 inches long minimum
Nominal Package Dimensions	4.5 inch diameter by 12 inches long minimum	5 inch diameter by 42 inches long minimum
Packaged Weight	16 pounds minimum	70 pounds minimum

B. Prepackaged Galvanic Anode General Requirements:

1. Anode Wire: Supply each anode with No. 12 AWG **STRANDED** copper wire with TW, THWN, THHN or HMWPE TW, THWN, THHN or HMWPE insulation, 10 feet long minimum. Provide longer anode leads as required for test stations to extend splice free from anode to test station location. Lead wire shall be coiled and bound.

2. Wire-to-Anode Connection: The anode connection shall be stronger than the wire. The galvanic anode material shall be cast around a galvanized steel wire, strap, or pipe core. The anode connection to the steel core shall silver-soldered (45% silver) by the manufacturer's standard process and be stronger than the wire. Connection of lead wire to anode shall be electrically insulated with manufacturer's standard waterproof epoxy or electrical potting compound type insulation.

3. Prepackaged Anode Backfill: Backfill shall have a grain size so that 100 percent is capable of passing through a 20-mesh screen and 50-percent will be retained by a 100-mesh screen. The backfill mixture shall be thoroughly mixed and firmly packaged around the galvanic anode within the cloth bag or cardboard tube by means of adequate vibration. The complete packaged galvanic anode shall weigh a minimum of 2.0 times

the bare anode weight. The quantity of backfill shall be sufficient to cover all surfaces of the anode to a depth of 1-inch.

4. Packaging and Shipping: Bare anodes shall be centered in cotton bag filled with specified backfill. Provide anode packaged in and shipped and stored in waterproof plastic or heavy multi-walled paper bag of sufficient thickness to protect the anode, wire, backfill, and cloth bag.

5. Compliance Statement: Furnish an independent laboratory analysis certifying that all anode and backfill material supplied meets the requirements of this Specification and specified laboratory testing.

6. Field Verification: At Engineer's option, a galvanic anode may be selected at random for Contractor to provide an independent laboratory analysis on to demonstrate that both anode and backfill material supplied meets the requirements of this Specification.

7. Prepackaged Galvanic Anode Backfill Composition:

ELEMENT	CONTENT
Ground Hydrated Gypsum	75 Percent
Powdered Wyoming Bentonite	20 Percent
Anhydrous Sodium Sulfate	5 Percent

2.07 CATHODIC PROTECTION TEST STATIONS/JUNCTION BOXES

A. Post Mounted Test Stations:

1. Test stations shall be a molded polycarbonate or cast aluminum boxes and shall be the standard product of a recognized manufacturer. Minimum test station size shall be 4-inches by 8-inches by 2-inches deep for rectangular shaped test.

2. Test stations shall be provided with a minimum of seven (7) terminals mounted on a plastic- or glass-reinforced laminate terminal block. Terminal nuts and studs shall be 1/4-inch with double nuts for securing the studs to the terminal board. Terminal nuts, studs, flat and lock washers shall be Series 300 stainless steel, nickel- plated brass, or bronze.

3. Test station boxes shall be suitable for mounting on a minimum five foot (5') long threaded one and one quarter-inch (1 1/4") or larger rigid

galvanized steel conduit. Test stations shall be provided with all mounting hardware and conduit bushing necessary to provide a rigid support to specified type of support. Conduit straps or supports shall be installed at maximum 1 foot 6-inch (1’ 6”) spacing.

a. Wood Support: Provide necessary mounting hardware (galvanized two-hole conduit straps, wood screws or wood lag bolts, conduit bushing, etc.) for mounting of test station box and conduit to wood post or rectifier pole. Two-hole conduit straps and wood screws or wood lag bolts size and type as required to securely fasten test box and conduit to center of wood post or rectifier pole. Wood post test station support shall be a minimum 4-inch by 4-inch by 6-foot (4”x4”x6’) long pressure-treated wood post. Wood post shall be pressure treated with a waterborne preservative intended for fresh water or soil (burial) contact to a retention of 0.40 pounds per cubic foot (6.4 kilograms per cubic meter) in accordance with AWPA Standard C2 for Lumber and Timber and AWPA Standard P5 for Waterborne Preservatives.

4. Rectangular shaped test stations shall be provided with a removable lid and stainless steel lid-locking nut. Acceptable rectangular test stations are the Testox 700 Series (1 1/4-inch threaded) as manufactured by Gerome Manufacturing Company, Uniontown PA; or approved equal.

B. Flush Mounted Test Stations

1. Test Box: Traffic H-10 load rated concrete body cast with a cast iron ring, with a minimum weight of 55 pounds and minimum dimensions of 10-inch inside diameter and 12-inches long. Furnish with locking metallic ring extensions as required to penetrate concrete or pavement surfaces by 4-inches minimum. Furnish with a minimum 12-pound cast iron lid with the letters "TS" or words “CP Test”, "Test Station" or similar words cast into the lid.

2. Concrete Box Manufacturer and Products:

a. Minimum 10-inch by 12 inch size: Brooks Products Model 3RT Traffic Valve Box; Christy Concrete Products Model G3 Traffic Valve Box or approved equal.

3. Terminal Block: Plastic or glass-reinforced, 1/4-inch thick laminate terminal board with minimum dimensions of 3-inches by 4-inches. Furnish terminal block with a minimum of seven (7) terminals. Terminal nuts and studs shall be 1/4-inch with double nuts for securing the studs to the terminal board. Terminal nuts, studs, flat and lock washers shall be nickel- plated brass, bronze, or Series 300 stainless steel. Manufactured terminal boards such as CP Test NM-7 or approved equal are acceptable.

C. Shunts:

1. Shunts for test stations and junction boxes shall be:

a. Test Station shunts shall be 0.01-ohm, minimum 6 amp capacity: Holloway Type RS 0.01 ohm manganin wire shunt with 6 amp capacity or MCM Miller 0.01-ohm shunt, COTT or T and R (Yellow) 0.01-ohm shunt with 8 amp capacity, or approved equal.

b. As shown on Drawings.

2.08 MISCELLANEOUS REFERENCE MONITORING EQUIPMENT AND MATERIALS

A. Plastic Reference Monitoring Pipe: A three-inch (3") minimum diameter Schedule 40 PVC plastic pipe with a threaded pipe cap shall be provided at test stations as shown on the Drawings or called out in the test station schedule. Plastic reference monitoring pipe at flush test stations shall not require a threaded cap.

B. Prepackaged Copper/Copper Sulfate Reference Electrodes:

1. General: Permanent reference electrode for buried piping locations shall be a copper/copper sulfate reference electrode. Reference electrode dimensions shall be approximately 2-inches in diameter by 7-inches long. Reference electrode shall be suitable for permanent installation and designed for a 15-year minimum life expectancy with an accuracy of plus or minus 5-millivolts.

2. Electrode manufacturer shall warrant electrode for 15-year design life and provide both labor and material replacement, if electrode becomes unstable by more than 20 millivolts during design life.

3. Prepackaging and backfill: Electrodes shall be supplied prepackaged in a permeable cloth bag containing manufacturer's special low-resistivity backfill mixture formulated to retain moisture and maintain electrode stability. Outside dimensions of electrode package shall be approximately 6-inches in diameter by 14-inches long.

4. Lead wire: Supply electrode with a lead wire attached and electrically insulated with the manufacturer's standard connection. The connection shall be stronger than the wire. Lead wire shall be single conductor No. 14 AWG or larger stranded copper wire insulated as specified under WIRE, this section. Lead wire shall be of sufficient length (minimum 50') or longer as required to reach splice free from reference electrode to test station. Lead wire shall be coiled and bound.

5. Packaging: Package cloth bag with reference electrode in and shipped and stored in waterproof plastic or heavy paper bag of sufficient mil thickness to protect the electrode, wire, backfill, and cloth bag.

6. Acceptable $CU/CUSO_4$ reference electrodes are Farwest Corrosion FWCC Series SP-150; GMC STAPERM Model CU-1-UG; Electrochemical Devices, Inc. Model US CUG LongLife Reference Electrode or approved equal.

2.09 CONDUIT, LOCKNUTS, AND STRAPS

A. The minimum conduit size shall be 1-inch diameter unless otherwise indicated on Drawings or specified.

B. Use intermediate metal conduit, including couplings, elbows, nipples, and other fittings, hot-dipped galvanized and meeting the requirements of UL and the NEC. Do not use setscrew type couplings, elbows, and nipples unless approved by the Engineer.

C. Heavy wall rigid PVC conduit shall be Schedule 40, UL listed for concrete-encasement, underground direct burial, concealed and direct sunlight exposed use. Use conduits, couplings, elbows, nipples, and other fittings meeting the requirements of NEMA TC and TC 3, Federal Specification W-C-1094, UL, NEC, and ASTM specified tests for the intended use.

D. Flexible metal conduit shall be UL listed, liquid-tight flexible metal conduit consisting of galvanized steel flexible conduit covered with an extruded PVC jacket and terminated with nylon bushings or bushings with steel or malleable iron body and insulated throat and sealing O-ring.

E. Locknuts, two-hole straps, and other miscellaneous hardware shall be galvanized steel. Galvanized items shall be hot-dipped galvanized in accordance with ASTM A153. Galvanized hardware shall not be used underground or in immersion service.

F. Conduit bushings shall be threaded plastic or plastic-throated galvanized steel fittings.

2.10 WIRE CONNECTIONS AND SPLICE MATERIALS

A. Compression Connectors: Compression connectors for in-line, multi-splices, and tap splices shall be "C" taps made of conductive wrought copper, sized to fit the wires being spliced. Compression connectors shall be applied with the crimp tool and die recommended by the manufacturer for the wire and tap connector size. Acceptable Type "YC" wire compression connectors as manufactured by Burndy Co., or approved equal. Inline “butt” type wire splice connectors or wire nuts are **NOT** acceptable. Split bolts are **NOT** acceptable unless silver soldered after a physical connection is made and both the wires are equal to or smaller than No. 10 AWG size.

B. Silver Brazing Alloy: Brazing Alloy with minimum 15 percent silver content, 1185 to 1300 degrees F melting range. Provide suitable silver brazing alloy and flux

recommended by manufacturer for materials being connected (i.e. copper to stainless steel, copper to steel, and/or copper to copper, etc.).

C. Epoxy Splice Kits: Epoxy splice kit shall be type suitable for abovegrade and buried applications and rated for non-shielded cables up to 5 kV and multi-conductor cables through 1,000 volts. Splice kit shall consist of snap together plastic mold sized to fit around splice, funnels, tape for sealing ends of mold, and two-part epoxy resin in a single pouch for mixing. Epoxy resin shall be electrical insulating low viscosity type that will harden (cure) quickly with time. In-Line splice insulating kit for insulation repair shall be epoxy resin, 3M Company Scotchcast Series 82; Plymouth Bishop Plycast Splicing Kit 2638; or approved equal.

D. Electrical Splicing Tapes and Sealers: Tape for wire splice insulation shall be UL and CSA approved, cold and weather resistant, highly elastic, with a high dielectric strength and highly resistant to sun, water, oil, acids, alkalies, and corrosive chemicals. Tapes and electrical sealers shall be suitable for moist or wet environments and shall include the following:

1. Rubber High Voltage Electrical Tape: Linerless 30 mil rubber high voltage splicing tape suitable for splicing cables through 69kV, Scotch Professional Grade Linerless Rubber Splicing Tape 130C as manufactured by 3M Products; L969 Plyvolt Linerless EPR High Voltage Tape as manufactured by Plymouth Bishop; or approved equal.

2. High Voltage Vinyl Electrical Tape: All weather, minimum 7 mil thick, vinyl electrical tape suitable for cable splices up to 600 volts, Scotch Super 33+ Vinyl Electrical Tape as manufactured by 3M Products; Premium 111 Black Vinyl Plastic Electrical Tape as manufactured by Plymouth Bishop; or approved equal.

3. Filler Tapes: Low voltage rubber filler tapes or putties that can be wrapped, stretched or molded around irregular shapes for quick, smooth insulation build-up to insulate connections up to 600 volts for topcoating with vinyl electrical tapes, Scotchfill as manufactured by 3M Products; 125 Electrical Filler Tape as manufactured by Plymouth Bishop, or approved equal.

4. Electrical Coating Sealer: Electrical coating for sealing tape insulation on splices in severe conditions, suitable for direct burial, direct water immersion, and above grade applications, Scotchkote Electrical Coating as manufactured by 3M Company, or approved equal.

E. Terminal and Connection Coating and Electrical Sealers

1. Electrical Insulating Spray: Electrical insulating spray for sealing terminals to minimize external corrosion; Scotch 1601 Insulating Spray as

manufactured by 3M Company, Royston Protective Coating Product No. 614 from Royston Laboratories, or approved equal.

2. Oxidation Inhibiting Compound: - Oxidation inhibiting compound shall be non-water soluble, non-petroleum based and suitable for aluminum, copper, steel and rubber and polyethylene type insulating materials, Penetrox A-13 available from Burndy Products, Contax Inhibiting Compound Type CTB available from Thomas and Betts (T&B), or approved equal.

F. Wire Connector Terminals: A ring tongue terminal or single hole solderless lug (Lug-it) type connector shall be installed on the end of all stranded wire before connecting it to test station, terminal box, or junction box terminal studs.

1. Wire connector terminals shall be sized to fit wire and stud size and be suitable for use with copper conductors.

2. One-piece heavy duty, tin-plated copper crimp-on ring tongue terminal. Acceptable ring tongue wire connectors are manufactured by Anderson, Blackburn, Burndy Co., 3M, Panduit, Thomas and Betts (T and B), IDEAL, or approved equal.

3. Single hole seamless copper Lug-it type connector rated shall be UL listed for 600 volt service with off-set tongue suitable for wire size being terminated.

a. Acceptable No. 4 and No. 2 AWG wire single hole solderless lugs Burndy L125, Thomas and Betts BTCO208-B2, or approved equal)

b. As manufactured by Anderson, Blackburn, Burndy, Thomas and Betts (T and B), or approved equal.

4. Wire forked end type terminals are **NOT** acceptable.

5. Acceptable one hole non-insulated copper crimp wire lug terminals sizes for ¼-inch stud sizes are listed below or approved equal:

STRANDED COPPER WIRE RING TONGUE TERMINAL CONNECTORS					
Stranded Cable Size	Bolt or Stud Size	MANUFACTURER AND MODEL			
		Anderson	Blackburn	Burndy	T and B
No. 14 to 20 AWG	1/4"	-----	-----	YAV14 Box	Series 54100 Model C10-14
No. 10 or 12 AWG	1/4"	-----	-----	YAV10 Box	Series 54100 Model C10-14

STRANDED COPPER WIRE RING TONGUE TERMINAL CONNECTORS					
Stranded Cable Size	Bolt or Stud Size	MANUFACTURER AND MODEL			
		Anderson	Blackburn	Burndy	T and B
No. 8 AWG	1/4"	-----	CTL8-14	YA8C-L Box	54130
No. 6 AWG	1/4"	VHCS-6-14	CTL6-14	YA6C-L Box	54105
No. 4 AWG	1/4"	VHCS-4-14	CTL4-14	YA4C-L Box	54106
No. 2 AWG	1/4"	VHCS-2-14	CTL2-14	YA2C-L2 Box	54107

G. Electrical Connectors: Hardware used in electrical connections including bolts, studs, nuts, washers, and lock-washers shall be tin or nickel plated copper, brass, bronze, or 300 series stainless steel for electrical conductivity and atmospheric corrosion resistance.

2.11 PLASTIC CONDUIT SHEATHING

A. Plastic conduit for cathodic protection cable sheathing for cathodic protection cables or wires shall be 1-inch minimum diameter Schedule 40 polyethylene (PE) or polyvinyl chloride (PVC) plastic pipe.

2.12 LOCATION MARKING TAGS

A. Test station locations shall be identified with stamped brass or aluminum marking tags. Minimum tag size shall be 2-inch diameter. Stamped letters and numbers shall be 1/8-inch minimum size. Marking tags are available from Calpico, Inc. South San Francisco, CA (650-588-2241) or approved equal.

2.13 WARNING TAPE

A. Warning tape shall be heavy-gauge, 4 mil minimum thickness, plastic tape for use in trenches.

1. Warning tape shall be non-traceable type. Warning tape shall be resistant to corrosive soil and intended for extended direct burial service.

2. Tape shall meet A.P.W.A. national color code and shall be imprinted with an appropriate legend to define the type of utility. Tape shall be labeled with bold black letters for full length of tape.

3. Warning tape for buried cathodic protection cables and conduits shall be yellow and labeled "CAUTION: CABLES BURIED BELOW" and a minimum of 3-inch width.

4. Warning tape for plastic and metallic water pipelines below 12-inch size shall be a minimum of 6-inch width. Warning tape for pipe equal to or larger than 12-inch shall be a minimum of 12-inch width. Warning tape shall be blue and labeled "CAUTION: WATER LINE BURIED BELOW".

5. Acceptable products are available from ITT Blackburn; Allen Systems, Inc.; Griffolyn Co.; or approved equal.

2.14 PIPELINE REFERENCE MARKER POSTS

A. Pipeline reference marker posts shall consist of a pre-manufactured double-sided flat or three sided utility marker post in accordance with these specifications and the following.

1. Pipeline/appurtenance reference marker posts shall consist of a pre-manufactured three-sided utility marker post. Posts shall be three rail type that allows decals or markings on both side of post.

2. Post shall be minimum 3.75-inches in width and a minimum 6-foot long with a pointed tip. Posts shall be of a dimensionally stable composite plastic or fiberglass core with a coating that blocks UV light for 20 years. They shall be resistant to bending, impact, UV, and high temperature changes with a minimum 15-year warranty. The post shall be able to withstand vehicle impacts and still snap back to their original position.

3. Post shall have permanent background color that meet A.P.W.A. standard color depending on pipe type. Post colors shall be stabilized against UV to not fade. Color shall be as selected by Owner. The markers shall be colored blue for water pipelines.

4. The marker post shall be appropriately labeled for water line, valve, hydrant, air/vacuum valve, etc. Along with the name of the Owner and contact phone numbers.

5. Decals shall be non-reflective, standard two color, factory applied decal. Decal graphics and printing shall be made of materials resistant to fading, bleaching out, chalking, or coming loose from post. Decals that bleach, chalk, fade, or come loose shall be replaced with different products that will not fade, bleach, chalk, or come loose. Printing and graphics, color, style, and information included shall be as selected by Owner.

6. The marker post shall be designed for driving into the ground. A driving cap shall be used for driving. Pipeline reference marker posts shall be provided with the necessary recommended tools/equipment for

installation. One set of the marker post installation tools shall be turned over to the Owner at the completion of the project

7. Where pipeline marker is offset from pipeline on parallel fence lines or out of streets, then standard manufactured decals shall be provided to state offset direction and distance in feet.

B. Acceptable pipeline marker post products are:

1. Carsonite CIB-380 or CUM-752 available from Carsonite International;

2. CottMark 511 or 512 available from Cott Manufacturing;

3. Or approved equal.

2.15 TRACER WIRE

A. Tracer Wire:

1. No. 10 AWG wire for tracer wire shall be single-conductor, stranded copper wire with 600-volt, TW, THWN, THHN or HMWPE insulation.

2. Tracer wire will only be required for non-metallic pipe sections.

3. Tracer wire insulation shall be resistant to corrosive soil and intended for extended direct burial service with color as specified under “Wires” this section.

4. Tracer wire tape for attachment of tracer wire to pipe shall be 1-inch minimum width polyethylene tape intended for direct burial service.

B. Tracer Wire Access Boxes:

1. Flush Mounted Access Terminal Box:

a. Plastic flush terminal box body (12” long, 2 ½” diameter minimum size) with cast iron collar and lockable cast iron lid. Minimum four (4) wire non-conductive terminal board with stainless steel, nickel-plated brass, or bronze hardware for wire terminations.

b. Acceptable flush mounted tracer wire access boxes are:

i. Valvco Pipe Tracer Wire Terminal Box available from Sioux Pipe, Sioux Falls, South Dakota.

ii. C.P. Mini Box available from C.P. Test Services, Inc.

iii. T2 Cathodic Test Station available from Handley Industries, Inc.

iv. Or approved Equal

2. Post Mounted Tracer Wire Access Terminal Box:

a. Condulet style terminal box with a minimum four (4) wire terminal board. Terminal board shall be non-conductive material suitable for outdoor exposure (Lexan, UV protected polycarbonate plastic, etc.). Terminal hardware for wire terminations shall be Series 300 stainless steel, nickel-plated brass, or bronze.

b. Condulet style terminal box shall be suitable for mounting on a threaded one-inch (1") or larger rigid galvanized steel conduit. Terminal box shall be provided with all mounting hardware (conduit straps, wood screws, conduit bushing, etc.) necessary to provide a rigid support to a 4-inch by 4-inch by 6-foot long pressure-treated wood post. Wood post shall be pressure treated with a waterborne preservative intended for fresh water or soil (burial) contact to a retention of 0.40 pounds per cubic foot (6.4 kilograms per cubic meter) in accordance with AWPA Standard C2 for Lumber and Timber and AWPA Standard P9 for Waterborne Preservatives.

c. Acceptable post mounted tracer wire access boxes are:

i. T-4 Condulet Style Test Heads available from Tinker and Rasor.

ii. Finklet Test Station or Finkplate Condulet Four Terminal Board available from COTT Manufacturing Company.

iii. Four wire condulet test station head available from Agra Equipment Company.

iv. Or approved Equal

2.16 FITTINGS LINING AND COATING

A. Supply pipe and fittings with linings and coatings of the same type as adjacent pipe, except where shown on the Drawings. Coat pipe and fittings installed as specified herein.

B. Coat metallic pipe and fittings installed above-grade as specified herein. Provide exterior coating for all above-grade piping, fittings, bollards, and vent pipes with two coats of polyamide epoxy coats at 2.5 to 3.5 mils dry film thickness per coat (MDFTPC) and with one top coat of polyurethane enamel at 3 to 4 MDFT or with a 10 to 12-mil fusion bonded epoxy coating system. Minimum surface preparation shall be near-white metal blast (SSPC SP-10) for external surfaces. Color as selected by Owner.

C. Coat and line all buried metallic (steel, ductile iron, and cast iron) valves, fittings, miscellaneous piping, and hydrants internally and externally. Supply factory coated valves and fittings with linings and coatings of the same type as adjacent abovegrade pipe, except where shown on the Drawings or where coating or lining specified for buried main pipeline is not feasible for fabricated items or special pipe pieces (such as incidental metallic piping, valves, fittings, tees, flexible couplings, glands, hydrants, etc.).

D. Factory coat or line the incidental piping, valves, or fittings with liquid epoxy or with fusion-bonded epoxy coating in accordance with AWWA C210, AWWA C213, AWWA C116, or AWWA C550. Internal coatings shall be NSF approved for potable water service. Bolts, nuts, and washers, (including in valve bonnet and stuffing box) shall be fusion-bonded epoxy coated or Series 300 stainless steel.

