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PART 1 – GENERAL

1.1 PROJECT INFORMATION

A. Project Identification:
   Rock Island Powerhouse 1 Gate Slot Support Ledge Rehabilitation

B. Project Location:
   Rock Island Dam
   1050 SR 28
   Rock Island, WA 98805

C. Owner:
   Public Utility District No. 1 of Chelan County
   327 North Wenatchee Avenue
   Wenatchee, WA 98801

D. District Representative:
   Karl Specht – District Project Manager

E. Background Information:

   1. District owns and operates the Rock Island Dam. The dam is a reinforced concrete structure that spans the Columbia River, and includes two powerhouses with 19 generating units, a spillway with 32 gates, and fish facilities.

   2. The Work specified herein includes rehabilitation of 30 of the 31 Powerhouse 1 intake head gate slot cover support ledges.

   3. A Pre-Construction Conference to discuss the Project Work in sufficient detail, requirements of the Contract, and readiness of the Contractor for site execution will be scheduled after Contract award, involving the Contractor, Subcontractors, and the District.

   4. Reference Drawings are provided herewith for illustrative purposes to generally show the existing site features. The District assumes no responsibility whatsoever with respect to the sufficiency or accuracy of such information and there is no guarantee, either expressed or implied, that the conditions indicated or otherwise found by Contractor as a result of any examination or exploration are representative of those existing throughout the Work and/or Project site.

1.2 RELATED DOCUMENTS

A. Contract Drawings and other provisions of the Contract Documents including, but not limited to General Conditions (GC-) and Specific Requirements (SR-) apply to all sections.
1.3 GENERAL SUBMITTALS

A. Work Plan: Contractor shall prepare a detailed narrative work plan for review and approval by the District at least 15 calendar days prior to mobilization. The detailed plan shall address the Contractor’s proposed means and methods to perform the Work. The Work Plan shall include, as a minimum, the following to cover all Work including work by Subcontractors, fabricators, and suppliers. Additionally, Contractor’s Work Plan shall include District work and Contractor’s coordination effort to avoid congestion on the powerhouse deck.

1. General description of the definable features of Work included in the specific Work Plan;
2. Details of work tasks and activities to clearly describe extent of each definable feature of the Work; plans shall detail all means and methods, materials, equipment, tools, numbers of craft people, and type of craft utilized for each definable feature of Work.

1.4 DESCRIPTION OF EXISTING SITE

A. Rock Island Dam was constructed over a period of 30 years beginning in the 1930s. Powerhouse 1 began operation in 1931 with the first four units. The powerhouse was expanded and six additional units were installed in the early 1950s.

B. Rock Island Powerhouse No. 1 includes 10 turbine-generator units, each with three head gates at the intake of the waterway. The House Unit has its own single head gate. The gate slot grating support ledges have been damaged over time and currently, due to the poor condition and small bearing surface for the covers, the load capacity is limited to foot traffic only. The District has decided to rehabilitate the ledges to restore load capacity to vehicle traffic with an AASHTO HS-20 rating.

1.5 WORK BY THE CONTRACTOR

A. These Specifications cover the requirements for work to be performed to rehabilitate the gate slot grating support ledges. The Work specified shall be read together with, coordinated with, and performed in accordance with all codes, standards, and requirements specified elsewhere in these Contract Documents. The Work identified in this paragraph is not intended to be inclusive of all specified or required Work; it is only a summary of the principle work activities to be performed by the Contractor.

The Work includes structural modifications to rehabilitate the gate slot grating support ledges and includes the following for 30 gate slots:

1. Installation of temporary work platform in gate slots for safe access and 100% containment.
2. Demolition of deteriorated concrete and grout at the gate slot ledges and adjacent transformer truck rails.
3. Removal of wires, cables and electrical junction boxes housed along the slot edges.
4. Replacement of deteriorated anchor bolts.
5. Removal of piping and valves.
6. Furnishing and installation of new grating cover supports on the upstream and downstream edges of the gate slots.
7. Modification of transformer truck rail guards.
8. Furnishing and placement of concrete grout to anchor the new supports and for repairs to deteriorated grout/concrete.


B. Contractor shall supply four (4) sets of 2-piece gratings to replace the existing grating at four locations. Eight (8) grating sections in total.

C. Work includes, but is not limited to, all permitting unless otherwise not required and directed by the District, all planning, supervision, labor, safety provisions, materials, equipment, small tools, incidentals, and other services.