E. Internal linings and coatings in contact with water shall be NSF approved for potable water service.

F. All ferrous interior mounting faces/surfaces shall be prepared and shop primed with a suitable rust-inhibitive holding primer applied in accordance with this specification and the coating manufacturer’s recommendations. Holding rust-inhibitive primer shall be compatible with specified top coats. Apply per coating manufacturer's recommendations to a thickness that will not impair the clearances required for proper installation of the joint or fitting (valve) operation.

G. Ductile Iron and Cast Iron Factory Coating Surface Preparation: Use SSPC SP grades as surface preparation guide only as it applies to cast iron or ductile iron in percentage cleanliness required and surface contaminants removed, not the color of the metal. The abrasive blast cleaning operation shall remove the same percentage of all surface contaminants (including tightly adhered annealing scale) as the SSPC SP grade referenced. The entire surface area shall be abrasive blasted. No tight rust stains shall be allowed. Avoid overblasting, high nozzle velocities, and excessive blast times. Cast iron and ductile iron attain a gray color when abrasive blasted due to the higher carbon content compared to steel. For example if a SSPC SP-10 Near White Grade is specified for cast iron or ductile iron, the degree of surface cleanliness is comparable to a near white blast for steel and requires 95 percent removal of all surface contaminants including tightly adhered annealing scale. The one exception is that the ductile or cast iron will not be required to be near-white but will only be required to be a near-gray color.

H. Liquid Epoxy: Provide factory applied liquid epoxy lining and coating in accordance with AWWA C210 and AWWA C550 and these specifications. Epoxy material shall meet the performance requirements of the referenced AWWA standards. Epoxy material shall be the product of a coating manufacturer normally engaged in production of such material and shall be for intended service conditions. The liquid epoxy coating shall be a two part chemically cured coating or 100-percent material. Coating shall be mixed and applied per coating

manufacturer's directions. Liquid-epoxy lining of metallic pipe and fittings shall be potable grade epoxy coating approved for potable water contact and this type of intended service. Abrasive blast with material and in manner as recommended by coating manufacturer to produce surface profile depth and angular shape needed. Surface preparation shall be a minimum of SSPC SP-5 (White) for immersion service and SSPC SP10 (Near White) or better for external service. Coating shall be a minimum of two or more coat system with a minimum thickness of 14 to 16 mils dry film thickness (MDFT). Minimum adhesion to prepared steel shall be 400 psi per ASTM D1002 or per coating manufacturer's printed literature, whichever is higher.

Liquid Epoxy	ICI Devoe	Sherwin-Williams	Tnemec
Liquid Epoxy AWWA C210 and AWWA C550 (Coating in contact with potable water surfaces shall be approved for potable water contact and conforming to NSF Standard 61)	Bar-Rust 233 H	4.53 Macroposy 646	Pota Poxy Series 20 or Pota-Pox Plus Series N140F Or Pota-Pox Plus 80 Series N141
Abovegrade Structures Only - Polyurethane Enamel Top Coat Two-component, aliphatic or acrylic based polyurethane; high gloss finish suitable for the intended service, Color by Owner	Devthane 379 UVA Polyurethane Enamel	5.21 Hi-Solids Polyurethane Enamel	Series 1074 U Endura-Shield Aliphatic Acrylic Polyurethane

I. Fusion-Bonded Epoxy: Provide factory applied fusion-bonded epoxy lining and coating in accordance with AWWA C213, AWWA C116, and AWWA C550, and these specifications. Fusion-bonded epoxy material shall meet the performance requirements of the referenced AWWA standards. Fusion-bonded epoxy material shall be the product of a coating manufacturer normally engaged in production of such resin and shall be for intended service conditions. The fusion bonded epoxy coating shall be a 100 percent powder epoxy based thermosetting coating. Coating shall be applied by flocking, fluidized bed, or electrostatic method per coating manufacturer's directions. Fusion-bonded epoxy lining of metallic pipe and fittings shall be potable grade epoxy coating approved for potable water contact and this type of intended service. Abrasive blast with material and in manner as recommended by coating manufacturer to produce surface profile depth and angular shape needed. Surface preparation shall be a minimum of SSPC SP-5 (White) for immersion service and SSPC SP10 (Near White) or better for external service. Fusion bonded epoxy coating shall be one

or two-coat system with a minimum thickness of 8 to 10 mils dry film thickness (MDFT). Minimum adhesion to prepared steel shall be 3,000 psi per ASTM D1002 or per coating manufacturer's printed literature, whichever is higher.

Fusion-Bonded Epoxy	3M Scotch Coat	Herberts O'Brien Nap Gard DuPont Powder Coatings	Valspar (formally Lilly Industries)
Fusion Bonded Epoxy AWWA C213, AWWA C116, and AWWA C550 (Coating in contact with potable water surfaces shall be approved for potable water contact and conforming to NSF Standard 61)	Scotchkote 206N (NSF 61 Internal and External) or Scotchkote 6233 for pipe	Nap–Gard 7 -2500 Pipe Coating (NSF 61 Internal and External)	Pipeclad 3100 Red (NSF 61 Internal and External) or Pipeclad 2000 Green (External Only)

J. Coating for valves, fittings and fire hydrant legs shall consist of one of the following:

1. Liquid epoxy coating shall be a minimum of two coats or more for a 14 to 16 MDFT minimum coating thickness.

2. Fusion bonded epoxy coating shall be one or more coats for a minimum coating thickness of 8 to 12 MDFT.

3. Nylon coating shall be one or more coats for a minimum coating thickness of 10 to 12 MDFT applied in a fluidized bed.

4. Polyurethane coating (40 MDFT minimum coating thickness) for ductile iron valves and fire hydrant legs and stub pieces (American AVK fusion bonded epoxy interior with polyurethane coated exterior or approved equal).

K. Maximum coating thickness shall be as recommended by fitting manufacturer so as to not impair engagement of joint or function of fitting.

L. Conduct dry film thickness measurements and 100-precent holiday inspection of all epoxy factory coated items prior to shipment. Conduct dry film thickness measurements in accordance with SSPC PA-2 with exception that the specified thickness is the absolute minimum. A minimum of two dry film thickness measurements shall be completed for each fitting or appurtenance. Repair all defects with approved repair material according to coating manufacturer's directions prior to shipment.

M. Provide repair kits for coated materials.

N. Provide stainless steel materials or coat all other miscellaneous buried metallic items, (tie rods, thrust restraints, tapping saddles, harnesses, etc.). Coat tie rods and rebar when directly exposed to soil. Provide with factory applied epoxy coating, fusion bonded epoxy coating, heat shrink sleeves, or with coating recommended by coating manufacture for buried application and approved by Engineer for intended exposure.

O. Bolts, nuts, and washers, for valves (including in valve bonnet and stuffing box) shall be Series 300 stainless steel.

P. Galvanized or black steel materials (piping, nipples, unions, fittings etc.) shall not be used in wet, immersed, or buried locations or vaults unless tight bonded coated as specified.

Q. Restraint Fitting Coating System

1. Restrained fittings (casting bodies, wedge assemblies, and related parts, etc.) shall be abrasive blasted followed by a phosphate wash, rinse, and drying pretreatment process just prior to coating.

2. Restrained fittings (casting bodies, etc.) shall be coated immediately following the pretreatment process. The coatings shall be electrostatically applied and heat cured. Acceptable casting body coating systems shall consist of:

a) A sealer prior to pretreatment drying and one or two coats of a thermosetting powder coating at minimum 3 to 6 mils dry film thickness (MDFT) with EBAA Iron Mega-Bond Restraint Coating System or Star-Bond TGIC Polyester Coating for Joint Restraint Products.

b) A fusion bonded epoxy coating at a minimum 8 to 10 MDFT Romacote Colvel Black.

c) Or approved equal.

3. Wedge assemblies and related parts (threaded components, etc.) shall be coated immediately following the pretreatment process with a thermoplastic flouropolymer type fastener coatings specifically designed for that type of application at approximately minimum 1 to 2 MDFT or with a fusion bonded epoxy coating system at 6 to 8 MDFT. Thermoplastic flouropolymer coating system shall consist of two or more coats of liquid thermoset epoxy coating with heat cure following each coat (EBAA Iron Mega-Bond Restraint Coating System or Star-Bond TGIC Polyester Coating for Joint Restraint Products.). Fusion bonded coating system shall consist of one or more coats of fusion bonded epoxy electrostatically applied and heat cured following each coat.

2.17 FASTENERS (BOLTS, NUTS, WASHERS)

A. All fasteners (bolts, nuts, tee bolts, and washers) type, size, and strength shall be as designed for the application. All nuts shall be fully seated. Nuts shall be compatible with the bolts and have a proof stress equal or greater than the tensile strength of the bolts. Minimum bolt size, lengths, and tensile shall be as designed for the application.

B. All fasteners installed below-grade (either buried, submerged, or immersed in vaults) shall either be Stainless Steel Series 300 or coated with an approved fastener coating system. Series 300 stainless steel materials shall be provided in place of coated items, where specifically called out as being required in specific specification sections or applications.

1. All fasteners (bolts, nuts, tee bolts, and washers) installed below-grade (either buried, submerged, or immersed in vaults) shall be Stainless Steel Series 300, unless specified otherwise.

2. Coated fasteners (bolts, nuts, tee bolts, and washers) shall not be installed unless specifically called out as being required or allowed in specific specification sections or applications. Only where specifically allowed, coated fasteners may be provided and shall meet the following requirements:

a) The coated bolts shall be undersized or the nuts oversized as required to minimize damage to coatings, however, size shall still satisfy design and manufacturer's requirements for bolt strength and size in the particular application. Provide with applicator name, coating manufacturer and product number, and certification that coating was applied as specified.

b) Bolts, nuts, and washers for ductile iron pipe and fittings shall be low carbon weathering steel meeting the strength, physical, marking, traceability, and chemical requirements of AWWA C111 and coated with an approved fastener coating system.

c) Bolts, washers, nuts, and T-bolts shall be pretreated and coated with a thermosetting powder coating or fusion bonded epoxy type fastener coating system.

1) Thermosetting powder coatings shall be at a minimum of approximately 1 to 2 mils (MDFT) with COR-BLUE, Xylan, Type E, Flour Kote #1, or thermoplastic flouropolymer type fastener coatings specifically designed for that type of application if approved by the Owner’s representative.

2) Fusion bonded coated steel bolts, nuts, and washers, fittings, and bodies shall be coated with 6 to 8 mils

minimum epoxy coating per AWWA C213. Surface preparation shall be SSPC SP-10 (near white).

2.18 STAINLESS STEEL FABRICATION AND PASSIVATION

A. Utilize Type L grade stainless steel for all items to be welded.

B. During fabrication, handling, and installation take necessary precautions to prevent mild carbon steel impregnation of stainless steel members.

C. Utilize brushes (stainless steel, non-metallic), grinding wheels (aluminum oxide discs), and tools intended for stainless steel and not used previously for carbon steel work.

D. Degrease and clean prior to welding with non-chlorinated solvents.

E. Weld stainless steel with approved materials and techniques.

F. Clean and remove contamination, remove weld heat tint, and repassivate welds per ASTM A 380 and ASTM A967.

G. After treatment visually inspect surfaces for compliance.

H. Pack stainless steel parts and pad mild steel fork lift forks and use straps instead of metal chains to handle stainless steel parts to avoid iron contamination of stainless steel.

I. After installation, visually inspect stainless steel surfaces for evidence of iron cross contamination, rust, oil, paint, and other forms of contamination. Repair as required and reinspect.

2.19 PIPE AND FITTING FIELD COATING REPAIR MATERIALS

A. Field repair coating shall be compatible with factory coating and linings and be approved by factory coating manufacturer for repair on their products.

B. Field Coating Repair Materials:

1. Heat Shrink Sleeve and Sleeve Repair Materials: Heat shrink sleeve repair materials shall consist of either heat shrink sleeve in tube form or heat shrink patch kit depending on size and shape of repair. Acceptable heat shrink products are Raychem WaterWrap sleeve or PERP Repair Patch Kit available from Tyco Adhesive (Polyken Kendall) Mansfield, MA.; CANUSA Aqua-Shield Aqua-Sleeve or CANUSA CRPK Repair Patch Kit available from CANUSA, Inc., The Woodlands, TX.; or approved equal.

2. Epoxy Coatings: Provide acceptable a high or 100 percent epoxy coatings that can cure under wet or dry conditions are "A-788 Splash Zone Compound" by Koppers, Pittsburgh, PA; "Aquata Poxy" by Raven

(King Adhesive Corporation), St. Louis, MO; “Concresive No. 1438 or No. 1170" by Adhesive Engineering Company, San Carlos, CA; Protal 7125 Repair Coating by Denso North America, or approved equal.

3. Buried Insulated Coupling Top Coating System at Concrete Encasement Locations: Provide heat shrink top coating system for buried insulators and concrete encase up to insulator location as shown on the drawings.

PART 3 EXECUTION

3.01 GENERAL

A. All materials and equipment associated with pipe connecting wires, joint bonding, test stations, reference electrodes, galvanic anodes, insulating joints, and casing insulators as shown and specified herein shall be furnished and installed by the Contractor.

B. Coordinate installation of the specified work as necessary such that installation of the items herein specified can be completed concurrently with pipeline installation. Test leads shall be installed only during pipe installation. Items not installed before backfilling of the pipe shall be installed at the Contractor's sole expense. Additional excavation of pipe after backfilling shall be minimized to protect pipe and coating from possible damage. Galvanic anodes shall be only installed at same time as metallic pipe or metallic fitting installation.

C. Nothing included or omitted in this specification shall relieve the Contractor of the obligation of providing a complete and satisfactory pipeline that is electrically continuous, electrically isolated, and provided with a functioning cathodic protection system with test stations as specified.

D. The Contractor shall examine all Drawings and coordinate his work so as to avoid conflicts, errors, delays, and unnecessary interference with construction of the facilities and to avoid duplication of the work such as excavation, backfilling, etc.

E. All work shall present a neat and finished appearance. Any changes in the design or method of installation of an item as specified shall be reviewed and approved by Engineer prior to installation.

F. In the event of any conflicts in the Drawings or Specifications, the Engineer shall be consulted. If departures from the Drawings are deemed necessary by the Contractor, details of such departures and the reasons therefore shall be submitted to the Engineer in writing for review as soon as practical, but not later than 30 days before installation.

G. Weather Conditions:

1. Work shall be accomplished only during daylight hours (sun up to sun down).

2. Installation of the corrosion protection system components, such as splices, bonds, and wire installation shall only be allowed when ambient temperature are above ten degrees (10°) F. (-12° C.) and rising to minimize wire and insulation damage.

3. Materials can be stored in covered and heated storage units to maintain minimum temperatures above restricted temperature limits.

H. Do not thermite (exothermic) weld, pin braze, weld or utilize open flame or torches in areas of flammable vapors or air borne particles, where a fire or explosion could result.

I. Install and work around abovegrade and buried AC powerlines and oil and gas pipelines with extreme care, follow minimum separation distances per foreign company requirements and regulations. Do not work next to powerlines during times of high lightning activity.

J. Installations shall be completed per the National Electrical Code (NEC), and as specified in this section.

3.02 MATERIAL STORAGE AND HANDLING

A. Store materials in secure, protected location in accordance with material manufacturer's recommendations. Store coating and lining, thermite weld or pin brazing materials, reference electrodes and prepackaged galvanic anodes off the ground and keep them dry at all times. Protect against weather, condensation, and mechanical damage. Handle with care to prevent damage. Wire shall not be sharply bent or tightly coiled to minimize possibility of damage to the wire insulation during manufacture, shipment, or installation. Equipment or materials damaged in shipment or in the course of installation shall be replaced. Immediately remove from site all mechanically damaged materials. Prepackaged corrosion control items shall be handled with care to prevent loss of backfill material. Do not lift, lower, or hold anodes and reference electrodes by the lead wire.

B. Do not allow reference electrodes to freeze. Store in protected area, off the ground. Utilize before shelf life expired.

3.03 PIPE JOINT AND FITTING BONDING

A. To form an electrically continuous pipeline and associated appurtenances; the joints of all buried metallic pipe, vault, and manhole piping; and all appurtenances, tees, elbows, restrained joints, valves, and fittings including hydrant and blow-off piping; shall be electrically joint bonded. All joints including all bolted and restrained joints shall be joint bonded, except those joints specified to be threaded, welded, or insulated. Blow off and hydrant pipe and fittings shall also be bonded. Do **NOT** joint bond across insulating joints.

B. Various components of metallic fittings (thrust restraint devices, follower rings or glands, etc.) on plastic or ductile iron pipelines shall be bonded together to provide an electrically continuous fitting or appurtenance.

C. Install a minimum of two or more insulated No. 12 AWG stranded copper metallic fitting joint bond wires for all metallic fittings or appurtenances on plastic or metallic pipelines for electrical continuity redundancy. Place metallic fitting bond wires on top quadrant of pipe or fitting to bolt pattern area or where flange edges are to minimize damage to internal coating or joint materials. Bonding can be completed abovegrade prior to fitting assembly.

D. Wire connections to pipes or fittings shall be as specified under WIRE CONNECTIONS.

E. Install one insulated joint bond wire or bond strap per joint on all pipe or fittings 10 inches in diameter or smaller. Install a minimum of two or more insulated joint bond wires or bond straps per joint on all pipe or fittings 12 inches in diameter or larger for redundancy. Bond wire size may be No. 4 AWG on pipe sizes equal to or smaller than 15-inch diameter. Insulated joint bond wires or coated or bare copper straps may be utilized depending on joint coating type. Place bond wires on top quadrant of pipe.

F. Minimum number of bond wires or straps per pipe size is as follows:

	STRANDED COPPER INSULATED JOINT BOND WIRES		**COPPER BONDING STRAPS**
Metallic Pipe Size (Diameter Inches)	**Minimum No. of Joint Bond Wires Required**	**Minimum Joint Bond Wire Size Required**	**Minimum No. of Joint Bond Straps Required**
10-Inches or Smaller	**1 Bond Wires**	**No. 4 AWG**	**1 Strap Bond**
12-Inches to 15-Inches	**2 Bond Wires**	**No. 4 AWG**	**2 Strap Bonds**
Bonding 16-Inch or Smaller Size Fittings Together (less than ten-feet 10' apart).	**2 Bond Wires**	**No. 12 AWG Between Isolated Fittings (Maximum 10' apart) on Galvanic Anode Systems ONLY**	
Note: For larger pipe sizes additional bond wires or straps will be			

Metallic Pipe Size (Diameter Inches)	STRANDED COPPER INSULATED JOINT BOND WIRES		COPPER BONDING STRAPS
	Minimum No. of Joint Bond Wires Required	Minimum Joint Bond Wire Size Required	Minimum No. of Joint Bond Straps Required
required as calculated by the Engineer.			

G. Bond bolted restrained type joints, multiple segmented fitting sections, and metallic gland connection pieces on fittings on plastic pipe, and metallic pipe into cathodic protected metallic fittings or pipe with single No. 12 AWG stranded insulated copper wires with sleeves. Length of pig tail bond wire as required. Bond across the joint with the specified number and larger sized bonds listed above based on pipe size and material.

H. Joint bonding of cast iron soil pipe not required unless specifically shown on Drawings. Joint bonds for cast iron soil pipe and fittings and high silicon cast iron pipe and fittings shall be in accordance with the manufacturer's recommendations.

I. Bronze wedges, restrained joints, bolted or compression sleeved wires or copper straps, thrust restraints, or welded “Z” bars are **NOT** acceptable methods of achieving electrical continuity.

3.04 WIRE CONNECTIONS

A. The electrical connection of copper wire or copper strap to metallic (steel, cast iron, and ductile iron) surfaces shall be by the thermite weld or pin brazing method. Prepare surface and make connections in accordance with the thermite weld or pin brazing manufacturer’s recommended procedures and these specifications, whichever one is more stringent.

B. Provide adequate ventilation and safety equipment (gloves, safety glasses, etc.) and follow safety and training requirements as recommended by the thermite weld or pin brazing material manufacturer. Avoid contact with hot materials. Remove or protect fire hazards in the area during the thermite welding operations.

C. Assure that pipe or fitting wall thickness is of sufficient thickness that the thermite weld process will not damage the pipe or fitting wall's integrity or damage the lining in any way. Do not use on Cast Iron Soil Pipe (ASTM 74-93)

D. Complete thermite or pin brazing weld connections at locations and in a manner that does not damage sealing materials, gaskets, plastic pipe, and/or coatings

and/or polyethylene encasement. Maintain minimum two-inch (2") separation from the pipe or fitting O-ring gasket.

E. Complete thermite weld wire connections on horizontal surfaces, if at all possible. Connections to vertical surfaces should be minimized and only if approved by Engineer. Conduct horizontal type installation to fire hydrant risers and pipe stubs in horizontal positions abovegrade prior to installation in excavations.

F. All connections to stainless steel materials, copper, and light wall steel tubing (0.035-inch or less), shall be either with a silver soldered connection (silver brazing) or a physical type connection.

1. Connections to stainless steel fittings and appurtenances can be made with a ring tongue terminal placed under a bolt or a soldered connection as approved by the Engineer. Thermite weld or pin brazing type connections to stainless steel are NOT allowed.

G. Thermite Weld or Exothermic Method.

1. The Contractor is responsible for repair of any damage to pipe, fitting, lining, or coating as a result of the thermite weld process.

2. Make thermite weld connections at locations as directed by the pipe or fitting manufacturer so as to not damage pipe gasket or internal linings exposed to liquid.

3. On foreign pipelines, the Contractor shall notify foreign pipeline owner and the foreign owned pipe owner shall only attach wires to their own pipelines, unless the foreign pipeline owner grants permission to the Contractor in writing. In that case, the Contractor shall strictly follow foreign-pipeline owner written recommendations and procedures.

4. For connections to gas and petroleum piping systems, the connections are extremely critical and shall only be made according to ANSI/ASME B31.8 and ANSI/ASME B31.4 codes, the specific pipeline owner's recommended procedures, and applicable state and federal regulations. Maximum charge size shall be 15 grams. Crows foot (separate) larger wire per specific pipeline recommended procedures. State and federal regulations require specific training be completed prior to making connections to gas and petroleum pipelines. If the Contractor is to make connections to gas or petroleum piping, they shall provide copies of certification of training of personnel, prior to making any wire connections.

5. The electrical quality and resistance of the connection is dependent on proper adhesion of the welded connection to the pipe or fitting surface. Observe proper thermite weld material selection, safety precautions, surface preparation, and welding procedures as recommended by the material manufacturer.

6. Use cast iron type charges for all cast iron and ductile iron pipe and fitting thermite weld connections. Use steel type charges for all steel pipe and fitting thermite weld connections. Utilize correct sized mold (as shown on metal tag on graphite mold) based on wire and pipe or fitting size and type. Utilize correct type and size of charges for each connection based on wire and pipe or fitting size and type. Cartridge charge type and size in grams is shown on box and charge tube.

7. The wire and cable to be cadwelded shall be clean, bright, and dry. Clean all wire that is contaminated with oil and grease in accordance with the thermite weld manufacturer's recommendations. Remove all corroded cable including the individual strands.

8. Before the connection is made, clean the surface to bare metal by making a two-inch (2") by two-inch (2") window in the coating, and then filing or grinding the surface with a grinding wheel to produce a bright (white) metal finish.

9. All power grinding shall be with a vitrified type-grinding wheel. The use of resin, rubber, or shellac-impregnated type grinding wheels is not recommended by the thermite weld manufacturer and will not be acceptable.

10. Contractor shall take appropriate actions for existing coatings with asbestos to minimize worker exposure and to contain, handle, and dispose of asbestos per regulations.

11. After the surface is cleaned to a smooth, white metal finish, lightly tap the pipe surface with a sharp tool (back of claw hammer or metal chisel edge, etc.) so as to produce dimples to improve surface profile and adhesion for the weld material.

12. In certain high humidity conditions, cold weather, or on cold or wet surfaces, preheating of the metal surface and/or molds may be required to improve successful connections and minimize porous welds.

13. Exothermic welding should be completed immediately following preparation of the metal surface before surface flash rusting or oxidation can occur.

14. Where specified wire sleeves shall be firmly attached to the end of the wire before thermite welding to the metal surface. Wire and sleeve shall be clean and dry. Wire shall extend 1/4-inch out of field formed sleeves. Factory formed sleeves shall be provided with end of sleeve beveled or angled so that wire is exposed to thermite weld material.

15. Utilize exothermic weld packing compound around mold as required on irregular or small weld surface areas to seal bottom of welder mold to prevent molten metal leakage.

16. Replace worn molds at intervals as recommended by the thermite weld manufacturer to minimize the possibility of molten metal leakage during the thermite welding process.

17. The mold and base metal should always be clean and dry. Avoid moisture and contaminants in mold and materials being welded as this may result in spewing of hot molten material.

18. Place a metal disk in the bottom of the graphite mold and then pour in the weld material or place the prepackaged weld material cartridge in mold. Be sure to squeeze the plastic cylinder to get all of the starting powder out. Close the mold body lid.

19. Place the graphite mold on the prepared pipe surface and install the wire in the slot at the bottom of the mold. Confirm that the mold and wire provide a proper fit and that the mold is in intimate contact on all sides with the surface being welded to. Hold the wire and mold steady and firm on the pipeline or fitting surface.

20. Ignite the weld material with the spark gun or electrical starter depending on type of charge. Lightly tap the mold body during the ignition fusion process. Carefully remove the graphite mold after the exothermic fusion process is completed approximately 15 t o 20 seconds later.

21. Care should be taken during the thermite welding process, as the exothermic process produces a molten liquid metal that is extremely hot, 2,500° F (1,400° C) and will result in a local release of smoke. Do not watch the bright light (flash) or breathe the fumes from the thermite welding process. Do NOT sharply hit or move the graphite mold body during the cadweld process to minimize expelling the molten metal out of the graphite mold.

22. The graphite mold should not be touched or allowed to come in contact with the pipe coating or other flammable or meltable materials, as it is extremely hot. Carefully clean the slag out of the graphite mold body with the mold cleaner intended for that mold size and type.

H. After the weld connection has cooled, remove slag, visually and physically test quality of connection by tapping with a hammer and lightly pulling on the wire. The completed weld should visually present a good appearance of a well-formed connection with a minimum loss of weld material or splatter. All portions of the wire and sleeve shall be covered with the weld material. Remove and replace all visually defective, porous, or poor welds.

I. Narrow or Small Fitting Attachment Locations: Thermite weld connections on metallic fittings, restraint devices, sleeve type coupling rings, mechanical joint follower gland rings, or bolted restraint joint ring type joints, and couplings where only a small or narrow metallic surface is available shall be carefully done so as

to not damage the internal lining, O-ring, or damage the fitting. Two or more wires can be attached under the same thermite weld connection as long as the bond or pig-tail wires are not being connected to the same structure under the same thermite weld. Apply approved mastic packing material around mold to keep molten thermite material in place. Do not hold mastic packing material in-place with bare or gloved hands. Completing connections prior to complete fitting assembly and installation of the fitting into the trench so as to allow the thermite weld connection to be made to a level surface on top of the fitting is the preferred method. Vertical connections after the fitting is assembled and in the trench is a more difficult type connection to make. If the area of the thermite weld connection and the geometric arrangement of the fitting (too narrow, sharp angle, edge of lip, etc.) does not allow a tight seal to be made by the prefabricated cap type materials, then coat with an approved 100-perecent moisture tolerant cold weather cure type epoxy.

J. Silver Solder:

1. Use for electrical connection of copper wire to thin-wall steel tubing (0.035-inch wall or less), copper, or stainless steel pipe connectors.

2. Silver solder connections shall be made at locations on the edge of the fitting lip at a location that will not damage the rubber gaskets.

3. Before the connection is made, clean and flux the area around the connection with a suitable flux as recommended by the pipe manufacturer for the materials being soldered.

4. Weld the copper sleeved wire to the fluxed area with the suitable silver brazing alloy in such a manner that the completed connection is free of cracks or crevices in accordance with the solder manufacturer’s recommendations.

5. After the connection is completed, allow to cool, and remove the remaining flux by wire brush and solvent clean (SSPC-SP-1).

6. Clean and coat silver soldered connections on copper and steel appurtenances with prefabricated thermite weld cap or epoxy repair coating. Stainless steel connections do not require coating.

K. Plastic pipe and fittings and metallic pipe and fittings coatings and linings shall be protected during thermite welding or soldering procedures. Plastic pipe or fittings and/or coating damaged by welding or weld splatter shall be repaired per this specification. Welded area shall be allowed to cool to "warm to touch" condition prior to application of primer and field coating.

L. After the weld connection has cooled, remove slag, visually and physically test quality of connection by tapping with a hammer and lightly pulling on the wire. The completed weld should visually present a good appearance of a well-formed connection with a minimum loss of weld material or splatter. All portions of the

wire and sleeve shall be covered with the weld material. Remove and replace all visually defective, porous, or poor welds.

M. Each joint bond shall be both visually inspected and physically tested before coating according to the coating manufacturer's recommendations. Remove, replace or install additional joint bonds at all locations not passing electrical or physical tests.

N. All damage to pipe or fitting coatings or linings, gaskets or O-rings, and/or plastic pipe or fittings, etc., shall be repaired by the Contractor at his sole expense.

3.05 WIRE CONNECTION COATING

A. Clean weld area and install a prefabricated thermite weld cap or liquid epoxy repair coating per manufacturer's directions over each completed connection after testing, unless to be coated by heat shrink joint coating. Type and size of prefabricated thermite weld cap shall be determined by type of connection and size of wires.

1. Utilize standard prefabricated thermite weld caps with integrated primer on all No. 10 AWG and smaller wires.

2. Liquid Epoxy Coating - Wire connection at pipe joints where prefabricated caps are too large to fit or as required for factory coating repairs, shall be completed with a liquid repair type coatings. On mechanical joints, restrained rings, and metallic glands, apply liquid repair coating material to thermite weld connection area, where the area of the thermite weld connection and the geometric arrangement of the fitting (too narrow, sharp angle, edge of lip, etc.) is too small to successful installation and adhesion so as to not allow a tight seal to be made by the prefabricated Handy Cap type materials, then coat with a 100-perecent moisture tolerant cold weather cure epoxy (Protal 7125 or equal)..

B. In cold weather, store prefabricated cadweld caps, and coating repair materials in a heated location and keep warm until installation.

C. The pipe and factory-coating surface shall be clean and dry before application of cap.

D. Prefabricated cadweld cap shall be applied at connection according to manufacturer's directions. The filler material shall be placed over the thermite weld connection and worked around and under the wire and connection. Apply pressure to the prefabricated cadweld cap to assure good adhesion.

E. Completed prefabricated thermite weld cap assembly shall adhere tightly to pipe and wire connection with no voids or gaps. Inadequate adhesion is demonstrated if there are visible gaps or voids under the cap or if the cap can be easily removed from the pipe surface by pulling with fingertip pressure. At all locations where inadequate adhesion is evident, reprime and replace cap or

prime and apply either a minimum six-inch (6") by six-inch (6") square of field repair tape, a 55-mil thick Tapecoat Gray "Pads", or heat shrink repair material over existing cadweld cap. Apply per tape coating or heat shrink manufacturer's directions.

F. Liquid Repair Epoxy Coating Application - Wire connection at pipe joints where prefabricated thermite weld caps are too large to fit or as required for factory coating repairs, shall be completed with a liquid one hundred repair type coatings. Complete surface preparation and apply one hundred percent (100%) solids, low temperature epoxy repair coating .in accordance with coating manufacturer directions. Total minimum dry film thickness shall be 20-mils, apply in multiple coats if required by manufacturer of specific coating utilized. Allow coating to cure to sufficient degree to prevent damage to coating, prior to handling and backfilling. Strictly follow minimum cure time recommended by coating manufacturer based on surface and ambient temperatures.

G. All exposed metallic surfaces not covered by the thermite weld cap, 100-percent moisture cure liquid epoxy repair coating, shall be repaired per PIPE AND FITTING COATING REPAIR.

3.06 PREPACKAGED GALVANIC ANODE INSTALLATION

A. General:

1. Remove plastic or paper shipping wrap from prepackaged anode prior to placement. Galvanic anodes packaged in cardboard type chip-tube shall be thoroughly perforated just prior to installation.

2. Install galvanic anodes a minimum of 1-foot below the pipe invert and 3 to 5-feet from buried metallic piping or 3-feet from metallic fittings to be protected. Space galvanic anodes equally around the fitting, pipe section, or appurtenance. Locate at bottom edge of pipe trench as shown on the Drawings or as specified. Alternate anode placement on opposite sides of the pipe. If two or more anodes installed at the same location, place on opposite side of the pipe or fitting. Provide a minimum anode spacing of 5-feet from other unprotected pipelines.

3. Handle prepackaged anode with care. Damage to the anode, anode to wire connection, or prepackaged backfill bag will require replacement of the entire assembly.

4. Place anode in native earth backfill do not use pipe zone bedding material.

5. Earth backfill around each anode shall be thoroughly compacted to a point 1-foot above the anode. Backfill material around each anode shall be native soil free of roots, organic matter, trash, and rocks. Stop backfill at specified grade to allow for placing of topsoil, pavement, or concrete, when required.

6. All anode wires shall be buried a minimum of 36-inches below finish grade. Wires shall be handled with care. Splices or damage to the insulation on any wire shall be repaired in accordance with WIRE INSULATION REPAIR and be approved by Engineer.

7. Electrical connection of the anode wire to steel, cast or ductile iron metallic pipe or fittings shall either be directly to the pipe or fitting by the thermite weld or pin brazing method or through a test station with shunt as shown on the Drawings.

8. Electrical connection of the anode wire to stainless steel fittings shall either be directly to the stainless steel fitting with a silver solder or ring tongue terminal physical type connection or through a test station with shunt as shown on the Drawings.

B. Installation:

1. Each buried or submerged metallic (steel, ductile, or cast iron) pipeline section, appurtenance, valve, or fitting shall receive a minimum of one galvanic anode unless already protected by an impressed current cathodic protection system.

2. All metallic valves, blow-offs, air valves, or fittings located in vaults on plastic pipeline, which will be either continuously or intermittently under the water table shall be cathodic protected as if buried. Place galvanic anode inside vault and attach directly to metallic fitting.

3. Install a minimum of one each or more 17 or 18-pound galvanic anode for each concrete encased metal pipe section (stub piece) under or next to pump stations, buildings, or tanks as shown on the drawings.

4. Type of Prepackaged Anodes is project specific. For this project utilize:

   a. Prepackaged zinc galvanic anodes for protection of metallic pipe and fittings in lower resistivity soils (1,500 ohm-cm or below).

5. Where two or more metallic fittings are adjacent to each other, install joint bonds as specified in PIPE CONNECTING WIRES, and install the specified quantity of galvanic anodes for each metallic pipe section, appurtenance, valve, or fitting used in conjunction with nonmetallic pipe.

6. At the Contractor's option, larger anodes may be used in place of multiple smaller anodes for a group of bonded metallic components on non-metallic piping provided the same total bare weight of galvanic anode is used. Maximum separation distance shall be 10-feet on fittings to be protected with one anode, if multiple fittings are bonded together.

7. For ductile iron and cast iron fittings, where specified coating thickness is not provided or specified holiday testing and/or 100% holiday free

coatings are not completed by the fitting manufacturer, or bare fitting is coated with petrolatum tape type coating system; then install one specified size larger anode or double the number of anodes for each fitting than listed on the following table. For example, if a 5 pound anode is listed and a fitting does not meet coating thickness specified or is not 100% holiday free then install a 17 or 18 pound anode instead. If one 17 or 18 pound anode is required per the following table and coating thickness is not as specified, then at Contractor's option, install either a 30-pound anode or two 17 or 18 pound anodes. Existing fittings that are exposed and coated with a four layer petrolatum tape type coating system, shall receive double the number of anodes specified or the next largest anode size shown in these specifications. For example, if a bare fitting (16-inch or less) is exposed and petrolatum tape coated, it shall receive a 17 or 18 pound size anode instead of the 5-pound size anode required for a factory coated fitting.

8. The minimum number of anodes to be installed on buried or submerged factory coated metallic fittings, pipeline sections, or appurtenances with non-metallic pipelines shall be:

MINIMUM PREPACKAGED ANODE SPACING FOR COATED METALLIC FITTINGS FOR DIFFERENT NON-METALLIC PIPE SIZES				
	16" or less	**18" to 30"**	**32" to 46"**	**48" or larger**
ITEM	**MINIMUM NUMBER OF AND MINIMUM BARE ANODE SIZE (Reference Type of Anode Required For Project Per Specification)**			
Single Coated Metallic Fitting	1 - 5 pd Magnesium or Zinc anode	1 - 17 pd Magnesium or 18 pd Zinc anode	2 - 17 pd Magnesium or 2 - 18 pd Zinc anodes	3- 17 pd Magnesium or 3 - 18 pd Zinc anodes
Multiple (2 to 3) Coated Metallic Fittings (Maximum of 10 feet apart)	1 – 17 pd Magnesium or 18 pd Zinc anode	2 - 17 pd Magnesium or 2 - 18 pd Zinc anodes	3 - 17 pd Magnesium or 3 - 18 pd Zinc anodes	4 – 17 pd Magnesium or 4 - 18 pd Zinc anodes
Coated Fire Hydrant or Blow-off Assembly (including tee, valve, and hydrant) with plastic pipe main and 6-inch pipe leg (less than plastic 10 foot leg).	1 – 17 pd Magnesium or 1 - 18 pd Zinc anodes	1 – 17 pd Magnesium or 1 - 18 pd Zinc anodes	1 – 17 pd Magnesium or 1 - 18 pd Zinc anodes	1 – 17 pd Magnesium or 1 - 18 pd Zinc anodes
Coated Fire Hydrant or	2 – 17 pd	2 – 17 pd	2 – 17 pd	2 – 17 pd

Blow-off Assembly (including tee, valve, and hydrant) with plastic pipe main and 6-inch coated metallic pipe leg (less than 10 foot leg) or plastic leg with petrolatum tape coated hydrant barrel.	Magnesium or 2 - 18 pd Zinc anodes	Magnesium or 2 - 18 pd Zinc anodes	Magnesium or 2 - 18 pd Zinc anodes	Magnesium or 2 - 18 pd Zinc anodes

3.07 TEST STATION AND/OR TRACER WIRE ACCESS BOX INSTALLATION

A. Cathodic protection test stations and tracer wire access boxes of the types indicated shall be installed and located as specified herein and as shown on the Drawings. Current span wires, reference electrode, coupon, plastic reference pipe, or resistance probe shall be installed only at test station locations indicated on test station schedule.

B. Install tracer wires and test wires to pipe and coat only during pipe construction at time of pipe installation along with the necessary reference electrode, coupons (minimum of two each), plastic reference monitoring pipe, drain/ground anode, or resistance probes if required before the pipe is backfilled and compacted around. Install sufficient wire to reach test station or tracer wire access box final location. Test station or tracer wire access boxes and support posts can be completed at a later date. Take actions to protect wires from damage if not terminated in test station or junction box at this time.

1. Test station or tracer box types shall be installed on metallic pipelines or fittings or plastic pipelines as shown on test station and tracer wire access box schedule or drawings per the following

a. Install a Type A test stations at specified galvanic anode installation locations on metallic fittings on plastic lines or on galvanic protected metal pipeline sections.

b. Install tracer wire access boxes at locations shown on test station and tracer wire access box schedule or drawings at maximum two thousand foot (2,000') spacing for cross-country transmission type pipelines and five hundred feet (500') for in-town transmission or distribution type pipelines or shorter spans if required by City or Owner standards.

C. Color-code wires per specifications, before installation of wires in conduit or backfilling of the test station wires.

D. Wherever possible test stations or access boxes shall be located directly over the centerline of the pipeline. In locations, where pipe is in field and parallels a fence, install test station or access box next to and on parallel fence line. Desired maximum offset distance from pipe centerline shall be 15 feet or at edge

of right-of-way which may be up to 50-feet as directed by Engineer for future physical protection of test station.

E. Locate next to other above-grade facilities and structures for protection, where possible. Install in protected locations, so as to not restrict intended use of the land, outside roadways, cultivated fields, and irrigation facilities.

F. Install at protected locations such as next to pipeline structures, fences, road crossings, and edges of cultivated fields. The Engineer shall determine the final location . Changes in the location of any test station or tracer wire access box shall be reviewed and approved by Engineer prior to installation.

G. Post-mounted test station and tracer wire access boxes support posts shall be set in firmly compacted soil backfill at height shown on Drawings. Test station or tracer wire access box body shall be positioned so as to allow easy access for future testing.

1. Test station box and access box and rigid conduit shall be securely fastened to center of wood post or rectifier pole or galvanized steel channel with galvanized fastening devices per the Drawings.

2. Install insulated bushings and insulated throat connectors on ends of all rigid metallic conduits as shown on Drawings.

3. Top of test station head shall be located flush with or a maximum of 1-inch below top of post.

4. Type of support post shall be as specified and may include treated wood post, rectifier pole, galvanized steel channel, metallic pipe, or plastic support pipe with bollard.

H. Flush mounted test stations and tracer wire access boxes shall be located directly over pipeline, except in areas of heavy traffic conditions. Where heavy traffic conditions exist, locate to the side of the street.

1. Compact under, and install flat support blocking or brick under test station or access box bodies for support. Install supports and concrete collar around flush test station and or access boxes so as to prevent settlement.

2. Install a minimum 6-inch thick concrete collar either in a minimum 2-foot square pad or 3-foot diameter round concrete pad shape around flush mounted test station body as shown on Drawings. Shape as selected by Owner.

3. Rotate flush mounted test station or tracer wire access box square concrete slabs so that slab points toward traffic flow.

4. Concrete collar and test station lid shall be set level and flush with the top of curb, sidewalk or roadway. Concrete collar and test station or tracer

wire access box lid shall be set level and ½ to 1-inch higher than finished grade in open dirt and lawn areas. Test stations and tracer wire box collars that settle or are set too low or high shall be replaced at Contractor's sole cost.

5. Provide sufficient slack in test wires to allow terminal block to extend a minimum 18-inches out of test station or tracer wire access box body.

I. Test wires shall be provided with sufficient slack and looped or coiled at the test station and pipeline to prevent the wire from being unduly stressed or broken during backfilling operations. Install test wires to top test station terminals. Wires shall be installed in a continuous length.

J. Where post mounted test station posts are located at the edge of the highway or road right-of-way, the wires shall be run from the pipeline to the test station inside a protective plastic conduit sheath with marking tape above the plastic conduit.

K. All cathodic protection and test wires shall be buried a minimum of 36-inches below finished grade.

L. Test stations shall be located and identified by test station location tags. Tags shall be stamped with stationing of test station location. Tag shall be permanently attached in a visible location on inside of test station box.

M. Wire connections to test station terminals shall be with crimp-on ring tongue terminals, or lug-it connectors, except where terminal strips with tubular clamps are used.

N. Connect wires to test station terminals as shown on Drawings. Wire type, color code, and marker tag designations as shown on Drawings and specified under PRODUCTS, this section, shall be maintained throughout project.

O. Seal completed wire connection test lead terminals with electrical sealer for all buried flush mounted test stations and at above grade test station locations where high atmospheric corrosion may occur. Clean surface of all dirt, wax, grease and other surface contaminants. Protect or mask other areas from spray application, vigorously shake aerosol can before and during spray application. Apply 2 to 3 mil layer from a 12 to 15-inch distance in light even coats. Allow to dry and close up test station.

P. Install a pipe marking location post (reference marker) at each test station location as directed by Engineer (unless test station is already located in a street or next to an abovegrade appurtenance with a barrier or marker post).

3.08 PLASTIC PIPE TRACING WIRE

A. Insulated stranded copper tracer wire shall be installed on all non-metallic pipe sections.

B. Pipe tracing wire shall be taped to top of the plastic or non-metallic pipeline at a maximum distance of every 10 feet with polyethylene tape.

C. For short section of plastic pipe (if less than 50-feet), where two No. 12 AWG wires are already used to bond the metallic fittings to the metallic main line, the No. 12 AWG bond wires can be utilized in place of the tracer wire for these locations.

D. Do not attach tracing wire directly to metallic fittings or appurtenances.

E. Maximum tracer wire span distance shall two thousand feet (2,000') for cross-country type pipelines. If no existing pipe appurtenances are available for a distance up to four thousand feet (4,000'), then install either a post or flush type tracer wire access boxes. Equally divide span distance and install a tracer wire access box or test station at mid-point in a protected location. For in-town transmission or distribution type pipelines, the maximum span distance shall be five hundred feet (500') or less if required by City or Owner standards.

F. Install tracer wire access boxes and terminate tracer wires at fire hydrant assemblies, each end of all casings, bores, building or tank walls, and each end of a pipe run.

G. Selection of type and location of tracer wire terminal access box will depend on field conditions and shall be in accordance with Engineer's directions.

H. Field terminate tracer wires in accordance with the Drawings by:

1. Bring end of tracing wire leg from each pipe direction to above grade surface elevation by installing a tracer wire flush or abovegrade access box or test station. One tracer wire end shall come from each pipe direction.

2. Terminate tracing wire abovegrade at flush or abovegrade test access boxes or test stations located next to pipe appurtenances (vaults, valves, vent pipes, blow-offs, or at fire hydrant bases) as directed by Engineer or Owner.

3. Tracer wire shall be electrically continuous between individual tracer wire access boxes and/or test station locations. Tracer wires shall not be terminated in valve boxes or below grade.

4. Make tee or inline splices and insulate as specified under section "Wire Insulation Repair" only when observed by Engineer.

5. Tracing wire shall be terminated inside test stations where available on a separate terminal from anode or pipe/fitting leads.

6. Terminate in a flush or abovegrade access boxes per test station schedule in accordance with Engineer direction.

7. Abovegrade terminations next to abovegrade appurtenances shall consist of a minimum 3/4-inch diameter, 3-foot long rigid galvanized steel conduit terminated approximately 6-inch above grade in an abovegrade access box.

8. Install access boxes in accordance with test station installation procedures and terminate in box with ring tongue terminals.

9. If tracer wires is in vault, drill vault wall or roof above maximum waterline and terminate outside vault in an access box next to the vault or vent pipe (if present). Seal so as to minimize entry of liquid in the conduit or vault structure. Terminate tracer were in vaults next to ladder to allow easy access for attachment only if approved by Engineer.