D. All Work, material, and services, even if not expressly called for in these Contract Documents, but necessary or appropriate for Work completion, shall be provided and installed by the Contractor.

E. Contractor shall prepare and submit Shop Drawings, progress schedules, and all other Contract required submittals.

F. Contractor shall be responsible for all transportation, housing costs, and subsistence expenses of its personnel.

1.6 GENERAL CONSIDERATIONS

A. Contractor shall engineer, procure, fabricate, and maintain a temporary platform to prevent any debris, tools, equipment, abrasive blasting media, and other items or materials resulting from, or necessary for completion of the Work, from falling into the waterway below the gate slot opening. Removal of the platform at the completion of the Project will be the responsibility of the Contractor.

1.7 ACCESS TO/USE OF SITE

A. The intake deck of Powerhouse 1 is accessed via SR 28, approximately 14 miles south of Wenatchee.

B. On-Site Work Hours: Work plans shall include proposed start and stop times, including scheduled deck blockages. Limit Work to the weekends and the hours of 3:30 pm to 7:00 am, Monday through Friday, excluding District Holidays, unless otherwise indicated and Approved by the District.

C. Deliveries: Deliveries of equipment and materials to secured areas of the Project site shall arrive during the normal working hours.

D. Use of Site: District will have operations, maintenance work and capital projects ongoing twenty-four (24) hours per day seven (7) days per week, during the course of this Contract. It is a requirement that access for District staff and crew be made available for coordinated use of the powerhouse site if necessary.

E. Roads, Entrances, Walkways, and Egress Paths: Keep roads, entrances, walkways, entrances, and egress paths accessible for District and emergency access at all times.

F. Use of Powerhouse 1 Intake and Spillway Gantry Crane: The intake and spillway gantry crane will be available for the work, subject to priority use for powerhouse operations. Contractor shall provide an experienced and competent crane operator with the skills necessary for execution of the Work.

G. Work shall progress from one unit’s gate slots to another unit, coordinating unit outages with the District. Slots available for rehabilitation may not be numerically
sequential but will be made available based on the District’s operational requirements.

H. At no time may the Contractor occupy or block the roadway across the dam (i.e., fish ladder, Powerhouse 1, spillway and Powerhouse 2) from shore to shore. Coordinate short-term access, and Work on B10 Slots blocking the roadway, with the District at least three days in advance of required occupation.

1.8 CONTRACTOR’S STAFF

A. General

1. Contractor shall provide an organization chart of all personnel on site within 15 days of Notice to Proceed.

2. Contractor shall provide an experienced and competent workforce.

3. The positions and functions described herein shall be included.

4. All members of Contractor’s onsite workforce shall work safely and harmoniously with coworkers, District, and others’ personnel.

5. The District reserves the right to require the removal of any Contractor personnel that does not comply.

6. The District shall have the right to require Contractor to replace any person who does not possess the skills to perform the Work, shows incompetence, or fails to comply with Contract Document requirements.

B. Project Manager

1. Contractor’s Project Manager shall have a minimum of five (5) years of experience similar in nature and complexity as called for in this Contract.

2. The Contractor shall submit a copy of the proposed Project Manager’s resume showing details of the Work experience within two (2) business days after the Notice to Proceed.

3. Contractor Project Manager shall be fluent in the English language, both written and oral.

4. The purpose of the Contractor’s Project Manager will be to provide one focal point within the Contractor’s organization, for all interfaces and communications with the District, and others, relevant to successful implementation and Completion of the Project.

5. Contractor’s Project Manager shall direct, coordinate and be responsible for all efforts of all entities performing services for, or supplying components to, Contractor on the Project, and shall provide the lead and impetus necessary to properly achieve Project objectives, the schedule and Contract obligations. To accomplish this, the Contractor’s Project Manager shall be authorized to perform the following:

   a. Be the primary contact for the Contractor with the District and its agents or representatives;

   b. Determine the overall Project plan and approve the individual schedules of the Contractor’s Subcontractor forces;

   c. Control and approve all Subcontractors’ work if applicable;
d. Monitor Project progress with right to decide corrective action and resolve problems that adversely affect Project objectives and Contract commitments; and
e. Monitor, control, and direct the Contractor’s Superintendent, Subcontractors, and other staff, if applicable.

6. The Project Manager is not required to be present at the site of Work during shifts when Work is in progress, but must be able to be present on the site within five (5) hours at the District’s request.