I. Test tracer wire for continuity with an approved method in accordance with the specified functional testing per this section, prior to final acceptance of the pipeline installation.

1. Test tracer wire prior to placement of curb and gutter.

2. In roads and streets, test tracer wire after placement of road base but prior to placement of pavement.

3.09 WIRE INSULATION REPAIR

A. Wire splices shall be made with suitably sized Type C compression connectors as specified or mechanically secured and silver soldered. Inline type butt connectors or wire nuts are **NOT** allowed. Split bolts are **NOT** allowed unless silver soldered and both wires are No. 10 AWG wire or smaller.

B. Minor insulation damage to small cathodic protection wires (equal to or smaller than No. 8 AWG) shall be repaired by spirally wrapping (minimum of 50 percent overlap) with two layers of high voltage rubber splicing tape and two layers of vinyl electrical tape and then coated with an approved electrical seal coat in accordance with the product manufacturer's installation instructions.

C. Insulation damage or splices to large cathodic protection cables (No. 4 AWG or larger) shall be made with epoxy insulated splice kits (3M Scotchcast 90-B1 or 82-A1 or approved equal). Allow epoxy splice kits to cool and set before moving.

D. All wire splices and wire insulation repair locations shall be approved by Engineer.

3.10 CONCRETE

A. Place and finish concrete in accordance with ACI requirements. Maintain concrete at temperatures and cure times within acceptable environmental parameters as required per ACI recommendations. Smooth and finish concrete in a workmanlike manner. Remove forms when concrete has cured adequately.

3.11 REFERENCE MONITORING DEVICES

A. Plastic Reference Monitoring Pipe:

1. Place 3-inch-diameter plastic reference monitoring pipe with a threaded pipe cap next to test station for IR drop free potential measurements at locations as shown on Drawings.

2. If plastic reference pipe is utilized at flush mounted test stations do not install threaded pipe cap.

B. Prepackaged Reference Electrodes:

1. Remove reference electrode and cloth bag from the shipping bag and place 6 inches from the pipe below the centerline of the pipe in a horizontal position, perpendicular to pipe in accordance with manufacturer's directions. Presoak the reference electrode if recommended by the reference electrode manufacturer prior to burial. Do not hold or lower the reference electrode by the wire lead. Prepackaged reference electrode shall be backfilled with clean native soil. Do not allow reference electrode to freeze, place below frost line. Connect reference electrode lead to separate terminal than pipe lead in test station. Do not connect to pipe leads or directly to pipe. Terminate wire leads in test station as shown on Drawings.

3.12 WARNING TAPE

A. Bury warning tape above all underground cathodic protection cable, conduit, and/or all pipelines. Warning tape shall be placed approximately 12-inches above pipe or at specified depths as required in other sections of this contract document or shown on the details. Align parallel to and within 2 inches of the centerline of conduit, cable, or pipe run.

3.13 PIPELINE REFERENCE MARKER POSTS

A. Install pipeline reference marker posts at locations listed, as shown on the Drawings, and as marked in the field in accordance with these specifications and the following:

B. Install pipeline reference marker posts at locations listed, as shown on the Drawings, and as marked in the field. This should consist of but not be limited to specified locations along the length of the pipeline (not exceeding a 1,000 to 1,500 foot maximum spacing) and at all railroad and highway crossings, existing utility crossings, fence lines, air valve manholes, blow off valves, buried vaults, tracer wire access boxes, and cathodic protection test station locations.

C. Pipeline marker posts shall be driven into the ground with pipeline marker post manufacturer recommended and supplied tools/equipment to a minimum depth of 18-inches.

D. Pipeline marker posts shall be installed directly over the pipeline or next to test station, tracer wire access boxes, or valve boxes and appurtenances in a vertical position in accordance with utility post manufacturer's recommendations.

E. Pipeline markers shall be offset in street locations and as required to not interfere with farming or grass cutting operations as approved by the Engineer. In these locations, offset the pipeline marker post to a protected location, such as a parallel fence line and install a decal with the offset distance to the pipe centerline clearly identified.

F. Provide one set of marker post manufacturer installation tools/equipment to Owner at end of project.

3.14 COATING FOR METALLIC PIPING, FITTINGS AND ACCESSORIES

A. Miscellaneous Metallic Pipe, Fitting, and Appurtenance Coating Field Quality Control Testing

1. Conduct quality control testing in the field on miscellaneous factory coated fittings and appurtenance in accordance with this specification. Conduct dry film measurements and holiday test to confirm conformance with specifications and referenced standards.

2. Conduct dry film thickness measurements in accordance with SSPC PA-2 with exception that the specified thickness is the absolute minimum. A minimum of 10 dry film thickness measurements shall be completed on each 40 foot length of pipe. A minimum of two dry film thickness measurements shall be completed for each fitting or appurtenance.

3. Conduct 100-precent holiday inspection of all factory-applied coatings.

4. Repair only with pproved repair kits or repair materials provided for repair of the specific coated material types in accordance with coating repair material manufacturers recommendations.

B. Install coated valves, fittings, and miscellaneous metallic pieces so as to not damage coating or lining.

C. Provide corrosion protection for ferrous metal piping appurtenances such as tie-rods, thrust restraints, tapping saddles and bands, harnesses, and similar items: Stainless steel, fusion bonded epoxy coated, or heat shrink tube wrapped.

D. Coat rebar or tie-rods where utilized as tie-downs or thrust restraints and exposed to soil or liquid with fusion bonded epoxy, heat shrink tube, or four layer petrolatum tape system.

E. Flange bolts, Nuts, and Similar Items: Series 300 stainless steel or fusion bonded epoxy coated.

F. Conduct testing of Series 300 stainless steel materials with magnet to confirm stainless steel provided prior to installation.

G. If approved by Engineer, coat miscellaneous hard to coat items with four layer petrolatum tape system or heat shrink repair coating.

3.15 PIPE AND FITTING COATING REPAIR

A. Inspect and repair any coating or lining damage with original manufacturer's approved repair kit. Follow coating manufacturer's written directions for surface preparation and repair coating application. Utilize potable water approved materials for coatings and linings in contact with potable water.

B. Complete surface preparation and field repairs of coatings and linings in accordance with coating manufacturer written directions. Observe environmental (weather and surface temperature) requirements. Allow to cure in strict accordance with coating manufacturers based on surface and weather conditions prior to handling, burial, or exposure to liquids.

C. External pipe and fitting repair coatings shall consist of external coating materials and repair procedures as recommended by the pipe or fitting coating manufacturer.

1. Fusion-bonded epoxy coated items shall be repaired with liquid epoxy repair kits provided by the fusion-bonded coating manufacturer.

2. Epoxy coated items shall be repaired with repair coating from the original coating manufacturer.

3. Spot coating damage at thermite weld connections not covered by standard thermite weld cap coating repair procedure shall be repaired with a field applied 6-inch minimum piece of tape coating, 6-inch minimum size of heat shrink repair material, or a 100 percent solids epoxy repair coating that can cure in either wet or dry conditions.

3.16 FUNCTIONAL AND PERFORMANCE TESTING

A. Functional Testing: Provide the Engineer with a minimum of twenty one (21) days' advance notice before beginning functional testing unless the Engineer is already scheduled to or already onsite doing construction observations (services during construction). At such a time as the Engineer may indicate, the Contractor, in the presence of the Engineer shall conduct the following functional testing.

B. Test Stations:

1. Test each test station wire for continuity, correct termination, and proper connection and color code to the designated structure. Test each wire for continuity with potential measurements to a copper/copper sulfate

reference electrode and with an ohm-meter between wires prior to connecting together on the terminal board.

2. Test the buried permanent reference electrode test leads and potentials to confirm correct operation. If the reference electrode does not provide equal or near equal potential measurements to a portable copper/copper sulfate reference electrode (convert if required depending on buried reference electrode type), then saturate the buried reference electrode by pouring water down the plastic monitoring pipe. Retest the buried reference electrode again several days later after the buried reference electrode is moist.

3. Do not connect reference electrodes to pipe test lead terminals.

C. Tracer Wires:

1. Demonstrate correct installation of tracer wire access boxes and tracer wire continuity by field functional tests. Acceptable tracer wire continuity testing methods shall consist of electrical continuity (four wire) type testing, demonstrating voltage (potential) changes at end of line from temporary connection to a DC current source at far end of the tracer wire, verification of a voltage measurement to a test battery with the tracer wire as one side of the two wire circuit, and/or use of commercially available cable continuity verification testing equipment utilized in accordance with the test equipment manufacturer's written instructions. Use of typical pipe locating type equipment may walk through tracer wire breaks and is not an acceptable continuity verification test method. Provide test data to Engineer for review and approval prior to acceptance of tracer wires and access boxes.

D. Galvanic Anode Energizing and Testing:

1. Some of the galvanic anodes will be connected to the pipe or the fittings in the anode test stations with calibrated shunts after the installation of the galvanic anode cathodic protection system is completed.

2. Test continuity of each anode lead wires and to confirm correct type of anode with potential measurements prior to connecting to test station terminal board. Zinc anodes should read a minimum of -1.0 volt and high potential magnesium anodes shall read a minimum of -1.6 volt to a copper/copper sulfate reference electrode

3. Do not connect anode and pipe leads together in test stations until Engineer is present.

3.17 FINAL TESTING

A. General:

1. After construction is complete and all of the individual functional tests have been completed by the Contractor, the Engineer shall conduct final testing on the pipeline to ensure proper installation of the specified corrosion protection items. At Contractor's option, he may be present during this final testing if desired.

B. Galvanic Anodes Cathodic Protection System: he Engineer shall make sufficient tests throughout the network of galvanic anode cathodic protected metallic pipe and fittings to determine proper installation of the galvanic anode cathodic protection system.

C. Any construction defects or incomplete work identified by the Engineer during functional or final testing or during warranty inspections shall be located and corrected by the Contractor at his sole expense including additional Engineering, retesting, and inspection time.

D. Any defects in the corrosion protection system, (including but not limited to coating or lining, pipeline continuity, pipeline electrical isolation, cathodic protection system, test stations, etc.) when discovered shall immediately be repaired and retested in a timely manner (warranty work shall be completed within 60 days of notice) by the Contractor in accordance with this specification and the written product manufacturer's instructions as reviewed and approved by the Engineer. Provide the Engineer with a minimum of 14 days' advance notice before beginning warranty repairs.

END OF SECTION 13901

PART 1 GENERAL

1.01 WORK INCLUDED

A. This section covers the work necessary for furnishing and installing combination air valve pit assemblies.

1.02 SUBMITTALS

1. The Contractor shall submit product information for all materials being provided for the project for approval by the Engineer.

PART 2 PRODUCTS

2.01 MANHOLES - AIR RELEASE VALVES

A. General: Combination air release valve manholes shall be constructed of precast concrete sections with rings, covers, and steps in accordance with the Drawings.

B. Precast Concrete Sections: Manholes shall conform to ASTM C478, Precast Manhole Sections, including mandatory rejection requirements. Manholes shall have precast, flat tops, with steel reinforcement designed for AASHTO HS-20 Highway Loading. All joints, including top joint, shall be sealed with butyl rubber joint sealant.

C. Steps: Steps shall be non-corrosive steps, 12-inches wide, consisting of ½-inch steel rod encased wit polypropylene. Steps shall withstand vertical loads of 400 pounds and pull-out resistance of 1000 pounds. Steps shall be in accordance with ASTM C478.

D. Rings and Covers: Concrete manhole rings and covers shall be Neenah R-1755-G, or R-1755-E as shown on the Drawings with Type G locking Device and pentagon bolt locks or equivalent. The inner lid shall be solid aluminum with two handles for easy removal. A 4-inch polystyrene insulation layer shall be bolted to the underside of the inner aluminum lid.

2.02 INSULATION

A. The exterior of manholes shall be coated with blown on urethane insulation as shown on the drawings. Insulation shall be a minimum of 3-inches thick on top of manholes and 4-inches thick on side of the manholes after curing. Blown on urethane insulation shall be as supplied by Urethane Contractors and Supply, Rosewell, New Mexico, or approved equivalent.

B. Exercise care while installing manholes, pipe, and exterior piping fittings to avoid damage to the insulation.

C. Conduct backfill operations around and near the manholes so as not to damage insulation.

D. Replace any damaged insulation by field repair methods approve by insulation manufacturer.

PART 3 EXECUTION

3.01 MANHOLES

A. Excavation: See Section 02220, EARTHWORK FOR STRUCTURES, for excavation and backfill requirements.

B. Construction: Manholes shall be constructed and installed according to the dimensions, lines, and grades shown on the Drawings. Water main openings shall be cast smooth to form the openings to the size shown. The annulus around the water main and other penetrations shall be grouted with non-shrink cement grout or filled with silicon rubber sealants. An option to cement grout or rubber sealant around water piping penetrations is a PSX press seal manhole boot manufactured by Press Seal Gasket Corporation. Manhole boot shall meet the requirements of ASTM C-923.

C. Placement: The precast sections shall be carefully placed and set plumb and vertical. The precast concrete top shall be placed with the opening as noted on the Drawings. All joints shall be sealed.

3.02 AIR VALVE PITS

A. Placement: The air valve pits shall be carefully placed and set plumb and vertical. The connection piping from water main to the pit assembly shall have a constant grade to prevent trapping of air.

3.03 CLEANUP

A. The backfilled excavation shall be graded smooth and left in a neat condition. Construction debris and materials shall be removed from the site.

END OF SECTION 15005

PART 1 GENERAL

1.01 WORK INCLUDED

A. The work of this section covers the material specification for all pipe, pipe fittings, and pipe accessories to be utilized, including methods of pipe jointing and general installation guidelines.

1.02 SUBMITTALS

1. The Contractor shall submit product information for all materials being provided for the project for approval by the Engineer.

PART 2 PRODUCTS

2.01 GENERAL

A. The materials to be used for the piping systems shown on the Drawings are listed by service in the Piping Schedule shown at the end of this section.

B. Specific note is made of the EPA Lead in Drinking Water Act regarding requirements for no lead in brass and bronze fittings.

2.02 PIPE ENDS FOR BURIED PIPING

A. Push-on joint pipe ends shall be used for PVC pipe buried below ground surfaces unless directed otherwise.

2.03 JOINTS FOR PVC/PE CONNECTIONS

A. Joints for pipe 3 inches in size and larger shall be made with mechanical joint, 12-inch minimum long ductile iron sleeves with a minimum pressure rating of 350 PSI, joint restraints, PE pipe stiffening insert, and be coated and protected as specified in Section 13901, CORROSION PROTECTION.

2.04 POLYETHLENE BAGGING

A. Polyethylene bagging for valve boxes shall be 4-mil cross laminated high density polyethylene manufactured in accordance with the latest edition of ANSI/AWWA C105/A21.5, ASTM D 1248-89.

2.05 CORROSION PROTECTION

A. As specified in Section 13901 CORROSION PROTECTION PLASTIC PIPE and in PART 3 EXECUTION of this section.

2.06 POLYVINYL CHLORIDE (PVC) PIPE

A. Pipe: PVC shall be fabricated of materials which conform to ASTM D 1784. The different pipe designations shall meet the following requirements:

1. CL250 ASTM Pipe: Class 250 ASTM pressure pipe shall have a maximum SDR of 17 per ASTM D 2241.

2. CL165 C905 Pipe: Class 165 C905 pipe shall have a maximum DR of 25 per AWWA C905.

3. CL235 C905 Pipe: Class 235 C905 pipe shall have a maximum DR of 18 per AWWA C905.

4. Schedule 40 Pipe and Fittings: Schedule 40 pipe and fittings shall meet the requirements of ASTM D 1784, ASTM D 1785, and ASTM D 2466.

5. Schedule 80 Pipe and Fittings: Schedule 80 pipe and fittings shall meet the requirements of ASTM D 1784, ASTM D 1785, and ASTM D 2426.

B. Joints:

1. A rubber-ring gasketed push-on style bell and spigot joint providing a positive seal against pressure or vacuum shall be provided. Joint and gasket dimensions shall comply with the manufacturers' production standards and those dimensions shall be made available to the Owner on request. The bell sections shall be designed to be at least as hydrostatically strong as the pipe wall. Joints shall meet the requirements of ASTM D 3139. The gaskets shall be reinforced with a steel band conforming to the requirements of ASTM F-477. Gaskets shall be installed, or anchored, in the pipe at the factory.

2. Pipe ends shall be square cut and beveled for insertion into a bell. The spigot end shall be marked to show the point of correct insertion. Each length shall be marked as to Class, Type, and Grade.

3. Restrained-joint PVC for use in stream crossings, casing pipe, and pipe slopes greater than 15% grade shall be joined using non-metallic couplings to form an integral system. High-strength, flexible thermoplastic splines shall be inserted into mating, precision machined grooves in the pipe and coupling to provide full 360º restraint.

C. Fittings:

1. Pipe fittings for 8-inch and smaller PVC ASTM CL160 and CL200 pressure pipe shall be of PVC construction with push-on gasketed fittings and a minimum pressure rating of 200 PSI. Fittings shall meet the requirements of ASTM D-1784, ASTM D-3139, and ASTM F-477. Solvent welded fittings are allowable only where specifically shown.

2. Pipe fittings for all classes of 10-inch and larger pipe, all PVC ASTM CL250 pressure pipe, and AWWA C900 PVC pipe shall be of ductile iron with push-on or mechanical joints where specifically noted and a minimum pressure rating of 350 PSI. Fittings shall meet the requirements of ANSI/AWWA C153/A21.53 and ANSI/AWWA C111/A21.11 (current revisions).

a. Ductile iron fittings shall be coated and protected in accordance with Section 13901, CORROSION PROTECTION.

2.07 POLYETHYLENE PIPE

A. Service Connections and Air Valve Connections: Polyethylene pipe shall be PE 4710 high density polyethylene pipe (HDPE) meeting the requirements of ASTM D3350 cell classification PE 445574C/E. HDPE shall be manufactured in accordance with AWWA C901 and be iron pipe size (IPS).

1. 250 PSI pipe: PE pressure pipe specified to have a minimum pressure rating of 250 PSI shall have a maximum SDR of 7.3.

2. Joints: Polyethylene pipe shall be of continuous construction in rolls of the manufacturer's standard length. Pipe rolls shall be joined with couplings. Pipe ends shall be cut square and joined in accordance with the manufacturer's recommendations.

3. Fittings: Fittings for connecting to polyethylene pipe shall be pack joint compression type fittings as recommended by the manufacturer.

B. Stream and Road Crossings: PE pressure pipe installed at stream or road crossings with trenchless construction methods shall be PE 4710 high density polyethylene pipe (HDPE) meeting the requirements of ASTM D3350 cell classification PE 44557C/E. HDPE shall be manufactured in accordance with AWWA C901 for pipe 3-inch and smaller and AWWA C906 for pipe 4-inch and larger. Pipe shall be same size as adjoining pipe (iron pipe size, or ductile iron pipe size).

1. 250 PSI pipe: PE pressure pipe specified to have a minimum pressure rating of 250 PSI shall have a maximum SDR of 7.3.

2. 200 PSI Pipe: PE pressure pipe specified to have a minimum pressure rating of 200 PSI shall have a maximum SDR of 9.

3. 160 PSI Pipe: PE pressure pipe specified to have a minimum pressure rating of 160 PSI shall have a maximum SDR of 11.

4. Joints: Pipe shall be provided in the manufacturer’s standard lengths. Lengths shall be joined by heat fusion in accordance with manufacturer’s recommendations.

5. Fittings: Fittings for connecting to polyethylene pipe 2 inch and smaller shall be pack joint compression type fittings as recommended by the manufacturer. Fittings for connecting to polyethylene pipe 3 inch to 12 inch in size shall be made with mechanical joint, 12-inch minimum long ductile iron sleeves with a minimum pressure rating of 350 PSI, joint restraints, PE pipe stiffening insert, and be coated and protected as specified in Section 13901, CORROSION PROTECTION.

2.08 GALVANIZED STEEL (GS) PIPE

A. Pipe: Carbon steel, galvanized, seamless or electric resistance welded, ASTM A 53, Grade B or ASTM A 106, Grade B, Schedule 40.

B. Joints: Screwed or flanged as specified on the plans.

C. Fittings: Screwed, 150-pound malleable iron, galvanized, ASTM A 197 or ASTM A 47, dimensions conforming to ANSI B16.3; unions, 300-pound malleable iron, galvanized, ASTM A 197 or ASTM A 47, dimensions conforming to ANSI B16.3, brass to iron seat.

D. Branch Connections: Screwed tees or flanged tees, where specified on the plans, as specified under FITTINGS.

E. Thread Lubricant: Teflon tape or joint compound that is insoluble in water.

F. Flanges:

1. Forged steel, galvanized, ASTM A 181, Grade 1, slip-on type, faced and drilled 150-pound, 1/16-inch raised face, ANSI B16.5 standard, or AWWA C207, Class D hub type, faced and drilled 125-pound flat face, ANSI B16.1 standard.

2. The raised face of steel flange shall be machined off when mating with a cast iron flat faced flange.

G. Bolting:

1. 150-pound RF Flanges — Carbon steel, galvanized, ASTM A307, Grade A hex head bolts & ASTM A563, Grade A hex head nuts

125-pound FF AWWA Class D Flanges — Carbon Steel, galvanized, ASTM A307, Grade A hex head bolts & ASTM A563, Grade A hex head nuts

2. When mating flange on equipment is cast iron and gasket is flat ring type, use ASTM A 307, Grade B, galvanized, square head bolts and ASTM A 563, Grade A, galvanized heavy hex head nuts.

3. When 1/8-inch undersize bolting material is used for steel insulating flanges, use ASTM A 193, galvanized, Grade B7 alloy stud bolts and ASTM A 194, galvanized, Grade 2H carbon steel heavy hex nuts.

H. Gaskets for Flanged Joints: One-and-one-half-inch thick Teflon composition flat ring type with 150-pound RF flanges; 1/16-inch thick full face type with 125-pound FF flanges; John-Crane; Garlock; or equivalent.

2.09 JOINT RESTRAINTS

A. General: Joint restraints shall be provided were called for on the Drawings, where pipe slopes are greater than 15%, on either side of blow off valves, and air release valves as called for on the detail drawings. Restrained - joint PVC, specified hereinafter, may be provided in lieu of joint restraints.

1. Joint restraints shall be coated and protected in accordance with Section 13901, CORROSION PROTECTION

B. Joint restraints for mechanical joint connections to PVC pipe shall be Series 2000PV or Series 2200 retainer gland as manufactured by EBAA Iron, GripRing pipe restrainer as manufactured by ROMAC Industries, or equivalent.

C. Joint Restraints for PVC bell and spigot pipe connections shall be Series 6500, 1600, or 2800 retainers as manufactured by EBBA Iron or equivalent.

D. Joint Restraints for push-on connections to PVC fittings shall be Series 7500 as manufactured by EBBA Iron or equivalent.

E. Joint Restraints for push-on connections to DI fittings shall be Series 15PF00 as manufactured by EBBA Iron or equivalent.

2.10 PIPE COUPLINGS

A. General: Flexible couplings and transition couplings shall be provided where shown on the Drawings. Size shall be compatible with the outside diameter of pipe(s) on which the coupling is installed.

1. Couplings shall be coated and protected in accordance with Section 13901, CORROSION PROTECTION

B. Flexible Couplings: Flexible couplings for use with PVC pipe shall be Smith-Blair Omni 441, or equivalent. Flexible couplings for steel pipe shall be Dresser Style 38 or Smith-Blair Style 411, or equivalent, with steel bolts.

C. Transition Couplings: Transition couplings shall be installed to connect pipes with small outside diameter differences such as different pipe types of the same nominal size. Different couplings shall be installed depending on type of pipe.

1. Where one of the pipes being joined is ASTM CL160 or CL200 PVC pipe, or specifically the 2-inch transition, transition coupling shall be Smith-Blair Omni 441, or equivalent. Gaskets and follower flanges shall be appropriately sized for the type of pipes being joined.

D. Flanged Coupling Adapters: Flanged coupling adapters shall be Series 912 for ductile iron piping and Series 913 for steel piping, as manufactured by Smith-Blair, Style 127 for ductile iron piping and Style 128 for steel piping, as manufactured by Dresser Industries, Inc., RFCA for PVC as manufactured by Romac Industries, Inc.

Series 2100 as manufactured by EBBA Iron or equal. Minimum working pressure shall be 150 psi.

2.11 SERVICE SADDLES AND TAPPING SLEEVES

A. General: Service saddles shall be installed for air valves and service connections on 4-inch and larger PVC pipelines. Tapping sleeves shall be installed for connections to existing piping. Saddles and sleeves shall be sized for the appropriate pipe and tap size as shown on the Drawings. Saddles and sleeves shall be manufactured specifically for the type of pipe being tapped (PVC, cast iron, ductile iron, or asbestos – cement).

1. Corrosion protection shall be in accordance with Section 13901, CORROSION PROTECTION.

B. Saddle for 4-inch and Larger Pipe. Service saddles for 4-inch and larger CL160/CL200 ASTM D2241 PVC pipe shall provide full-circumferential support of the pipe. Service saddles shall be one of stainless steel construction as specified below.

1. Stainless steel saddles shall be of type 304 stainless steel construction. Saddles shall be minimum 5 inches wide for 4-inch and larger pipe. Outlet taps shall be stainless steel with FIPT connections sized as required. Saddles shall have Buna-N rubber gaskets. Nuts and bolts shall be type 304 stainless steel with bolts an integral part of the saddle such that only one nut per bolt is required. A minimum of one bolt for saddles with outlet taps 1 inch and smaller and two bolts for saddles with taps 1-1/2 or 2 inches is required. Saddles shall be Ford Style FS313 for pipe 3 inches and larger in size, or Power Seal Model 3412, Smith-Blair Models 371 and 372 for pipe 4 inches and larger in size, or equivalent.

C. Tapping Sleeves shall be constructed of stainless steel with stainless steel nuts and bolts. Outlet gasket shall be Buna-N and the sleeve gasket shall be gridded virgin GPR. Outlet shall be standard flange connection. Tapping sleeve shall be a Ford style FAST or approved equivalent sized for the specific size and type of pipe.

D. Service saddles for pressure gauge assemblies shall be installed in the vaults where shown on the drawings. Service saddles shall be brass alloy conforming to ASTM B-62 and AWWA C800 for standard PVC pipe; shall have a hinge pin body and strap design; and have a tap size of ¾-inch. Service saddles for these assemblies shall be Ford style S70 with a hinged design or approved equivalent.

2.12 SAMPLE TAP

A. A single, right angle outlet, smooth nose, brass sample tap shall be affixed to the manual vent ball valve for the sample tap assembly.

2.13 MARKER POSTS

A. Marker posts shall be one piece, self-locking posts with locking tabs to anchor the post. Posts shall be constructed of ultraviolet light resistant, coextruded polymer material with a round shaft and flat top. Posts shall be blue in color with a decal affixed to the flat top with words "Warning, Water Pipeline". Marker posts shall be Sentry Posts, manufactured by Safe-Hit Corporation, Hayward California; Carsonite Utility Marker posts, manufactured by Carsonite International Corporation; or equivalent.

2.14 PIPE INSULATION

A. Insulation shall be 2” polystyrene board.

PART 3 EXECUTION

3.01 PIPE PREPARATION AND HANDLING

A. Each pipe and fitting shall be carefully inspected before the exposed pipe or fitting is installed or the pipe or fitting is lowered into the trench. Clean ends of pipe thoroughly. Remove foreign matter and dirt from inside of pipe and keep clean during and after laying. A maximum of 1000 feet of pipe may be distributed along the pipe route, on the ground surface, ahead of the trenching and excavation operation.

B. Use proper implements, tools, and facilities for the safe and proper protection of the pipe. Carefully handle pipe in such a manner as to avoid any physical damage to the pipe. Do not drop or dump pipe into trenches under any circumstances.

C. Pipe Cutting: Cutting for closure or other reasons shall be done neatly by methods which will not damage pipe. Plastic pipe shall be cut with fine tooth saw, cutter, or knife designed for use with plastic pipe. Burrs shall be removed by smoothing edges with a knife, file or sandpaper. Spigot end shall be beveled.

3.02 INSTALLATION OF BURIED PIPING

A. Preparation of Trench: Trench Excavation and Backfill and Stabilization shall be in accordance with Section 02221, TRENCH EXCAVATION AND BACKFILL.

B. Polyvinyl Chloride Pipe:

1. Join pipe in strict accordance with the manufacturer's recommendations. Provide all special tools and devices, such as special jacks, chokers, and similar items required for proper installation. Lubricant for the pipe gaskets shall be furnished by the pipe manufacturer, and no substitutions will be permitted under any circumstances.

2. After a section of pipe has been lowered into the prepared trench, clean the end of the pipe to be joined, the inside of the joint, and the rubber ring immediately before joining the pipe. Make joint assembly in accordance with

the manufacturer's recommendations. Provide all special tools and appliances required for the jointing assembly.

C. Thrust Blocking: Provide thrust blocking at all bends, tees, reducers and other similar locations. Place thrust block concrete against undisturbed earth. Construct suitable forms to obtain shapes that will provide full bearing surfaces against undisturbed earth, as indicated. Cure thrust blocks before conducting hydrostatic tests. Take care not to over excavate in the areas where thrust blocks are to be placed. The blocking shall be so placed, unless specifically shown otherwise, so that pipe and fitting joints will be accessible for repairs. Thrust blocks shall be sized for hydrostatic test pressure.

D. Connecting Dissimilar Pipe Materials: Connect dissimilar pipe materials by means of a flexible coupling, specified herein. Install fittings in strict conformance with the manufacturer's recommendations.

3.03 WATER AND SEWER MAIN CROSSINGS

A. Where water piping crosses over or under existing sewer piping, modifications to the water pipe and/or associated trench backfill shall be made depending on the size and type of sewer main being crossed. For any crossing, regardless of sewer size, water piping shall be installed to provide a minimum of 18 inches of separation between the water pipe and the sewer pipe wherever possible. Water piping shall be installed to provide for a 20-foot length of pipe centered at the sewer pipe crossing.

1. If water piping crosses over or under existing 6-inch and larger gravity pipe or any force main piping, modifications to the associated trench backfill shall be made as detailed hereafter.

a. If the water pipe crosses under the existing sewer gravity or force main, the water pipe shall be encased with concrete as described below and shown on the detail drawing.

b. If the water pipe crosses over the existing sewer gravity or force main, the existing sewer pipe shall be encased with concrete as described below and shown on the detail drawing.

c. Piping shall be encased with lean concrete for 10 feet on both sides of the crossing. Concrete shall have a compressive strength of 1000 PSI, with encasement dimensions of the pipe OD plus 16 inches, centered on the encased pipe. Place a polyethylene layer around the pipe prior to concrete placement.

2. If water piping crosses over or under existing 4-inch and smaller gravity sewer piping, modifications to the water main piping installation shall be made. Water main shall be encased in casing pipe per applicable portions of Section 02225, BORING AND JACKING. Casing piping shall be a 20-foot length of pipe centered at the sewer pipe crossing. Casing pipe shall not be in contact with any portion of the existing sewer pipe. In no case shall water piping cross perforated sewer pipe (eg. Septic tank drainfield).

3.04 INSTALLATION OF FLEXIBLE COUPLINGS, FLANGED COUPLING ADAPTERS, AND TRANSITION COUPLINGS

A. Prior to installation, thoroughly clean oil, and dirt from the pipe to provide a clean seat for the gasket. Care shall be taken that the gaskets are wiped clean before they are installed. Flexible couplings, flanged coupling adapters, and transition coupling gaskets shall be lubricated with manufacturer's standard lubricant before installation on the pipe ends. Install in accordance with the manufacturer's recommendations. Bolts shall be tightened progressively, drawing up bolts on opposite sides until all bolts have a uniform tightness. Workmen tightening bolts shall use torque-limiting wrenches.

3.05 INSTALLATION OF EXPOSED PIPING

A. All pipe flanges shall be set level, plumb, and aligned. All flanged fittings shall be true and perpendicular to the axis of the pipes. All bolt holes in flanges shall straddle vertical centerline of pipes.

B. Piping shall be installed without springing or forcing the pipe in a manner which would set up stresses in the pipe, valves, or connected equipment.

C. Where valve handwheels are not shown, valves shall be oriented so that the valve stem is vertical.

3.06 FABRICATION OF FLANGED PIPE

A. Flanged pipe may be fabricated in the shop or in the field. Threaded flanges shall be individually fitted and machine tightened on matching threaded pipe by the manufacturer. Flanges shall be faced after fabrication in accordance with ANSI A21.15/AWWA C115. A sufficient number of selected flange-to-pipe threaded joints shall be hydrostatically shop tested to ensure joint integrity.

3.07 CORROSION PROTECTION

A. General:

1. Protect all pipe and piping accessories from corrosion and adverse environmental conditions. Protection shall include lining and coatings of pipe, material selection, joint bonding and cathodic protection, and/or coatings of supports, tie rods, expansion joints, and all other piping accessories and appurtenances.

2. Not all corrosion protection details are included, either on the Drawings or in the Specifications. The absence of specific details on corrosion and environmental protection measures shall not relieve the Contractor of the responsibility of providing them, all as part of the Contract price.

3. Additional requirements for protection to those specified below in Section 13901, CORROSION PROTECTION.

B. Buried Pipe Coatings:

1. Steel Pipe: As specified in Section 13901, CORROSION PROTECTION.

2. Ductile Iron Pipe: As specified in Section 13901, CORROSION PROTECTION for tight bonded or tape wrap coating systems.

3. Buried Valves, Fittings, and Similar Elements:

a. On Coated Ferrous Metallic Pipelines: Provide and coat in accordance with Section 13901, CORROSION PROTECTION.

b. On Nonmetallic Pipelines: Coat valves and fittings in accordance with 13901, CORROSION PROTECTION, and as specified elsewhere.

c. On Cement-Coated Pipelines: Cement-coat appurtenances.

4. Piping Accessories:

a. Provide corrosion protection for ferrous metal piping appurtenances in accordance Section 13901, CORROSION PROTECTION and as specified elsewhere.

b. Tie-rods and similar items: Heat shrink tube wrapped.

c. Flange bolts, nuts, and similar items: Fusion bonded coated, or Series 300 stainless steel in accordance with Section 13901, CORROSION PROTECTION.

d. Flexible couplings, grooved couplings, and similar items: Heat shrink wrapped or cement-coated, and as shown.

C. Atmospheric Exposed Pipe Coatings:

1. Paint pipe as specified in Section 13900, CORROSION PROTECTION.

2. Piping Accessories:

a. Paint atmospheric exposed surfaces piping components as specified in Section 13901, CORROSION PROTECTION.

b. Accessories include, but are not limited to, pipe hangers, supports, expansion joints, pipe guides, flexible couplings, vent and drain valves, and fasteners.

D. Submerged or Embedded Pipe:

1. Carbon Steel Piping: Coat exterior of submerged or embedded carbon steel piping as specified in Section 13901, CORROSION PROTECTION

2. Ductile Iron and Cast Iron Soil Pipe: Coat as specified in Section 13901, CORROSION PROTECTION

E. Pipeline Linings:

1. Buried steel piping and all ductile iron piping shall be cement mortar lined as specified in this section. Section 13901, CORROSION PROTECTION, and the Detail Piping Specifications.

2. Exposed or submerged steel pipe shall be epoxy lined per Section 13901, CORROSION PROTECTION General:

3.08 TESTING

A. General: Conduct pressure and leakage tests concurrently on all newly installed pipelines. Furnish all necessary equipment and material and make all taps in the pipe, as required. The Owner will monitor the tests. Test pressures shall be as specified. New pipelines which are to be connected to existing pipelines shall be tested by isolating the new pipe with grooved end pipe caps, spectacle blinds, or blind flanges, plugs or other fittings as appropriate for the pipe type.

B. Preparation and Execution: Conduct hydrostatic and leakage tests on piping after the trench has been adequately backfilled. The Contractor may, if field conditions permit, as determined by the Engineer, partially backfill the trench and leave the joints open for inspection and conduct an initial service leak test. The acceptance test shall not, however, be conducted until all backfilling has been completed. Conduct the tests on exposed piping after the piping has been completely installed, including all supports and anchors.

C. Hydrostatic Leak Test:

1. Water: Water for flushing and testing shall be clean and will be provided to the Contractor from the Water Maintenance and Conservation Department (WM&C) or the local utility company. Coordinate flushing and testing with the WM&C or the local utility company. Contact the WM&C (605-867-1999) or the local utility company for water use rates and payment terms.

2. Water may be limited or not available for testing, cleaning, and disinfection when needed. The Contractor shall schedule these activities as appropriate to utilize available water without depleting supplies for existing users. Reasonable time extensions will be granted for delays directly attributable to limited or unavailable water, as determined by the Owner.

3. Procedure: Slowly fill the test section with water to expel air from the pipeline. Temporary vent outlets with valves shall be installed as required for complete venting of the pipeline during filling.

4. Testing Equipment: The Contractor shall provide all necessary piping connections together with test pumping equipment, water meters, pressure gauges, and other materials, equipment, facilities, and labor required for the

tests. Water meters and pressure gauges shall be accurately calibrated and shall be subject to inspection by the Engineer. Test pressures shall be applied by means of a force of such design and capacity that the required pressure can be applied and maintained without interruption for the duration of each test.

5. Test Pressures and Limitations:

   a. Sections shall be tested at 1.5 times the working pressure at the lowest elevation point of the section being tested.

   b. Test pressure shall be greater than 1.25 times the normal working pressure at the highest point along the test section.

   c. Test pressures shall not exceed pipe, fitting, valves, or thrust block design pressures.

   d. Test duration shall be at least two hours.

   e. Pressures shall not vary by more than 5 PSI.

6. Leakage: The pump suction shall be in a barrel or metered so that the amount of water required to maintain the test pressure may be accurately measured. This measurement represents the leakage which is defined as the quantity of water necessary to maintain the specified test pressure for the test duration. The pipeline will not be accepted if the leakage is greater than the allowable leakage defined as follows:

$$L = \frac{SD\,(P)^{1/2}}{133{,}200}$$

where: L = Allowable leakage in gallons per hour
S = Length of pipe tested in feet
D = Nominal pipe diameter in inches
P = Average test pressure in PSI

7. Leakage Repair: The Contractor shall repair any leakage at his own expense and retest the pipeline until allowable leakage is achieved.

3.09 CLEANING WATER MAINS

A. Prior to chlorination the service lines shall be flushed thoroughly after the pressure test and leakage test are completed.

B. It must be understood that such flushing removes only the lighter solids and cannot be relied upon to remove heavy materials allowed to get into the pipe during laying. If heavier materials and debris are observed in the line during construction the Contractor shall also clean pipelines 3 inches in size and larger by pigging with a flexible pig made specifically for this purpose. The flushing velocity in the main shall be not less than 2.5 feet per second. If no blow-off valve is installed at the end of

the main, a tap shall be provided to achieve a velocity in the main of at least 2.5 feet per second. The following table shows the rates of flow required to produce a velocity of 2.5 feet per second in pipes of various sizes.

Pipe Diameter (Inches)	Required Flow (GPM)	Minimum No. of Taps/Size
1 ½	14	1 Each 1-inch
16	1500	2 Each 6-inch
20	2400	3 Each 6-inch

3.10 DISINFECTING WATER MAINS

A. General. All water main, service pipe and appurtenances installed under this project shall be disinfected in accordance with AWWA C651 prior to being placed in service. The pipelines shall be kept as free as possible of dirt and other foreign matter. Water used for disinfection shall be wasted. Extreme care shall be taken to prevent wastewater from passing into the water system.

B. Forms of Chlorine. Two different forms of chlorine may be used for water line disinfection: 100 percent liquid chlorine and sodium hypochlorite.

1. Liquid chlorine containing 100 percent available chlorine under pressure in steel containers shall conform to AWWA B301 and shall be used only in combination with appropriate gas-flow chlorinators and ejectors.

2. Sodium hypochlorite in liquid form containing approximately 5 to 15 percent available chlorine shall conform to AWWA B300.

C. Methods of Chlorination. Two different chlorination methods may be used: continuous feed method and slug method. Hypochlorite tablets or powder will not be allowed. The Engineer may be consulted for assistance in determining chlorine concentrations for the different methods and forms of chlorine.

1. The continuous feed method requires a chlorine solution of 50 mg/l being fed into the pipe and retained for 24 hours. The residual chlorine concentration at the end of 24 hours shall be 25 mg/l or more, or the process must be repeated.

2. The slug method requires that a chlorine concentration of 100 mg/l or more be retained for a minimum of three hours.

3. In situations where new piping, fittings, or appurtenances cannot be disinfected along with other piping, the interior of the item shall be swabbed or sprayed with a 1 percent solution of hypochlorite.

D. Operate all valves, hydrants, and other appurtenances during disinfection to assure that the disinfection mixture is dispersed into all parts of the line, including dead

ends, new services, and similar areas that otherwise may not receive the treated water.

E. Do not place concentrated quantities of commercial disinfectants in the line before it is filled with water.

F. Final Flushing. After the applicable retention period, the heavily chlorinated water shall be flushed from the pipe until the chlorine concentration is less than 0.7 mg/l or the concentration normally in the system, whichever is higher. Dispose of disinfection water in an approved manner. Do not allow disinfection water to flow into a waterway without adequate dilution or other satisfactory method of reducing chlorine concentrations to a safe level.

G. Bacteriological Testing. After final flushing, two samples shall be collected at least 24 hours apart and tested for turbidity and bacteriological quality. Testing shall show the absence of coliform bacteria and turbidity less than or equal to 1.0 NTU.

H. Redisinfection. If the testing fails to meet the bacteriological or turbidity requirements, the piping may be reflushed and resampled for testing. If subsequent testing still shows noncompliance, the piping shall be re-flushed and disinfected until satisfactory results are obtained.

I. Contractor's Responsibility. The Contractor shall be responsible for all labor, equipment, and materials for flushing, cleaning, testing, and disinfecting the water lines and appurtenances. The Contractor shall also be responsible for sampling as well as bacteriological and turbidity testing.

PIPING SCHEDULE

Service	Size	Material
Service	1.5”	CL250 ASTM 2241 PVC Pipe
Distribution	16”	CL165 and CL225 C905 PVC Pipe
Distribution	20”	CL165 AWWA C905 PVC Pipe
Stream and Road Crossings - Trenchless Construction	1½” thru 20”	160 PSI, 200 PSI, and 250 PSI Polyethylene (HDPE) Pipe

3.11 SERVICE INTERRUPTIONS AND SHUT DOWNS

A. Residents must be informed of service interruptions and shut downs at least 72 hours in advance. Shut downs can be for a maximum period of 16 hours without providing temporary water service. If shut downs last longer than 16 hours Contractor shall provide affected residents with sanitary services including bathing facilities, dining facilities, bottled drinking water, and meet any reasonable needs of those residents until service is restored. Multiple shut down require a 24 hour pause between each 16-hour shut down.

3.12 SEQUENCE OF WORK

A. Sequence of Water Line Replacement Activities: In order to meet the overall objectives of the project, certain elements of work must be completed or substantially completed within the following sequence constraints. The following sequence of construction is meant to be a guideline for the Contractor presenting one method of accomplishing desired results and includes only major items of work. It is the responsibility of the Contractor to review these items and the work to be done, and determine the methods that will be used to accomplish the tasks. The Contractor shall also submit proposed methods to the Owner and Engineer for review prior to commencing work. The proposed methods and sequencing, including shut down and service interruptions, must be approved by the Owner and the Engineer prior to starting the water line replacement work. The Contractor is still responsible for the methods used to accomplish the project objectives and all safety requirements.

1. Install new water main adjacent to existing main to be replaced. The existing main is to remain active until the entire replacement length is installed and tested.

2. Leak test, flush, and disinfect new water main.

3. Shut down existing water main and cut in new water main using couplers at both tie in points. Contractor must have a working crew for each tie in point (minimum of two crews per shut down)

4. Cap abandoned main and complete all backfilling and restoration.

END OF SECTION 15060

PART 1 GENERAL

1.01 WORK INCLUDED

A. This section covers the work necessary for furnishing and installing the various gate valves, air valves, curb stop valves, and special valves in the distribution system.

1.02 GENERAL

A. Like items of equipment specified herein shall be the end products of one manufacturer in order to achieve standardization for operation, maintenance, spare parts, and manufacturer's service.

1.03 SUBMITTALS

1. The Contractor shall submit product information for all materials being provided for the project for approval by the Engineer.

PART 2 PRODUCTS

2.01 GENERAL

A. All valves shall be complete with all necessary operating extension stems, valve boxes, worm and gear operators, operating nuts, lever operators, and wrenches which are required for the proper completion of the work included under this section. Operators and other accessories shall be sized and furnished by the valve supplier and factory mounted.

B. Valves and operators shall be suitable for the exposure they are subject to: buried, interior, exterior, as applicable. They shall have all safety features required by OSHA. Unless otherwise shown, valves shall be the same size as the adjoining pipe.

C. Buried service operators on valves larger than 2½-inches shall have a 2-inch AWWA operating nut. Valves shall be installed with valve boxes. All moving parts of valve and operator shall be enclosed in a housing to prevent contact with the soil.

D. For the purpose of designating the type and grade of valve desired, manufacturers' name is given in the following specifications. Valves of equivalent quality by other manufacturers will be considered in accordance with the General Conditions.

2.02 VALVE BOXES

A. Valve Boxes: Boxes for gate and butterfly valves shall be cast iron, 5¼-inch diameter, adjustable valve boxes with base as required for the valve size used. Valve boxes shall be of the screw type and of sufficient length for the specified pipe bury. The cast iron cover of the valve box shall be a locking lid type with a pentagon-head bolt. Valve boxes shall be Star Pipe Product, Tyler or equivalent.

1. Valve boxes shall include extension rods with 2-inch operating nut 1'-0" below grade. Extension rods shall be Fab Pipe Model #320, or equivalent.