C. Contractor’s Superintendent

1. Contractor’s Superintendent shall have a minimum of five (5) years of experience similar in nature to that which is called for in this Contract. The Contractor shall submit a copy of the proposed Contractor Superintendent’s resume showing details of Work experience within two (2) business days after the Notice to Proceed. Contractor Superintendent shall be fluent in the English language, both written and oral.

2. The Contractor Superintendent shall be present at the site of Work during shifts when Work is in progress. The Contractor Superintendent shall be supported by competent assistants as necessary. All directions delivered or mailed to the Contractor Superintendent by the District, shall be binding as if given to the Contractor.

3. Contractor Superintendent shall oversee all activities of the Contractor’s crews. These crews shall report directly to the Contractor Superintendent.

4. As a minimum, the Contractor Superintendent shall have the authority to perform the following:

   a. General layout and work schedule;
   b. Qualifications and composition of crews;
   c. Increasing/decreasing crew size as required to meet Contract requirements;
   d. Reassignment of crew members;
   e. Disciplinary action and removal offsite of Contractor’s personnel, if necessary;
   f. Be authorized to negotiate and sign field work orders/change orders; and
   g. Execute changes to the Contract.

D. Contractor Superintendent shall also have the responsibility to:

1. Provide to the District and maintain an accurate and up-to-date list of all Contractor personnel onsite. List shall identify all Contractor and Subcontractor personnel;

2. Ensure crew members meet minimum qualifications as specified in the Contract;

3. Ensure Contract materials are on site;

4. Ensure proper quality of the Work;
5. Ensure proper installation procedures are being followed;
6. Ensure consumables and installation tools, equipment and materials are in adequate supply;
7. Monitor Work status and progress;
8. Represent the Contractor at site progress meetings, providing updates on the work in progress;
9. Establish training, as necessary; and
10. Establish and ensure safe work practices for Contractor’s personnel.

E. Site Safety Representative

1. Contractor’s Site Safety Representative shall have a minimum of five (5) years of construction experience with similar installations, and three (3) years of experience preparing and executing safety programs for similar Work.
2. Contractor shall submit a copy of the proposed Site Safety Representative’s resume showing details of work experience within two (2) business days of the Notice to Proceed.
3. The Site Safety Representative shall have overall responsibility for compliance with Contractor’s Site Safety Plan, applicable laws and codes, and District safety policies as may be amended.
4. This position may be a combined responsibility with other positions of the Contractor’s staff with approval of the District.
5. If the Site Safety Representative is not onsite at all times the Work is occurring, the Site Safety Representative shall designate another Contractor employee who is onsite to be the Onsite Safety Representative responsible for the site safety during the Work.
6. A Site Safety Representative shall be at the Project Site each shift that Work is occurring on the site, shall attend the site construction meetings, and immediately submit reports of near misses, incidents, and injuries to the District Project Manager or Engineer.

F. Craft Labor

1. Contractor shall provide a skilled labor force with experience similar in nature and complexity as called for in the Contract Documents.
2. Contractor’s skilled labor force shall hold and must maintain current to date all necessary licenses and/or certifications required by authorities having jurisdiction for performing the Work as specified in the Contract Documents.
3. Prior to commencement of the field Work, and each time the Contractor makes any change to the craft labor, resumes and any other documentation which the District may reasonably request shall be promptly provided to the District.

PART 2 – PRODUCTS (NOT USED)
PART 3 – EXECUTION (NOT USED)

END OF SECTION 01 11 00
SECTION 01 30 00
ADMINISTRATIVE REQUIREMENTS – CORRESPONDENCE

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SECTION 01 30 00

ADMINISTRATIVE REQUIREMENTS - CORRESPONDENCE

PART 1 – GENERAL

1.1 SUMMARY

A. This section describes the requirements and procedures for all correspondence to the District, Engineer and all parties involved with the Contract. The District reserves the right to revise or modify these procedures and/or implement a different software communication system as necessary to facilitate proper and consistent communication between related parties at no additional cost.

B. This section provides examples of forms to be used by the Contractor in the Appendices. Alternate forms may be used subject to Approval by the District.

1.2 RELATED DOCUMENTS

A. Contract Drawings and other provisions of the Contract Documents, including but not limited to, General Conditions (GC-) and Specific Requirements (SR-) apply to all sections.