2.03 GATE VALVES

A. Gate Valves: Gate valves 3-inches through 10-inches for buried water service shall be iron body, bronze-mounted valves with push-on joints or restrained mechanical joints (M-J),or flanged joints if specifically shown, sized to fit the adjoining pipe, resilient seated gate, nonrising bronze stem, O-ring sealed stuffing box, and 2-inch square wrench nut conforming to AWWA C509. Valves shall be rated 250-PSI minimum, and shall be American Flow Control, Mueller, Kennedy, Waterous, or equal resilient seated gate valves, to fit the specified pipe.

B. Coatings and corrosion protection systems shall be as specified hereinafter in Part 3 EXECUTION.

2.04 MISCELLANEOUS VALVES

A. Ball Valves: Valves for use with air valves, or similar, specified exposed installations shall be bronze ball valves with female iron pipe threads and shall have a minimum pressure rating of 400 PSI. Valves ½-inch - 3-inch shall be Hammond 8901, Watts Series B-6080, or approved equivalent with lever operators.

2.05 AIR VALVES - WATER PIPING

A. Combination Air Valves: Combination air valves shall be single body, double orifice and shall allow large volumes of air to escape out the large orifice when filling a pipeline and close when liquid enters the valve. During large orifice closure, the small air release orifice shall open to allow small pockets of air to escape automatically and independently of the large orifice. The large orifice shall also allow large volumes of air to enter during pipeline drainage to break the vacuum. The body inlet must be baffled to protect the lower float from direct forces of rushing air and water to prevent premature valve shut-off. The top large orifice plug or float must be protected in similar manner for the same purpose. A Buna-N seat must be fastened to the valve cover, without distortion, for drip tight shut-off. The floats shall be heavy stainless steel, hermetically sealed; designed to withstand 1000 PSI. The top plug or float shall be center guided through hex bushings for positive shut-off. Combination air valves shall be APCO Series 140C, or approved equivalent.

B. Coatings and corrosion protection systems shall be as specified hereinafter in Part 3, EXECUTION.

2.06 6-INCH BLOW OFF HYDRANT

A. 6-Inch Blow off hydrants shall be fire hydrants conforming to AWWA C502 with a 250 PSI design rating. Hydrant inlet shall be a 6-inch push-on inlet. Hydrant outlets shall consist of one pumper connection and two 2 ½-inch hose

connections. Hose nozzle threads shall be in accordance with ASA Specification B26 for National Standard Fire Hose Coupling Screw Threads, 7 ½ threads per inch. Color shall be Tan. Hydrants shall be American Flow Control Waterous Pacer, or approved equivalent.

B. 6-Inch Blow off hydrant assembly shall include a restrained mechanical joint tee on the water main with a foster adaptor between the tee and 6-inch mechanical joint by push-on auxiliary gate valve. Pipe between the auxiliary gate valve and fire hydrant shall be CL 200 AWWA C900 PVC pipe.

2.07 GEOTEXTILE FABRIC

A. Geotextile fabric for placement over gravel at the base of hydrants shall be a non-woven fabric such as CONTECH C80NW or approved equivalent.

PART 3 EXECUTION

3.01 GENERAL

A. Valves shall be tested at the same time that the adjacent pipeline is tested. Joints shall be watertight at test pressures before acceptance. The Contractor will be held liable for any damage caused by the testing.

B. Thoroughly clean threads or screwed joints by wire brushing, swabbing, or other approved methods. Apply joint compound or Teflon tape to threads prior to making joints. Joints shall be watertight at test pressures before acceptance.

C. Bolt holes of flanged valves shall straddle the vertical centerline of the pipe run. Prior to installing flanged valves, the flange faces shall be thoroughly cleaned. After cleaning, insert gasket and bolts, and tighten the nuts progressively and uniformly. If flanges leak under pressure, loosen or remove the nuts and bolts, reseat or replace the gasket, retighten and/or reinstall the nuts and bolts, and retest the joints. Joints shall be watertight at test pressures before acceptance.

3.02 BURIED VALVES

A. Gate valves shall be set with the operating nut vertical. A concrete thrust block shall be placed under the valve for support. The valve shall be protected from corrosion as specified in Section 13901, CORROSION PROTECTION. Valve boxes shall be centered and plumb over the operating nut and shall be set so that no shock or stress will be transmitted to the valve.

B. Curb stop type valves shall be joined to the adjoining pipe with integral compression fittings for PVC pipe or threaded insert fittings for polyethylene pipe. A 4 by 6 by 2-inch concrete block shall be placed under the valve for support. The curb box shall be threaded onto the curb stop and shall be set vertical. The stationary rod shall be secured to the curb stop and installed in the curb box.

3.03 BLOWOFF HYDRANTS

A. Blowoff hydrants shall be installed plumb with the pumper connection facing away from the water main. Back of hydrant base shall be braced with a concrete block placed against undisturbed earth. Hydrant shall also be set on concrete blocking. Place ½ cubic yard of 3/8-inch pea gravel around hydrant base for drainage. Cover the pea gravel with geotextile fabric. Hydrant shall be wrapped with polyethylene encasement, securely taped to form a tight wrap.

B. Blowoff hydrants shall be coated and cathodically protected in accordance with Section 13901, CORROSION PROTECTION.

3.04 EXPOSED VALVES

A. Ball Valves, Butterfly Valves, and Gate Valves. Teflon tape or joint compound shall be applied to the male end of threaded joints. Tape or compound shall be used only on metal pipe or fittings. Gaskets approved by the valve manufacturer shall be installed with flanged valves. Gate valves and butterfly valves shall be installed with the stem plumb and vertical.

3.05 AIR VALVES

A. Air valves shall be installed as shown on the Drawings in accordance with the manufacturer's recommendations. Teflon tape or joint compound shall be applied to the male end of threaded joints.

3.06 CERTIFICATION

A. If requested by the Engineer, the valve manufacturer shall furnish an affidavit stating the materials options furnished have complied with these and other referenced specifications.

END OF SECTION 15160

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
ACKNOWLEDGEMENT AND CERTIFICATION REGARDING
ARTICLE 3, SECTION 12
OF THE SOUTH DAKOTA CONSTITUTION

AUGUST 24, 2023

In accordance with the State of South Dakota Office of the Governor Executive Order 2023-13, the following will apply to all contracts:

The Contractor acknowledges and certifies that the following information is correct:

CERTIFICATION OF NO STATE LEGISLATOR INTEREST:

Contractor (i) understands neither a state legislator nor a business in which a state legislator has an ownership interest may be directly or indirectly interested in any contract with the State that was authorized by any law passed during the term for which that legislator was elected, or within one year thereafter, and (ii) has read South Dakota Constitution Article 3, Section 12 and has had the opportunity to seek independent legal advice on the applicability of that provision to this contract. By signing this contract, Contractor hereby certifies that this contract is not made in violation of the South Dakota Constitution Article 3, Section 12.

It is understood and agreed that, if this certification is false, such false certification will constitute grounds for the Department to terminate the contract.

The Contractor further agrees to provide immediate written notice to the Department if during the term of the contract it no longer complies with this certification and agrees such noncompliance may be grounds for contract termination.

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STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
BUY AMERICA

MAY 1, 2024

Section 6.9 – Page 46 – Delete and replace with the following:

6.9 BUY AMERICA – Iron & steel, manufactured (composite) products, and construction materials must be produced in the United States in accordance with these Buy America requirements. Buy America preference applies to articles, materials, and supplies required to be consumed in, permanently incorporated into, or affixed to the completed project. Buy America preference does not apply to tools, equipment, and supplies such as temporary works and other temporary items brought to the project and removed at or before the final completion of the project. Temporary items are items that are not part of contract specifications, items that are not required in the design or final working drawings, and items that are removed or could be removed but allowed to remain in place if requested by the Contractor and approved by the Engineer.

A. Certification: The following category-based requirements will apply for each article, material, or supply.

1. **Iron & Steel:** A statement will be included on the certification stating whether the iron or steel is of domestic or foreign origin. The Department will consider iron & steel that does not require separate certification in accordance with the Department's Materials Manual as miscellaneous iron & steel. The Contractor will provide the Department a completed and signed Miscellaneous Materials Buy America Certificate stating the miscellaneous iron & steel required to be consumed in, permanently incorporated into, or affixed to the completed project complies with the Buy America requirements specified herein.

2. **Manufactured (Composite) Products:** Due to an existing nationwide waiver, manufactured (composite) products currently have no specific requirements.

3. **Construction Materials:** Construction materials and construction materials currently on the Department's Approved Products List will be treated as "Tier 1" items in accordance with the Required Samples, Tests, and Certificates (RSTC) section of the Department's Materials Manual. The

Contractor will provide the Department a completed and signed Miscellaneous Materials Buy America Certificate stating the construction materials required to be consumed in, permanently incorporated into, or affixed to the completed project complies with the Buy America requirements specified herein.

B. Determination of Material Category: The Department, in the Department's sole discretion, will classify an article, material, or supply into one of the following categories, (1) Iron & Steel, (2) Manufactured (Composite) Product, (3) Construction Material, or (4) Excluded Material. Articles, materials, and supplies will be considered to fall into only one single category of Buy America requirements. Some contract items are composed of multiple components that may fall into different categories. Individual components and composite items will be classified based on their nature when they arrive on the work site.

1. **Iron & Steel:** The Department will classify items wholly or predominantly composed of iron or steel or a combination of both as iron & steel.

   Predominantly of iron or steel or a combination of both means that the cost of the iron and steel content exceeds 50% of the total cost of all its components. The cost of iron and steel is the cost of the iron or steel mill products (such as bar, billet, slab, wire, plate, or sheet), castings, or forgings utilized in the manufacture of the product and a good faith estimate of the cost of iron or steel components.

2. **Manufactured (Composite) Products:** The Department will classify items not specifically classified as iron & steel, construction materials, or excluded materials which are fabricated, combined, or manufactured through a manufacturing process into a commercially available composite item as manufactured (composite) products. The Department will classify items consisting of 2 or more of the listed construction materials combined through a manufacturing process as a manufactured (composite) product. The Department will classify items consisting of 1 of the listed construction materials combined with a material not listed through a manufacturing process as a manufactured (composite) product.

3. **Construction Materials:** The Department will classify only the materials specifically listed as construction materials as construction materials.

   Minor additions of articles, materials, supplies, or binding agents to a construction material will not change the categorization of the construction material.

4. **Excluded Materials:** The Department will classify cement and cementitious materials; aggregates such as stone, sand, or gravel; and aggregate binding agents or additives as excluded materials.

C. Iron & Steel: Structural steel and other iron and steel products will be produced in the United States. To be considered produced in the United States, all manufacturing processes, from the initial melting stage through the application of coatings, must occur in the United States. The application of a coating is interpreted to mean all processes that protect or enhance the value of material or product to which it is applied; examples are epoxy coatings, galvanizing, and painting.

Buy America does not apply to iron ore, scrap, pig iron, and processed, pelletized, and reduced iron ore.

If iron ingots or steel billets produced in the United States are sent out of the country for a subsequent manufacturing process and then are brought back into the United States, the full value of the iron or steel as it reenters the country (including the original billet cost and any coatings) will be considered foreign.

If foreign iron or steel components are combined with other components into a fabricated or assembled manufactured (composite) product, the foreign iron or steel content of the manufactured (composite) product is not only the value of the foreign iron or steel components, but also the pro-rata value of the fabrication and assembly labor and overhead used in the combining the foreign iron or steel and other components into the finished manufactured (composite) product, including coatings.

D. Manufactured (Composite) Products: Iron and Steel components of manufactured (composite) products will comply with the Buy America requirements for iron & steel. Due to an existing nationwide waiver, manufactured (composite) products without iron and steel components currently have no specific requirements.

E. Construction Materials: Construction materials will be produced in the United States. Each construction material is followed by a standard for the material to be considered produced in the United States.

A construction material is an article, material, or supply that is one of the following:

1. Non-ferrous metals. All manufacturing processes, from initial smelting or melting through final shaping, coating, and assembly, occurred in the United States.

2. Plastic and polymer-based products including polyvinylchloride, composite building materials, and polymers used in fiber optic cables. All manufacturing processes, from initial combination of constituent plastic or

polymer-based inputs, or, where applicable, constituent composite materials, until the item is in its final form, occurred in the United States.

3. Glass including optic glass. All manufacturing processes, from initial batching and melting of raw materials through annealing, cooling, and cutting, occurred in the United States.

4. Fiber optic cable including drop cable. All manufacturing processes, from the initial ribboning (if applicable), through buffering, fiber stranding and jacketing, occurred in the United States. All manufacturing processes also include the standards for glass and optical fiber, but not for non-ferrous metals, plastic and polymer-based products, or any others.

5. Optical fiber. All manufacturing processes, from the initial preform fabrication stage through the completion of the draw, occurred in the United States.

6. Lumber. All manufacturing processes, from initial debarking through treatment and planing, occurred in the United States.

7. Engineered wood. All manufacturing processes from the initial combination of constituent materials until the wood product is in its final form, occurred in the United States.

8. Drywall. All manufacturing processes, from initial blending of mined or synthetic gypsum plaster and additives through cutting and drying of sandwiched panels, occurred in the United States.

F. Unavailability of Compliant Items: If the Contractor discovers a Buy America compliant item or items does not exist or an item becomes unavailable, the Contractor will immediately notify the Department. The Contractor will furnish written documentation of the Contractor's complete efforts to obtain a compliant item. This documentation will include a complete contact log with dates and times of the Contractor's efforts to obtain a compliant item, the responses received, and any correspondence between the Contractor and potential suppliers of the item which demonstrate efforts to obtain a compliant item. If, based on review of the documentation provided, the Department determines all potential options to obtain a compliant item have been exhausted; the Department will determine the appropriate course of action.

G. Non-Compliant Items: If the Engineer, in the Engineer's sole discretion, determines an article, material, or supply provided to the project does not comply with these Buy America requirements but is available; the following will apply:

1. If the non-compliant item is not permanently incorporated into the completed work, the Contractor will not permanently incorporate the item and will replace the non-compliant item with an item that complies with the Buy America requirements specified herein at the Contractor's expense.

2. If the non-compliant item has been permanently incorporated into the completed project; the Engineer, in the Engineer's sole discretion, will determine if the non-compliant item must be removed and replaced including any completed work at the Contractor's expense or if the non-compliant item may remain in place in accordance with both of the following requirements:

   a. Minor quantities of non-compliant iron & steel may be incorporated in the Department's sole discretion based on the Department's review of the Contractor's documented invoiced material costs, provided the invoiced material costs of all non-compliant iron & steel do not exceed 0.1% of the total contract amount or $2,500, whichever is greater.

   b. Minor quantities of non-compliant iron & steel and construction materials may be incorporated in the Department's sole discretion based on the Department's review of the Contractor's documented invoiced material costs, provided the total value of the non-compliant items does not exceed 5.0% of the total applicable costs for the project or $1,000,000, whichever is less.

   The total value of the non-compliant items will include non-compliant iron & steel and non-compliant construction materials. The total value of the non-compliant items will not include excluded materials, manufactured (composite) products, or other items within the scope of an existing Buy America waiver.

   The total value of an item includes the cost of the material plus the cost of transportation to the project site, as evidenced by delivery receipt, but does not include the labor costs to assemble and install at the project site.

   The total applicable project costs will be defined as the total value of materials used in the project that are subject to a domestic preference requirement, including the total value of any iron & steel, construction materials, manufactured (composite) products, and other items within the scope of an existing Buy America waiver. The total applicable project costs will not include excluded materials.

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STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
LIABILITY INSURANCE

APRIL 21, 2022

Section 7.15 – Page 50 – Delete and replace with the following:

7.15 LIABILITY INSURANCE - The Contractor will procure and maintain at the Contractor's expense, during duration of the contract, liability insurance with an insurance company authorized to do business in the state of South Dakota, for damages imposed by law. The insurance will cover all operations under the contract, whether performed by the Contractor or by subcontractors, and will name the State of South Dakota, the Department, and the Department's officers and employees as additional insureds, but liability coverage is limited to claims not barred by sovereign immunity. The State of South Dakota, the Department, and the Department's officers and employees do not hereby waive sovereign immunity for discretionary conduct as provided by law. Before commencing the work, the Contractor will furnish certificates of insurance, certifying that the policies will not be changed or cancelled until 30 calendar days' written notice has been given to the Department.

The certificates of insurance will provide evidence that the Contractor carries sufficient liability insurance to protect the public from injuries sustained by reason of pursuing the work, and that Workers' Compensation Insurance meets the requirements of the South Dakota Workers' Compensation Law.

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STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
RESPONSIBILITY FOR DAMAGE CLAIMS

APRIL 21, 2022

Section 7.14 – Page 50 – Delete and replace with the following:

7.14 RESPONSIBILITY FOR DAMAGE CLAIMS - The Contractor will indemnify the State of South Dakota, the Department, and the State's officers and employees, from all suits, actions, or claims of any character, including suits in which the State, Department, or the State's officers and employees are sued, brought because of any injuries or damages received or sustained by any person, persons, or property arising at least in part from the Contractor's operations; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any act or omission, neglect, or misconduct of said Contractor; or because of any claims or amounts recovered from any infringements of patent, trademark, or copyright; or from any claims or amounts arising or recovered under the "Workers' Compensation Act", or any other law, ordinance, order, or decree. The Contractor's obligation to indemnify will include the payment of reasonable attorney fees and other costs of defense. So much of the money due the Contractor under and by virtue of the contract as may be considered necessary by the Department for such purpose may be retained for the use of the State; or in case no money is due, the Contractor's surety may be held until such suit or suits, action or actions, claim or claims for injuries or damages as aforesaid will have been settled and suitable evidence to that effect furnished to the Department. Money due the Contractor will not be withheld when the Contractor produces satisfactory written confirmation from the Contractor's insurer that adequate public liability insurance and property damage insurance providing coverage for such particular claims as may be made is in force, and the Contractor provides evidence the claim has been submitted to the Contractor's insurer. A copy of a certificate of insurance, without further confirmation of coverage for the particular claim being made, will not be sufficient to satisfy the requirement of written confirmation.

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STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
RESTRICTION OF BOYCOTT OF ISRAEL

JANUARY 31, 2020

In accordance with the State of South Dakota Office of the Governor Executive Order 2020-01 the following will apply to all contracts unless the amount being bid is less than $100,000:

By submitting a bid proposal for this contract, the bidder certifies and agrees the following information is correct for the bidder and all subcontractors (all tiers) and suppliers with five (5) or more employees:

The bidder, in preparing the bid proposal or in considering proposals submitted from qualified potential suppliers and subcontractors, or in the solicitation, selection, or commercial treatment of any supplier or subcontractor; has not refused to transact business activities, has not terminated business activities, and has not taken other similar actions intended to limit its commercial relations, related to the subject matter of the bid proposal, with a person or entity on the basis of Israeli national origin, or residence or incorporation in Israel or its territories, with the specific intent to accomplish a boycott or divestment of Israel in a discriminatory manner. It is understood and agreed that, if this certification is false, such false certification will constitute grounds for the Department to reject the bid proposal submitted by the bidder on this contract and terminate any contract awarded based on the bid. The bidder agrees to provide immediate written notice to the Department if, during the term of the contract awarded to the bidder, the bidder no longer complies with this certification. The bidder further agrees such noncompliance may be grounds for contract termination.

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STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
CONTRACTOR ADMINISTERED PRECONSTRUCTION MEETING

DECEMBER 18, 2019

I. DESCRIPTION

This work consists of the Contractor scheduling and conducting a preconstruction meeting prior to beginning work on this contract. Additionally, this work consists of the Contractor providing the Area Engineer a completed list of required submittals.

II. MATERIALS (Not Specified)

III. CONSTRUCTION REQUIREMENTS

The Area Engineer will provide the Contractor the Authorization Form for Preconstruction Meeting (Form DOT-270) and the Contractor's Required Submittals Form (Form DOT-272) after the date of the Notice of Award and no later than 10 business days after the date of the Notice to Proceed.

The Contractor's authorized representative as indicated on the Signature Authorization Form (Form DOT-209) will complete, in its entirety, the first page of the Authorization Form for Preconstruction Meeting and will initial each proceeding section. By initialing each section, the Contractor is confirming comprehension of each section.

The Contractor's Required Submittals Form is a document outlining information required prior to the completion of the project. This list will include two types of submittals; 1) information required before scheduling a preconstruction meeting and 2) information required before the Contractor begins related work. The Department reserves the right to request additional information not included in the original list of required submittals. The list of required submittals will include, but is not limited to, proposed sequence changes, shop drawings, permits, certifications, mix designs, labor compliance, equal employment opportunity, and disadvantaged business enterprise documents. The Area Engineer will update the Contractor's Required Submittals Form with any project specific requirements and cross out or delete those that do not apply prior to providing the document to the Contractor.

Prior to scheduling the preconstruction meeting, the Contractor will complete and provide the Area Engineer all items on the list of required submittals that are

required as described in 1) above. If the Contractor cannot complete and provide a submittal item required prior to scheduling the preconstruction meeting, the Contractor will contact the Area Engineer to establish a mutually agreed upon date when the required submittal will be completed and provided to the Area office.

The Contractor will not begin work on an item until the Contractor has provided the Area Engineer with all required information for the applicable work item and the appropriate office has approved the information, if necessary. The Contractor will make every reasonable effort to deliver the required submittals at the earliest possible time.

When the Contractor has provided the Area Engineer all required submittals, except those mutually agreed upon to be provided at a later date or dates, the Contractor will schedule a preconstruction meeting with the Area Engineer.

Within 2 business days following the Contractor scheduling the preconstruction meeting, the Area Engineer will prepare and send the Contractor a meeting confirmation and the Preconstruction Meeting Outline (Form DOT-271).

The Area Engineer will edit and amend the Preconstruction Meeting Outline, as necessary, to meet the specific needs of the project. The Area Engineer will complete the project information and the Department information prior to furnishing the form to the Contractor.

The Contractor will complete the Contractor's portion of the Preconstruction Meeting Outline and will add additional discussion items as needed. The Contractor will send the meeting notice and final Preconstruction Meeting Outline to the Area Engineer, all subcontractors, utility companies, railroad companies (if applicable), and all suppliers at least 5 business days prior to the preconstruction meeting.

The Area Engineer will send the notice of the meeting and the final Preconstruction Meeting Outline of discussion items to any other government entities and other principle stakeholders involved in the project at least 3 business days prior to the preconstruction meeting.

At the discretion of the Area Engineer, the preconstruction meeting may be held in person, videoconference, or over the phone. The Contractor's competent superintendent who will be working on this project, as required by Section 5.5, or the Contractors Project Manager, as required by the Special Provision for Cooperation by Contractor and Department (if applicable), , is required to attend the preconstruction meeting.

The Contractor will lead the meeting discussion as described in the Preconstruction Meeting Outline. The Area Engineer will prepare the meeting minutes including any unresolved items and distribute the minutes to all attendees

and principle stakeholders within 5 business days following the preconstruction meeting.

IV. METHOD OF MEASUREMENT

The Department will not make a separate measurement for the preconstruction meeting.

V. BASIS OF PAYMENT

The Department will not make a separate payment for the preconstruction meeting. All costs associated with the preconstruction meeting will be incidental to other contract items.