1.3 PROJECT CORRESPONDENCE

A. Correspondence between the Contractor and the District can be handled through email. The following are highly recommended for efficient correspondence processing:

1. A high speed internet connection;
2. Document scanning capability;
3. Adobe® Acrobat 7 for PDF (*.pdf) files
   a. (http://www.adobe.com/products/acrobat/readermain.html);
4. Autodesk® Design Review 2013 for DWF (*.dwf) files,
   a. (http://www.autodesk.com/),
   b. Select country and proceed with downloading of: “Autodesk DWF Viewer It’s Free” button).

B. The District utilizes a specific “Smart Number” file naming convention described further in Serialized Correspondence Numbering (Smart Numbering), see Paragraph 1.9.

C. The following Project correspondence will be utilized for the duration of the Contract:

1. Serialized Letters
2. Serialized Memos
3. Request for Information (RFI)
4. Records of Conversation (telephone and personal contacts)
5. Emails
6. Serialized Contractor Submittals
7. District Submittal Responses
1.4 SERIALIZED LETTERS

A. Serialized letters shall be used for all correspondence from any Project entity that addresses **Contract scope, budget, schedule, or other contractual issues**.

B. Serialized letters shall be posted and followed immediately by the signed original via regular or express mail, by courier service, or hand carried to the District.

C. If the District determines that there is any change to the Contract scope, budget, or schedule, then the District will issue a Field Work Order/Change Order (FWO/CO) and post the executed FWO/CO.

1. All Serial Letters shall include (on the first page):

   a. Contract Number: 19-65
   b. Project Name: Rock Island Powerhouse 1 Gate Slot Support Ledge Rehabilitation
   c. Sender’s Name
   d. Sender’s Company Name
   e. Date: MM/DD/YYYY
   f. Serial Letter Number

D. Additionally, each page shall indicate page number and total number of pages, formatted as “Page X of Y”, and Serial Letter Number.

1.5 SERIALIZED MEMOS

A. Serialized Memos (Appendix 01 30 00-1) shall be used for **requesting information, clarifications, or interpretations of the Contract**.

B. Serialized Memos may be initiated by the District.

C. It is Contractor’s responsibility to initiate a Serialized Letter identifying any contractual changes that may result from a Serialized Memo response.

D. Serialized Memos shall be emailed. No hard copy is required.

1.6 REQUESTS FOR INFORMATION (RFI)

A. Requests for Information shall be used by the Contractor for requesting specific information (i.e. change in material, paint color, etc.) See appendix 01 30 00-3.

1.7 TELEPHONE AND PERSONAL CONTACT RECORDS

A. Telephone and personal contact discussions (except meeting minutes) and particularly those which could result in a change to scope, schedule or budget, shall be recorded by the Contractor on a Record of Conversation Form (Appendix 01 30 00-2). Completed Record of Conversation Forms shall be emailed within three (3) calendar days of the conversation.

1.8 E-MAIL COMMUNICATIONS

A. Parties to the Project may use e-mail for items other than those identified in the list of Project correspondence.

B. E-mail may be used as a mechanism to transmit courtesy copies of other documents. Each e-mail shall contain a single subject. In rare cases similar subjects may be combined in a single e-mail if necessary for understanding. The Subject Line shall reference the:
1. Contract Number: **19-65**,  
2. Project Name: Rock Island Powerhouse 1 Gate Slot Support Ledge Rehabilitation  
3. The email contents clearly described.

### 1.9 SERIALIZED CORRESPONDENCE NUMBERING

A. Serial numbers shall begin at -001 for each type of correspondence from each sender. Numbers shall be consecutive. Correspondence initiated by Subcontractors shall be routed and tracked through the Contractor. The Engineer shall approve all deviations to this requirement. If a deviation is agreed to in writing, then Contractor shall ensure that Subcontractors shall be bound by the same requirements as the Contractor, as provided herein.

B. The District will assign Contractor Codes for all parties involved as needed.

C. Correspondence Smart Numbers and file names for this Project shall be formatted as follows:

<table>
<thead>
<tr>
<th>DOCUMENT TYPE</th>
<th>NUMBERING CONVENTION AND FILE NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serial Letters</td>
<td>1965-XXXX–L-001-0</td>
</tr>
<tr>
<td>Serialized Memos</td>
<td>1965-M-001-0</td>
</tr>
<tr>
<td>RFI</td>
<td>1965-RFI-001-0</td>
</tr>
<tr>
<td>Submittals</td>
<td>1965–S-(Document Name)-0</td>
</tr>
</tbody>
</table>

Examples: **1965-HHI-L-001-0**

- **1965**: (Bid Number)  
- **HHI**: (Contractor Designation, e.g. Hyundai Heavy Industries)  
- **L001**: (Correspondence Type and sequential number)  
- **0**: (Revision number)  
- **L-001-0**: Letter Number - 01, Revision 0;  
- **M-009-C1**: Serialized Memo number 9, revision C1 (Revisions are with alpha characters (0, A, B, C…))  
  If a Memo needs to be revised prior to a response, then use sequential numbering, following that revision alpha character.  
- **S-054-3**: Submittal Number 54, Revision 3 (Revision with sequential numeric character (0, 1, 2, 3….))  
  Submittal number may also be Contractor’s document number and revision
1.10 ADDRESS INFORMATION
   A. All Project correspondence shall be addressed as follows:

   **US Mail:**
   P.U.D. No. 1 of Chelan County
   Rock Island Powerhouse 1 Gate Slot Support Ledge Rehabilitation
   Project Manager: Karl Specht
   ATTN: Wendy Monette
   P.O. Box 1231
   Wenatchee, WA 98807-1231

   **Physical Address, (Fed Ex, UPS, oversized mail):**
   P.U.D. No. 1 of Chelan County
   Rock Island Powerhouse 1 Gate Slot Support Ledge Rehabilitation
   Project Manager: Karl Specht
   ATTN: Wendy Monette
   327 N. Wenatchee Ave.
   Wenatchee, WA 98801

1.11 PROJECT SCHEDULES
   A. General
   1. The Contractor shall prepare and maintain Project schedules. Schedules shall be prepared and maintained in a District approved software format. Schedule logic shall be included and the critical path calculated and indicated.

   2. Schedules shall be updated to reflect all changes and to show progress, and submitted at least two (2) days prior to each scheduled Progress Meeting. Updates shall indicate actual progress against a baseline schedule established at the beginning of the project. Additionally, the Schedule shall be updated and resubmitted within five (5) working days of any change known by the Contractor that could cause actual completion dates to exceed the Contract Time specified in the Contract Documents.

   B. Overall Project Schedule
   1. The Contractor shall prepare and maintain a time scaled Critical Path Method (CPM) Schedule showing all significant activities from Contract award to final closeout. This Schedule shall show all major events, activities, milestones, and completion dates required for completion of the Work.

   2. The combined schedule shall include, as a minimum, the start date, duration time in days and the completion date for the following work items:
   a. Submittal preparation;
   b. District response to Submittals;
   c. Re-submittals (preparation and review) as applicable;
   d. Procurement and Fabrication;
   e. Mobilization;
f. Shipment & Delivery of equipment/material to Job Site;
g. Construction (as a rollup);
h. Construction Phases (as children to the rollup);
i. Substantial Completion;
j. Demobilization

3. The Contractor shall assign such forces and perform the Work in such a manner as to assure compliance with the Approved Schedule and the Contract. The Contractor shall inform the Engineer of any Schedule changes.

PART 2 – PRODUCTS (NOT USED)
PART 3 – EXECUTION (NOT USED)
PART 4 – LIST OF APPENDICES

01 30 00-1 SERIALIZED MEMO FORM
01 30 00-2 RECORD OF CONVERSATION FORM
01 30 00-3 REQUEST FOR INFORMATION

END OF SECTION 01 30 00
Appendix 01 30 00-1 – Serialized Memo Form

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</tr>
<tr>
<td>To:</td>
</tr>
<tr>
<td>From:</td>
</tr>
<tr>
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</tr>
<tr>
<td>Regarding:</td>
</tr>
<tr>
<td>Description/Request:</td>
</tr>
<tr>
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<td>Copy:</td>
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<tr>
<td>Response Assigned To (Names(s) and/or Organization(s)):</td>
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</tr>
<tr>
<td>Copy:</td>
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<td>CCPUD Action Required:</td>
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</table>

- [ ] Follow Up
- [ ] Variance
- [ ] Field Order / Change Order
- [ ] DWG/Spec Revision
- [ ] Other:

Action Completed:

By: | Date:
# RECORD OF CONVERSATION

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<td>Contract 19-65 Rock Island Powerhouse 1 Gate Slot Support Ledge Rehabilitation</td>
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<td>Person(s) Talked With:</td>
<td>Company / Phone Number:</td>
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<td>Significant Decisions:</td>
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<td>Required Actions/Follow-up:</td>
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## Request for Information

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<td><strong>Description/Request:</strong></td>
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<td><strong>Requested Due Date:</strong></td>
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<td><strong>Attachments:</strong></td>
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<td><strong>Copy:</strong></td>
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<tr>
<td><strong>Response Assigned To</strong> (Names(s) and/or Organization(s)):</td>
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<td><strong>CCPUD Action Required:</strong></td>
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SUBMITTAL PROCEDURES

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SECTION 01 33 00
SUBMITTAL PROCEDURES

PART 1 – GENERAL

1.1 SUMMARY

A. This section describes the requirements and procedures for all submittals to the District, Engineer and all parties involved with the Contract. The District reserves the right to revise or modify these procedures as necessary.