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DOT-208
(07/15)

FUEL ADJUSTMENT AFFIDAVIT

Project Number _____
PCN _____
County _____

For project let using the SDEBS) and in accordance with Section 9.12, the bidder is not required to notify the Department at the time of submitting bids whether the Contractor will or will not participate in the fuel cost adjustment program. Prior to execution of the contract, the successful bidder must submit this completed form to the Department for approval. The Fuel Adjustment Affidavit shall include the anticipated fuel cost of subcontractors.

Does your company elect to participate in a fuel adjustment for this contract for the fuels that do not have a fixed price? No adjustments in fuel prices will be made if "No" is checked.

☐ Yes ☐ No

If yes, provide the total dollars for each of the applicable fuels. No adjustments in fuel price will be made for the fuel types that are left blank or completed with a $0.00 value.

Diesel (x) $_____

Unleaded (y) $_____

Burner Fuel (z) $_____ Type of Burner Fuel Used: _____

Sum (x + y + z) = $_____

Note: The sum of the x, y, and z may not exceed 15% of the original contract amount.

The following must be completed regardless of whether the Contractor elects to participate in the fuel adjustment affidavit

Under the penalty of law for perjury or falsification, the undersigned, _____,
(Printed Name)

_____ of _____,
(Title) *(Contractor)*

hereby certifies that the documentation is submitted in good faith, that the information provided is accurate and complete to the best of their knowledge and belief, and that the monetary amount identified accurately reflects the cost for fuel, and that they are duly authorized to certify the above documentation on behalf of the company.

I hereby agree that the Department or its authorized representative shall have the right to examine and copy all Contractor records, documents, work sheets, bid sheets, and other data pertinent to the justification of the fuel costs shown above.

Dated _____ Signature _____

Notarization is required only when the Contractor elects to participate in the fuel adjustment affidavit

Subscribed and sworn before me this _____ day of _____ , 20___.

_____ _____
Notary Public *My Commission Expires*

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

STANDARD TITLE VI / NONDISCRIMINATION ASSURANCES APPENDIX A & E

MARCH 1, 2016

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations**: The contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, Federal Highway Administration, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

2. **Non-discrimination**: The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.

3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment**: In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.

4. **Information and Reports**: The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the Federal Highway Administration to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the Recipient or the Federal Highway Administration, as appropriate, and will set forth what efforts it has made to obtain the information.

5. **Sanctions for Noncompliance**: In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:

    a. withholding payments to the contractor under the contract until the contractor complies; and/or
    b. cancelling, terminating, or suspending a contract, in whole or in part.

6. **Incorporation of Provisions**: The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or

is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

Pertinent Non-Discrimination Authorities:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 et seq.), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 et seq.), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 et seq.), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures Non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of Limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq).

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STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
DISADVANTAGED BUSINESS ENTERPRISE

FEBRUARY 9, 2024

The Contractor, subrecipient, or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of Department-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the Department deems appropriate.

I. Definitions

A. Specified Goal: A DBE participation goal for a contract as indicated by a specific numerical percentage of the total dollar amount of the contract in the bidding documents.

B. Not Specified: No specific DBE participation goal is specified for a contract.

C. Disadvantaged Business Enterprise (DBE): A for-profit small business that is certified by the Department and is listed in the DBE Directory available on the Department's web site.

D. Good Faith Effort (GFE): Efforts to achieve a DBE goal which; by their scope, intensity, and appropriateness to the objective; can reasonably be expected to meet the objective of the Department's DBE program pursuant to 49 CFR 26.1.

E. Positive Contact: Communication between the bidder and the DBE in which the bidder receives an oral or written response from the DBE stating the DBE's intention to quote or not quote a project.

F. Commitment: The dollar amount of work to be subcontracted to DBEs, according to the bidder's bid. The commitment may be compared to the dollar amount of all contract items in the bidder's bid and expressed as a percentage of the total bid amount.

G. Reasonable Effort: For projects when goals are not specified, bidders are encouraged to solicit all certified DBEs listed in the appropriate work classifications in the DBE directory that have indicated in the directory they are

willing to work in the project's geographic area and also those that are listed on the plan holders list.

II. Bidding Requirements

A bidder must not discriminate on the basis of race, color, national origin, or sex in the solicitation or award to subcontractors and material suppliers. Bidders who demonstrate a pattern of possible discrimination through consistent and repeated under-utilization of DBEs may be subject to investigation and sanctions allowed by regulation, administrative rule, or law.

The Bidder's failure to carry out the requirements of this special provision will be treated as a non-responsive bid.

On contracts that specify a specific DBE contract participation goal, all bidders must include their DBE commitment for the contract in the bidding files provided by the Department.

If the contract indicates "Not Specified," all bidders are encouraged to include their anticipated DBE utilization for the contract in the bidding files provided by the Department.

Each bidder must submit a list of all subcontractors and suppliers (DBEs and non-DBEs) the bidder received quotes from for that contract with the bid files.

A Contractor must make reasonable efforts to provide opportunities for DBEs to participate on Federal-aid contracts throughout the life of the contract.

On contracts let with a specified DBE contract participation goal, where the low bidder has not met or exceeded that goal, upon request from the Department all bidders who did not meet or exceed the goal must provide GFE documentation as indicated in Section III of this special provision.

When the DBE participation is "Not Specified" on a contract, each bidder is encouraged to use DBE Contractors; however no bidder will be required to furnish GFE documentation.

Bidders must submit GFE documentation, when requested by the Department, within 2 business days from the date bidders are contacted by the Department. Section III of this special provision provides information on the types of action bidders should make as part of their GFE to obtain DBE participation. Bidders may submit documentation with the bidding files provided all pertinent information is included. Bidders must submit any missing documentation within 2 business days from the date the Department contacts the bidder. If the bidder fails to comply with this requirement, the Department will consider the bid proposal irregular and may reject the bid proposal.

If the apparent low bidder does not provide documentation showing GFE as required by this special provision, the Department will consider that bid nonresponsive and may either award the contract to the next lowest responsible bidder with a responsive bid, or reject all bids. Subsequent to the DBE committee's decision that the apparent low bidder's efforts do not establish GFE, the apparent low bidder will be notified that the bid is not responsive. The apparent low bidder will have 2 business days from the date of notification to contact the Bid Letting Engineer to arrange a meeting with the Department Secretary, or the Secretary's designee, to present documentation and argument about why the bid should not be rejected. The Department Secretary or the Secretary's designee will issue a written decision on responsiveness of the bid within 2 business days after the meeting.

If the apparent low bid is rejected for failure to meet the GFE or other requirements, the next apparent low bidder's GFE will be reviewed, unless all bids are rejected. Unless all bids are rejected, award of the contract will be made to the lowest bidder with a responsive bid.

The lowest responsive bidder on a project with a specified goal will be required to complete form DOT-289B, as included in the contract documents, when the contract is sent for signature. This form requires a signature from each DBE identified in the low bidder's DBE commitment. A separate form will be supplied for each DBE and will be included in the contract documents.

Bidders are encouraged to assist interested DBEs in obtaining bonding, lines of credit, insurance, necessary equipment, supplies, materials, or other related services.

III. Good Faith Efforts

If a GFE package is requested on a contract with a specified goal, the bidders must submit documentation showing compliance with the following requirements:

A. The bidders will submit a contact log of all solicitation efforts including:

- Name of the DBE firm
- Name and phone number of the individual with whom contact was made
- Date, time, and manner of each and every contact (by phone, in person, fax, mail, e-mail, etc.)
- The DBE's response to the solicitation
- Result of the solicitation effort

An example of a solicitation log is available on the Department's Bid Letting website. When bidding utilizing the South Dakota Department of Transportation Electronic Bid System (SDEBS), SDEBS may be used to document the log of solicitation efforts for the project.

B. The bidders will also submit documentation that shows GFE in relation to the following requirements:

1. The bidder must select contract work items to encourage DBE participation. This includes breaking out contract work items into economically feasible units to facilitate DBE participation, even when the bidder might otherwise prefer to perform these work items with its own forces.

2. The bidder must solicit all certified DBEs that are listed in the appropriate work classifications in the DBE directory and that have indicated in the directory they are willing to work in the project's geographic area. Without exception, all DBEs who are listed on the plan holders list by 10 AM central time 7 calendar days prior to the bid letting must be solicited in accordance with Section III.B.3 of this special provision. If the bidder has not solicited any DBE meeting these requirements, the bidder will provide a detailed written explanation showing why the DBE was not solicited.

3. To provide adequate time for the DBE to respond with a quote in the normal course of business, the bidder must make the initial solicitation at least 6 calendar days by mail or 5 calendar days by phone, fax, or e-mail prior to the letting date. Without exception, all DBEs who are listed on the plan holders list by 10 AM central time 7 calendar days prior to the bid letting must be solicited.

4. If the bidder does not receive a positive contact from a DBE, the bidder must follow up the initial solicitation with a second solicitation by phone, fax, or e-mail to determine whether the DBE is interested in quoting. The bidder must make this second solicitation at least 2 business days prior to the letting.

5. The bidder will provide interested DBEs with adequate and timely information about plans, specifications, and requirements of the contract to assist DBEs in responding to a solicitation.

6. If a bidder rejects a DBE quote because of previous problems with a particular DBE, the bidder must prepare a detailed written explanation of the problem. Additional cost involved in finding and using DBEs is not, in itself, sufficient reason for a bidder to reject a quote. A bidder must not reject a DBE as being unqualified without sound reasons based on a thorough investigation of the DBE's capabilities.

7. Any additional information requested by the Department.

C. The bidder must consider qualified DBEs whose quotes are reasonably competitive. If the bidder rejects any quote because it is considered not to be "reasonably competitive," the bidder must provide copies of all DBE and non-

DBE quotes, and a work item price spreadsheet comparing DBE quotes to non-DBE quotes. The spreadsheet must show which quote was included in the bid for the work items being compared. The ability or desire of a bidder to perform the work with its own forces does not relieve the bidder of the responsibility to make GFE. In the event a bidder elects to use its own forces over a DBE, the bidder must include, on the spreadsheet, documentation of the costs of using the bidder's own forces. This can be shown in a number of ways, which may include submitting portions of the bidder's work sheets used to prepare the bid.

D. The bidder must explain why the specified goal could not be met.

E. The bidder must identify any additional efforts the bidder made to secure DBE participation.

IV. Counting DBE Participation

On projects with a specified goal, the contract commitment, as submitted with the bid, will be documented on form DOT-289R/C as included in the contract documents.

If the project is shown as "Not Specified," the anticipated DBE utilization, as submitted with the bid, will be documented on form DOT-289 R/N – DBE Utilization Form, as included in the contract documents. The DBE utilization shown on this form is not a commitment to use the DBE. This information will be used by the Department to track anticipated DBE usage.

Only the portion of a contract performed by the DBE's own forces will count toward DBE participation. Included is the cost of supplies and materials obtained by the DBE for the contract, including supplies purchased or equipment leased by the DBE. Supplies and equipment the DBE subcontractor purchased or leased from the Contractor or its affiliate is not allowed to be included.

When a DBE performs as a participant in an approved joint venture, only the portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work of the contract that the DBE performs with its own forces will count toward DBE participation.

A bidder may count toward its DBE participation only that percentage of expenditures to DBEs that perform a commercially useful function (CUF) in the performance of a contract. A DBE performs a CUF when the DBE is responsible for execution of the work of a contract and is carrying out the DBE's responsibilities by actually performing, managing and supervising the work involved. To perform a CUF, the DBE must also be responsible, with respect to materials and supplies used on the contract, for negotiating prices, determining quality and quantity, ordering and installing (where applicable) the materials, and paying for the material itself. To determine whether a DBE is performing a CUF, the Department will

evaluate the amount of work subcontracted, the industry practice, and whether the amount the DBE is to be paid is commensurate with the work it is actually performing, DBE credit claimed for performance of the work, and other relevant factors.

A DBE is not performing a CUF if the DBE performs less than 30% of the total cost of its contract with its own work force, or if its role is limited to that of an extra participant in a transaction, project, or contract through which funds are passed in order to obtain the appearance of DBE participation. In determining whether a DBE is simply an extra participant, the Department will examine similar transactions, particularly those in which DBEs do not participate.

DBE participation will be counted for trucking services as follows:

The bidder/Contractor will receive credit toward DBE participation for the total value of the transportation services the DBE provides on the contract using trucks the DBE owns, insures, and operates and which are driven by drivers the DBE employs.

A DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. When a DBE leases trucks from another DBE, the bidder/Contractor can count the total value of the transportation services the lessee DBE provides on the contract toward DBE participation.

The DBE may also lease trucks from a non-DBE firm, including an owner-operator. When a DBE leases trucks from a non-DBE, the bidder/Contractor can count toward DBE participation only the fee or commission the DBE receives as a result of the lease arrangement. The bidder/Contractor does not receive credit toward DBE participation for the total value of the transportation services, since all services are not provided by a DBE.

The bidder may count toward DBE participation expenditures to DBE firms for materials, supplies, or services as follows:

If the materials or supplies are obtained from a DBE manufacturer, count 100% of the cost of the materials or supplies toward DBE participation. A manufacturer is a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract and of general character described by the specifications.

If the materials or supplies are purchased from a DBE regular dealer, count 60% of the cost of the materials or supplies toward DBE participation. A regular dealer is a firm that owns, operates, or maintains a store, warehouse or other establishment in which the materials, supplies, articles, or equipment are

bought, kept in stock, and regularly sold or leased to the public in the usual course of business.

If the materials or supplies are purchased from a DBE which is neither a manufacturer nor a regular dealer, count only the amount of fee or commission charged for assistance in the procurement of the materials or supplies or fee or transportation charges for the delivery of materials or supplies required at the job site toward DBE participation. In order to be counted, the Department must determine the fee to be reasonable and not excessive as compared to fees customarily allowed for similar services. The cost of the materials and supplies themselves will not count toward DBE goals.

The Department will not count toward DBE participation materials or services provided by a DBE who is not currently certified prior to and including the date of the Notice of Award. Additionally, the Department will not count toward DBE participation materials or services provided by a DBE who loses certification at any time after the date of the Notice of Award except in the case of a DBE whose ineligibility is cause solely by having exceeded the size standard.

No intended or actual subcontracting arrangement which is contrived to artificially inflate DBE participation is allowed. This includes, but is not limited to, DBE middlemen which serve no commercially useful function, or arrangements where a DBE is acting essentially as a broker of goods or services, but has been counted as a manufacturer, regular dealer, or subcontractor.

The Department will review and monitor projects for compliance with the bidder's intended DBE participation. Failure by the Contractor to fulfill the contract commitment constitutes a breach of contract. The Department may also investigate the form and substance of particular business arrangements between and among DBE and Contractors with regard to specific contracts. If, as a result of an investigation, the Department determines a particular business arrangement is not allowable, the dollar amount of the unallowable DBE participation will be subtracted from the Contractor's DBE participation on that project. The Contractor will be notified if the apparent DBE participation is not adequate to meet the DBE participation stated on the form DOT-289R/C. The Contractor will be directed to seek additional participation from other DBEs to meet the unallowable portion on that contract.

All Contractors and DBEs shall cooperate fully and promptly with the Department in compliance reviews, investigations, and other requests for information. If the Department determines a Contractor was a knowing and willing participant in an unallowable business arrangement, or in the event of repeated violations, falsification, or misrepresentation, the Department will impose sanctions. Sanctions may include, but are not limited to one or more of the following:

- Assessment of liquidated damages as stated in Section VII of this special provision
- Suspension of bidding privileges or debarment
- Withholding progress payments
- Securing additional DBE participation on future Federal-aid contracts sufficient to make up for the DBE participation found to be unallowable
- Referral of the matter for criminal prosecution

V. Joint Checks to DBEs

A joint check is a check issued by a prime Contractor to a DBE subcontractor and to a material supplier or another third party for items or services to be incorporated into a project. For a prime Contractor to receive DBE credit, the DBE must perform a commercially useful function and be responsible for negotiating price, determining quality and quantity, ordering materials and installing (where applicable) and paying for materials.

To ensure that the DBE is independent of the prime Contractor and in compliance with the regulation, use of joint checks will be reviewed and allowed only under following conditions:

- Issued for valid reasons only, not simply for the convenience of the prime Contractor
- Used for a specific contract or specific time frame and not long-term or open ended
- Payment is made to the DBE and not directly to the supplier
- Requested and received prior written approval from the DBE Compliance Officer.

The request must include the following:

- Name of the DBE
- The DOT contract number(s)
- The DOT PCN number(s)
- The work the DBE will be performing on each contract
- Name of the supplier(s) used by the DBE
- The specific reason(s) for issuing joint checks

The Department will review the request and verify the circumstances indicated in the request with the DBE. A copy of the request and approval will be provided to the prime Contractor and the DBE.

VI. Certification of DBE Performance and Payments

Within 30 calendar days of the date of the Acceptance of Field Work the Contractor is required to submit form DOT-289 (Certification of DBE Performance and

Payments), listing all DBEs that participated in the contract, and the total dollar amount paid (and anticipated to be paid) to each. DBE attainments are compared to commitments on form DOT-289R/C and any payments less than 90% of that commitment, without proper justification and documentation, will have liquidated damages assessed against the contract. The Contractor's final payment is not released until receipt of the form DOT-289.

Contractors are required to maintain a running tally of payments to DBEs. For reports of payments not being made in accordance with the prompt payment provision, alleged discrimination against a DBE or other similar complaint, the tally may be requested for review by the Department. The Department may perform audits of contract payments to DBEs to ensure that the amounts paid were as reported on the form DOT-289. All Contractors participating in Federal-aid contracts are expected cooperate fully and promptly with the Department in compliance reviews, investigations and other requests for information regarding payments to DBEs. Their failure to do so is grounds for appropriate sanctions or action against the Contractor.

The Department will monitor the running tally on a program basis and if reporting issues are identified, additional reporting requirements may be implemented.

The Contractor is required to report payments to DBEs twice a year from the date of the Notice to Proceed until the date of the Acceptance of Field Work. Reporting periods and deadlines for payment reporting submittals will be in accordance with the following:

Reporting Period:	**Reporting Deadline:**
October 1 to March 31	April 30
April 1 to September 30	October 31

For each reporting period, the Contractor is required to submit form DOT-289 listing all DBEs that participated in the contract, the payments to DBEs for that reporting period, and the total dollar amount paid to each DBE. For each reporting period after the Notice to Proceed, the Contractor will mark the form DOT-289 as "On-Going" when reporting payments to DBEs prior to the Date of the Acceptance of Field Work. Within 30 calendar days of the date of the Acceptance of Field Work and all DBE payments have been made, the Contractor is required to submit form DOT-289 and the Contractor will mark the form DOT-289 as "Final".

Each form DOT-289 must be provided to the Engineer by the reporting deadline stated above.

DBE payment are compared to commitment on form DOT-289R/C and any payment less than 90% of that commitment, without proper justification and documentation, will result in the Department assessing liquidated damages

against the contract. The Contractor's final payment will not be released until receipt of the form DOT-289 marked "Final".

VII. Liquidated Damages

A. If the Contractor does not meet its contract commitment documented on form DOT-289 R/C, the Department will assess liquidated damages according to the following schedule:

1. For the first $1,000 DBE deficiency, 100% of the deficiency.

2. For the next $9,000 DBE deficiency, 50% of the deficiency.

3. For the next $10,000 DBE deficiency, 25% of the deficiency.

4. For any remaining DBE deficiency in excess of $20,000, 10% of the deficiency.

This liquidated damage provision will not be applicable where actual payment to a DBE is within 90% of the commitment or where there are good and sufficient reasons, properly documented, for the deficiency such as quantity under-runs, project changes, or other unexpected occurrences.

B. If a Contractor finds it impossible, for reasons beyond its control, to meet the contract commitment on form DOT-289R/C, the Contractor may, at any time prior to completion of the project, provide a written request to the DBE Compliance Officer for a complete or partial waiver of liquidated damages. No request for a waiver will be accepted after Acceptance of Field Work has been issued.

VIII. Termination or Substitution of a DBE

The Contractor will not be allowed to terminate or substitute a DBE without the Department's prior verbal consent followed by written approval. This includes, but is not limited to, instances in where the Contractor desires to perform work originally committed to a DBE with its own forces, with an affiliated company, with a non-DBE, or with another DBE. Department approval is required when the contract contains a "specified goal" on form DOT-289R/C and the DBE to be terminated or substituted is listed as a commitment on the form DOT-289R/C.

The Department will provide written consent only if the Department agrees the Contractor has good cause to terminate the DBE listed on the form DOT-289R/C. Good cause includes the following:

- The DBE fails or refuses to execute a written contract

- The DBE fails or refuses to perform the work of the DBE subcontract in a manner consistent with normal industry standards or Department specifications unless the failure or refusal by the DBE is a result of unfair or discriminatory actions by the Contractor
- The DBE fails or refuses to meet the Contractor's reasonable nondiscriminatory bond requirements
- The DBE becomes bankrupt, insolvent, or exhibits credit unworthiness
- The DBE in ineligible to work on public works projects because of suspension and debarment proceedings pursuant to 2 CFR Parts 180, 215, and 1,200 or applicable state law
- The Department has determined that the DBE is not a responsible Contractor
- The DBE voluntarily withdraws from the project and provided the Department with a written notice of withdrawal
- The DBE is found to be ineligible to receive DBE credit for the type of work required
- A DBE owner dies or becomes disabled with the result that the DBE is unable to complete its work on the contract
- Other documented good cause that the Department determines to substantiate the termination of the DBE.

Good cause does not exist if the Contractor seeks to terminate a DBE so the Contractor can self-perform the work for which the DBE was committed, or so the Contractor can substitute another DBE or non-DBE Contractor after the contract award.

Before submitting a request to terminate or substitute a DBE to the Department, the Contractor must first provide written notice to the DBE, with a copy of the notice to the DBE Compliance Officer, of the Contractor's intent to request to terminate or substitute, and the reason for the request.

The Contractor must give the DBE 5 calendar days to respond to the notice and advise the Department and the Contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why the Department should not approve the Contractor's action. If required in a particular case as a matter of public necessity (e.g. safety), the Department may provide a response period shorter than 5 calendar days.

When a DBE is terminated or fails to complete its work on the contract for any reason, the Contractor must make good faith efforts to replace the committed DBE with another DBE. The Contractor must make efforts to find another DBE to perform the same amount of work under the contract as the DBE that was terminated. The letter to the Department requesting termination or substitution must include the name of the DBE and dollar amount of the replacement DBE. If the Contractor is unable to find another DBE, the Contractor must provide the

names of the DBEs it contacted and reason why they were unable to use those DBEs.

If the Contractor does not utilize or pay DBEs as required, liquidated damages will be assessed as specified in Section VII of this special provision. In addition, if the Contractor is found to have knowingly and willingly attempted to circumvent the DBE contract provisions, the Department will not make payment for the work that was originally committed to a DBE and the Department may impose sanctions referred to in Section IV of this special provision.

The Contractor does not need Department approval to terminate or substitute a DBE under the following circumstances:

- The DBE is being used on a contact with a “Specified Goal” however the DBE was not listed as a DBE commitment on form DOT-289R/C.
- The DBE was listed as an anticipated utilization on a “Not Specified” DBE goal contract on form DOT-289R/N.

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SPECIAL PROVISION FOR EEO AFFIRMATIVE ACTION REQUIREMENTS ON FEDERAL AND FEDERAL-AID CONSTRUCTION CONTRACTS

FEBRUARY 5, 2024

Notice of Requirement for Affirmative Action To Ensure Equal Employment Opportunity (Executive Order 11246)

1. The Offeror's or Bidder's attention is called to the “Equal Opportunity Clause” and the “Standard Federal Equal Employment Specifications” set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Goals for minority participation for each trade

Aurora	0.8%	Fall River	7.9%	Marshall	1.3%
Beadle	0.8%	Faulk	1.3%	Meade	3.4%
Bennett	7.9%	Grant	1.3%	Mellette	7.9%
Bon Homme	1.2%	Gregory	0.8%	Miner	0.8%
Brookings	0.8%	Haakon	7.9%	Minnehaha	1.2%
Brown	1.3%	Hamlin	1.3%	Moody	0.8%
Brule	0.8%	Hand	0.8%	Oglala Lakota	7.9%
Buffalo	7.9%	Hanson	0.8%	Pennington	3.4%
Butte	7.9%	Harding	7.9%	Perkins	7.9%
Campbell	7.9%	Hughes	7.9%	Potter	7.9%
Charles Mix	0.8%	Hutchinson	0.8%	Roberts	1.3%
Clark	1.3%	Hyde	7.9%	Sanborn	0.8%
Clay	1.2%	Jackson	7.9%	Spink	1.3%
Codington	1.3%	Jerauld	0.8%	Stanley	7.9%
Corson	7.9%	Jones	7.9%	Sully	7.9%
Custer	7.9%	Kingsbury	0.8%	Todd	7.9%
Davison	0.8%	Lake	0.8%	Tripp	7.9%
Day	1.3%	Lawrence	7.9%	Turner	0.8%
Deuel	1.3%	Lincoln	0.8%	Union	1.2%
Dewey	7.9%	Lyman	7.9%	Walworth	7.9%
Douglas	0.8%	McCook	0.8%	Yankton	1.2%
Edmunds	1.3%	McPherson	1.3%	Ziebach	7.9%

Goals for female participation in each trade

Statewide 6.9%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this

second area, the contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR part 60–4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60–4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR part 60–4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this Notice, and in the contract resulting from this solicitation, the “covered area” is shown by county designation on the Title Sheet of the plans.

Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246)

1. As used in these specifications:

a. “Covered area” means the geographical area described in the solicitation from which this contract resulted;

b. “Director” means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

c. “Employer identification number” means the Federal Social Security number used on the Employer’s Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

d. “Minority” includes:

(i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

(iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60–4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7 a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall

document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

D. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR part 60–3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the

Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, sexual orientation, gender identity, or national origin.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60–4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

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STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION FOR
REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA 1273 (OCTOBER 23, 2023)

OCTOBER 18, 2023

The following are amendments to the above contract provisions.

Section I.4.

Delete this section and replace with the following:

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a Federal-aid construction project unless it is labor performed by convicts who are on parole, supervised release, or probation.

Section IV.

Delete the first three sentences of the first paragraph and replace with the following:

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway and to all portions of Transportation Alternatives Program (TAP) funded projects.

Section IV.3.b.(1)

Delete this section and replace with the following:

The Contractor and each related subcontractor must submit weekly, for each week in which any contract work is performed, an electronic certified weekly payroll report. The Contractor is responsible for the submission of certified payroll reports by all subcontractors. The payroll report must be submitted electronically to the Elation System website. The Contractor must submit a legally valid electronic signature. The Elation System website can be accessed by logging onto the State of South Dakota's single sign-on website at https://mysd.sd.gov/ or can also be accessed at https://elationsys.com/. First time users will need to use the Promotion Code SDDOT-19. The payroll report must be submitted within fourteen (14) calendar days after the end of the workweek.

Section IV.3.b.(2)

Delete the third sentence.

Section IV.3.b.(3)

Delete the first paragraph and replace with the following:

Each certified weekly payroll report must include the most recent South Dakota Department of Transportation (SDDOT) Statement of Compliance Form, signed by the Contractor or related subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract. The Instructions for the SDDOT Statement of Compliance Form are found at https://dot.sd.gov/doing-business/contractors/labor-compliance/certified-payrolls-let-after-6/5/19. The SDDOT will not accept any payroll report which does not include the most recent SDDOT Statement of Compliance Form. The SDDOT Statement of Compliance Form must certify the following:

Section IV.3.b.(4)

Delete this paragraph and replace with the following:

The weekly submission of a properly executed SDDOT Statement of Compliance Form shall satisfy the requirement for submission of the "Statement of Compliance Form" required by paragraph 3.b.(3) of this section.

Section IV.4.a.(1)

Delete the first sentence and replace with the following:

Apprentices will be permitted to work at less than the predetermined rate for the work they perform, but not less than the Common Laborer wage rate contained in the bid documents, when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship (OA), or with a State Apprenticeship Agency recognized by the OA.

* * * * *

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). 23 CFR 633.102(e).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider. 23 CFR 633.102(e).

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services) in accordance with 23 CFR 633.102. The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract). 23 CFR 633.102(b).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract. 23 CFR 633.102(d).

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR Part 230, Subpart A, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal Employment Opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (*see* 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140, shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract. 23 CFR 230.409 (g)(4) & (5).

b. The contractor will accept as its operating policy the following statement:

> "It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or are substantially involved in such action, will be made fully cognizant of and will implement the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action

within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs (i.e., apprenticeship and on-the-job training programs for the geographical area of contract performance). In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors, suppliers, and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurances Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:
(1) Withholding monthly progress payments;
(2) Assessing sanctions;
(3) Liquidated damages; and/or
(4) Disqualifying the contractor from future bidding as non-responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women.

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of more than $10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, the contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location under the contractor's control where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages (29 CFR 5.5)

a. *Wage rates and fringe benefits.* All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of basic hourly wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. As provided in paragraphs (d) and (e) of 29 CFR 5.5, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act (40 U.S.C. 3141(2)(B)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.e. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph 4. of this section. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided,* That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph 1.c. of this section) and the Davis-Bacon poster (WH–1321) must be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. *Frequently recurring classifications.* (1) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in 29 CFR part 1, a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph 1.c. of this section, provided that:

(i) The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;

(ii) The classification is used in the area by the construction industry; and

(iii) The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.

(2) The Administrator will establish wage rates for such classifications in accordance with paragraph 1.c.(1)(iii) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

c. *Conformance.* (1) The contracting officer must require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is used in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

(3) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the contracting officer by email to *DBAconformance@dol.gov*. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30–day period that additional time is necessary.

(4) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer will, by email to *DBAconformance@dol.gov*, refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30–day period that additional time is necessary.

(5) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division under paragraphs 1.c.(3) and (4) of this section. The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 1.c.(3) or (4) of this section must be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

d. *Fringe benefits not expressed as an hourly rate.* Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

e. *Unfunded plans.* If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided,* That the Secretary of Labor has found, upon the written request of the contractor, in accordance with the criteria set forth in § 5.28, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

f. *Interest.* In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

2. Withholding (29 CFR 5.5)

a. *Withholding requirements.* The contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in this section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph 3.d. of this section, the contracting agency may on its own initiative and after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with paragraph

2.a. of this section or Section V, paragraph 3.a., or both, over claims to those funds by:

(1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;

(2) A contracting agency for its reprocurement costs;

(3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;

(4) A contractor's assignee(s);

(5) A contractor's successor(s); or

(6) A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901–3907.

3. Records and certified payrolls (29 CFR 5.5)

a. *Basic record requirements* (1) *Length of record retention.* All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.

(2) *Information required.* Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

(3) *Additional records relating to fringe benefits.* Whenever the Secretary of Labor has found under paragraph 1.e. of this section that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act, the contractor must maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

(4) *Additional records relating to apprenticeship.* Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

b. *Certified payroll requirements* (1) *Frequency and method of submission.* The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to the contracting agency. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

(2) *Information required.* The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph 3.a.(2) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (*e.g.,* the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH–347 or in any other format desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division website at *https://www.dol.gov/sites/dolgov/files/WHD/legacy/files/wh347/.pdf* or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the contracting agency.

(3) *Statement of Compliance.* Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

(i) That the certified payroll for the payroll period contains the information required to be provided under paragraph 3.b. of this section, the appropriate information and basic records are being maintained under paragraph 3.a. of this section, and such information and records are correct and complete;

(ii) That each laborer or mechanic (including each helper and apprentice) working on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR part 3; and

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.

(4) *Use of Optional Form WH–347.* The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 will satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(3) of this section.

(5) *Signature.* The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.

(6) *Falsification.* The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 3729.

(7) *Length of certified payroll retention.* The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

c. *Contracts, subcontracts, and related documents.* The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

d. *Required disclosures and access* (1) *Required record disclosures and access to workers.* The contractor or subcontractor must make the records required under paragraphs 3.a. through 3.c. of this section, and any other documents that the contracting agency, the State DOT, the FHWA, or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

(2) *Sanctions for non-compliance with records and worker access requirements.* If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under 29 CFR part 6 any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

(3) *Required information disclosures.* Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address of each covered worker, and must provide them upon request to the contracting agency, the State DOT, the FHWA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

4. Apprentices and equal employment opportunity (29 CFR 5.5)

a. *Apprentices* (1) *Rate of pay.* Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) *Fringe benefits.* Apprentices must be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringe benefits must be paid in accordance with that determination.

(3) *Apprenticeship ratio.* The allowable ratio of apprentices to journeyworkers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph 4.a.(4) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph 4.a.(1) of this section, must be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(4) *Reciprocity of ratios and wage rates.* Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

b. *Equal employment opportunity.* The use of apprentices and journeyworkers under this part must be in conformity with

the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

c. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. 23 CFR 230.111(e)(2). The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeyworkers shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract as provided in 29 CFR 5.5.

6. Subcontracts. The contractor or subcontractor must insert FHWA-1273 in any subcontracts, along with the applicable wage determination(s) and such other clauses or contract modifications as the contracting agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate. 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility. a. By entering into this contract, the contractor certifies that neither it nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of 40 U.S.C. 3144(b) or § 5.12(a).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of 40 U.S.C. 3144(b) or § 5.12(a).

c. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, 18 U.S.C. 1001.

11. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, this part, or 29 CFR part 1 or 3;

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or 29 CFR part 1 or 3;

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or 29 CFR part 1 or 3; or

d. Informing any other person about their rights under the DBA, Related Acts, this part, or 29 CFR part 1 or 3.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), the following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchpersons and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek. 29 CFR 5.5.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph 1. of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or

mechanic, including watchpersons and guards, employed in violation of the clause set forth in paragraph 1. of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1. of this section.

* $31 as of January 15, 2023 (See 88 FR 88 FR 2210) as may be adjusted annually by the Department of Labor, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990.

3. Withholding for unpaid wages and liquidated damages

a. *Withholding process.* The FHWA or the contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this section on this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with Section IV paragraph 2.a. or paragraph 3.a. of this section, or both, over claims to those funds by:

(1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;

(2) A contracting agency for its reprocurement costs;

(3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;

(4) A contractor's assignee(s);

(5) A contractor's successor(s); or

(6) A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901–3907.

4. Subcontracts. The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs 1. through 5. of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1. through 5. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

5. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or

d. Informing any other person about their rights under CWHSSA or this part.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” in paragraph 1 of Section VI refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. Pursuant to 23 CFR 635.116(c), the contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. 23 CFR 635.108.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR Part 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704). 29 CFR 1926.10.

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR Part 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 11, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of $150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.327.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.327.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200. 2 CFR 180.220 and 1200.220.

1**. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200. “First Tier Covered Transactions” refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction. 2 CFR 180.330.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold. 2 CFR 180.220 and 180.300.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (https://www.sam.gov/). 2 CFR 180.300, 180.320, and 180.325.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default. 2 CFR 180.325.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335;.

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property, 2 CFR 180.800;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

* * * * *

3. **Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders, and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances. 2 CFR 180.365.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated. 2 CFR 1200.220 and 1200.332.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold. 2 CFR 180.220 and 1200.220.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (https://www.sam.gov/), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily

excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment. 2 CFR 180.325.

* * * * *

4. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

a. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(1) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(2) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(3) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

b. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000. 49 CFR Part 20, App. A.

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

XII. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, ‘on-board’ commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B)
This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION REGARDING
MINIMUM WAGE ON FEDERAL-AID PROJECTS

OCTOBER 24, 2019

This proposal contains a copy of the most recent United States Department of Labor (USDOL) Davis-Bacon Act Wage Decision.

The Contractor and each related subcontractor will pay their respective employees not less than the USDOL minimum wage for each work classification an employee actually performs at the site of the work.

The Contractor and each related subcontractor must submit weekly, for each week in which any contract work is performed, an electronic certified weekly payroll report. The payroll report must be submitted electronically to the Elation System website. The Elation System website can be accessed by logging onto the State of South Dakota's single sign-on website at https://mysd.sd.gov/ or can also be accessed at https://elationsys.com/. First time users will need to use the Promotion Code SDDOT-19. The payroll report must be submitted within fourteen (14) calendar days after the end of the workweek. The payroll reports submitted shall set out accurately and completely all the information required to be maintained under 29 C.F.R. 5.5(a)(3)(i). Weekly transmittals must include an individually identifying number for each employee, such as the last four digits of the employee's social security number, but these weekly transmittals must not include full social security numbers or home addresses. The Contractor is responsible for the submission of certified payroll reports by all subcontractors.

Each certified weekly payroll report must include the most recent South Dakota Department of Transportation (SDDOT) Statement of Compliance Form, signed by the Contractor or related subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract. The Instructions for the SDDOT Statement of Compliance Form are found at https://dot.sd.gov/doing-business/contractors/labor-compliance/certified-payrolls-let-after-6/5/19. The SDDOT will not accept any payroll report which does not include the most recent SDDOT Statement of Compliance Form.

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Wage and Hour Division
U.S. Department of Labor (DOL)
200 Constitution Avenue, N.W.
Washington, DC 20210

Davis-Bacon Act Wage Decisions
State: South Dakota
Construction Types: Heavy and Highway
Counties: South Dakota Statewide

Agency:	U.S. DOL
Wage Decision Number:	**SD20230032 SD1**
Counties:	SD Statewide
Wage Decision Date:	**03/10/2023 (Mod-0)**

***SUSD2023-001 01-11-2023**

	Rates	Fringes
LABORERS		
GROUP GL1		
Air Tool Operator; Common Laborer; Landscape Worker; Flagger; Pilot Car Driver; Trucks under 26,000 GVW; Blue-top Checker; Materials Checker	**22.38**	**0.00**
GROUP GL2		
Mechanic Tender (Helper); Pipe Layer (except culvert); Form Builder Tender; Special Surface Finish Applicator; Striping	**23.16**	**0.00**
GROUP GL3		
Asphalt Plant Tender; Pile Driver Leadsman; Form Setter; Oiler/Greaser	**24.41**	**0.00**
GROUP GL5		
Carpenter; Form Builder	**31.94**	**0.00**
GROUP GL6		
Concrete Finisher; Painter; Grade Checker	**26.45**	**0.00**
POWER EQUIPMENT OPERATORS		
GROUP G01		
Concrete Paving Cure Machine; Concrete Paving Joint Sealer; Conveyor; Tractor (farm type with attachments); Self Propelled Broom; Concrete Routing Machine; Paver Feeder; Pugmill; Skid Steer	**24.57**	**0.00**
GROUP G02		
Bull Dozer 80 HP or less; Front End Loader 1.25 CY or less; Self Propelled Roller (except Hot Mix); Sheepsfoot/50Ton Pneumatic Roller; Pneumatic Tired Tractor or Crawler (includes Water Wagon and Power Spray units); Wagon Drill; Air Trac; Truck Type Auger; Concrete Paving Saw	**24.68**	**0.00**
GROUP G03		
Asphalt Distributor; Bull Dozer over 80 HP; Concrete Paving Finishing Machine; Backhoes/ Excavators 20 tons or less; Crusher (may include internal screening plant); Front End Loader over 1.25 CY; Rough Motor Grader; Self Propelled Hot Mix Roller; Push Tractor; Euclid or Dumpster; Material Spreader; Rumble Strip Machine	**26.07**	**0.00**
GROUP G04		
Asphalt Paving Machine Screed; Asphalt Paving Machine; Cranes/Derricks/Draglines/Pile Drivers/Shovels 30 to 50 tons; Backhoes/Excavators 21 to 40 tons; Maintenance Mechanic; Scrapers; Concrete Pump Truck	**27.18**	**0.00**
GROUP G05		
Asphalt Plant; Concrete Batch Plant; Backhoes/Excavators over 40 Tons; Cranes/ Derricks/Draglines/Pile Drivers/Shovels over 50 tons; Heavy Duty Mechanic; Finish Motor Grader; Automatic Fine Grader; Milling Machine; Bridge Welder	**30.01**	**0.00**
TRUCK DRIVERS		
GROUP GT1		
Tandem Truck without trailer or pup; Single Axle Truck over 26,000 GVW with Trailer	**24.52**	**0.00**
GROUP GT2		
Semi-Tractor and Trailer; Tandem Truck with Pup	**25.88**	**4.28**
ELECTRICIANS		
GROUP E01		
Electrician	**29.78**	**5.04**

WELDERS – Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award, pursuant to 29 CFR 5.5(a)(1)(ii); contractors are responsible for requesting SDDOT to secure necessary additional work classifications and rates.

***** Classifications listed under an "SU" identifier were derived from survey data and the published rate is the weighted average rate of all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates.

Survey wage rates are not updated and will remain in effect until a new survey is conducted.

A COPY OF THIS DOCUMENT, COLORED TAN, MUST BE CONSPICUOUSLY POSTED AT THE PROJECT SITE

Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Davis-Bacon Act Wage Decisions
State: South Dakota
Construction Types: Heavy and Highway
Counties: South Dakota Statewide

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In the listing above, the "SU" identifier indicates the rates were derived from survey data. As these weighted average rates include all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of the survey on which these classifications and rates are based. The next number, 007 in this example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

For SDDOT Defined Work Classifications, please visit: https://dot.sd.gov/doing-business/contractors/labor-compliance

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WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- an existing published wage determination
- a survey underlying a wage determination
- a Wage and Hour Division letter setting forth a position on a wage determination matter
- a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
SUPPLEMENTAL SPECIFICATIONS TO
2015 STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES

SEPTEMBER 7, 2022

The Supplemental Specifications dated September 7, 2022 are in effect for and made a part of this contract.

The Supplemental Specifications may be obtained from the Department website or the local Area Office or by contacting the Operations Support Office.

Department Website:
https://dot.sd.gov/doing-business/contractors/standard-specifications/2015-standard-specifications

Operations Support:
605-773-3571

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STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
PRICE SCHEDULE FOR MISCELLANEOUS ITEMS

DECEMBER 6, 2023

The following unit bid prices have been established by the South Dakota Department of Transportation Commission.

These prices will be pre-entered in the bidding package for each project or will establish a standard price to be used whenever no project contract unit price exists for that item.

Each unit price listed is considered full compensation for the cost of labor, material, and equipment to provide the item of work and/or material, complete in place, including (but not limited to) royalty, waste of unsuitable materials, equipment rental, overhead, profit, and incidentals.

Items specified in this document may be paid for on progressive estimates without the benefit of a prior approved Construction Change Order.

Specification Section Number	Specification Section Name	Item Name	Price per Item
5.8	Construction Stakes, Lines, and Grades	Engineer Directed Surveying/Staking	$175.00/hour
7.7	Public Convenience and Safety	Water for Dust Control	$35.00/M.Gal
7.7	Public Convenience and Safety	Dust Control Chlorides	$0.70/lb
9.3	Payment for extra haul of Materials	Extra Haul	$0.25/ton mile (Truck) or $0.10/ cubic yard station (Scraper)
120.5 A.5.	Roadway and Drainage Exc. & Emb.	Unclassified Excavation, Digouts	$15.00/cu.yd.
120.5 H.	Roadway and Drainage Exc. & Emb.	Extra Haul	$0.25/ton mile (Truck) or $0.10/cubic yard station (Scraper)
120.5 I.	Roadway and Drainage Exc. & Emb.	Water for Embankment	$35.00/M.Gal
421.5	Undercutting Pipe & Plate Pipe	Undercutting Culverts	$20.00/cu.yd.

510.5 D.	Timber, Prestressed, and Steel Piles	Timber Pile Splice	$850.00/each
		Steel Pile Splices (*All Weights)	Splice made before either of the pieces has been driven.
		8 HP*	$200.00/each
		10 HP*	$250.00/each
		12 HP*	$275.00/each
		14 HP*	$300.00/each
		Steel Pile Splices (*All Weights)	Splice made after one of the pieces has been driven.
		8 HP*	$400.00/each
		10 HP*	$525.00/each
		12 HP*	$650.00/each
		14 HP*	$750.00/each
510.5 E.	Timber, Prestressed, and Steel Piles	Pile Shoes (Timber Pile)	$190.00/each
510.5 H.	Timber, Prestressed, and Steel Piles	Pile Tip Reinforcement (Steel Pile)	
		10” HP Tip Reinforced	$200.00/each
		12” HP Tip Reinforced	$225.00/each
		14” HP Tip Reinforced	$275.00/each
601.5	Haul Roads	Granular Material	$28.00/ton
601.5	Haul Roads	Asphalt Concrete (including asphalt)	$160.00/ton
601.5	Haul Roads	Cover Aggregate	$55.00/ton
601.5	Haul Roads	Asphalt for Prime	$1200.00/ton
601.5	Haul Roads	Asphalt (Tack, Flush & Surface Treatment)	$800.00/ton
601.5	Haul Roads	Water	$35.00/M.Gal
601.5	Haul Roads	Dust Control Chlorides	$0.70/lb
634.5	Temporary Traffic Control	Flagging	$36.03/hour
634.5	Temporary Traffic Control	Pilot Car	$52.75/hour

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STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
REGARDING
STORM WATER DISCHARGE
TO WATERS OF THE UNITED STATES
WITHIN INDIAN RESERVATIONS

SEPTEMBER 7, 2022

In compliance with the provisions of the Clean Water Act, 33 U.S.C. §1251 et. seq., (hereafter CWA), as amended by the Water Quality Act of 1987, P.L. 100-4, "operators" of construction activities (defined in Appendix A) that meet the requirements of Part 1.1 of this National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP), are authorized to discharge pollutants in accordance with the effluent limitations and conditions set forth herein.

The Contractor **must** review Section 1.4 of the CGP and submit a Notice of Intent to the EPA before commencing construction activities. Instructions for this procedure can be found in Section 1.4 of the CGP, which is linked below.

The Contractor, by submitting a bid or proposal, certifies the following:

> "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information contained therein. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information contained is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

A copy of the full version of the Environmental Protection Agency National Pollutant Discharge Elimination System Construction General Permit (CGP) for Stormwater Discharges from Construction Activities, dated February 17, 2022 must be posted on the job site. The permit is available for downloading and printing from the US EPA website:

https://www.epa.gov/npdes/2022-construction-general-permit-cgp#2022cgp

The Contractor may also obtain a printed copy of the permit from the SDDOT Project Development office or from the SDDOT Area Office assigned to this project.