B. This section provides examples of forms to be used by the Contractor in the Appendices. Alternate forms may be used subject to Approval by the District’s Engineer.

1.2 ACCEPTABLE FILE FORMATS

A. Electronic File Format

1. All software used shall be the latest version or as approved by the Engineer. The only exception is for Autodesk® AutoCAD®, which shall be version 2016 (or earlier)

2. The following list of software and file formats shall be used for all submitted documentation or as approved by the Engineer.

<table>
<thead>
<tr>
<th>Software</th>
<th>File Format</th>
<th>Usage Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>MathCAD®®</td>
<td>MCD (*.mcd)</td>
<td>Engineering calculations</td>
</tr>
<tr>
<td>Microsoft® Word</td>
<td>DOC (*.doc)</td>
<td>Text files, forms</td>
</tr>
<tr>
<td>Microsoft® Excel</td>
<td>XLS (*.xls)</td>
<td>Spreadsheets, forms, calculations</td>
</tr>
<tr>
<td>Microsoft® Access</td>
<td>MDB (*.mdb)</td>
<td>Databases</td>
</tr>
<tr>
<td>Bluebeam® or Adobe Acrobat®</td>
<td>PDF (*.pdf)</td>
<td>Text, pictures, reports, manuals, calculations</td>
</tr>
<tr>
<td>Audio editing</td>
<td>WAV (*.wav)</td>
<td>Audio files</td>
</tr>
<tr>
<td>Digital Photograph editing</td>
<td>JPG (*.jpg)</td>
<td>Digital photographs, scanned files</td>
</tr>
<tr>
<td>Autodesk® AutoCAD®</td>
<td>DWG (*.dwg)</td>
<td>Shop Drawings</td>
</tr>
<tr>
<td>Autodesk® DWF Viewer™</td>
<td>DWF (*.dwf)</td>
<td>Shop Drawings</td>
</tr>
</tbody>
</table>

1.3 SERIALIZED CONTRACTOR SUBMITTALS

A. Contractor shall submit documents and drawings individually. Documents shall be CHECKED by Contractor before being submitted. All drawings shall be stamped by Contractor as having been checked, including the name or initials of the person checking the drawings and the date.

B. If documents are changed subsequent to the original submittal, Contractor shall submit the revised document(s) in accordance with the naming convention, for information or review and Approval consistent with the original requirement.

C. Resubmittals shall have the same number and title as the original submittal with a numeric revision code (example: 1965- S-001-1) added to the submittal cover sheet and file name until submittal is Approved with no further action required.

D. NEW submittals shall not be combined with resubmittals.
1.4 SUBMITTAL SCHEDULE

A. Contractor shall prepare and submit a Submittal Schedule inclusive of all Drawings, calculations, procedures, and other documentation specified in these Contract Documents. The Submittal Schedule shall be prepared and submitted in Microsoft Excel (*.xlsx) or other Approved file format. The Submittal Schedule shall reflect submittal number, revision, description, anticipated submittal date, actual submittal date, District reference number (if applicable) and specification section number.

B. The Contractor shall submit the Submittal Schedule within 15 days after District issuance of Notice of Award.

C. The Submittal Schedule shall be updated and maintained over the course of the Contract. The Submittal Schedule shall be updated and resubmitted monthly to reflect changes and for Progress Meetings, or as requested by Engineer.

1.5 SUBMITTALS

A. General

1. The Contractor is required to provide information to support its engineering, design, fabrication, and installation process and provide this information in sufficient detail to demonstrate the Work is being performed in accordance with these Contract Documents.

2. The required submittals are not limited to those on the list of Required Submittals (Appendix 01 33 00-1). The District or Engineer may, at any time throughout the duration of the Contract, require the Contractor to provide additional information pertaining to the Work. The Contractor shall comply by providing the information in the form of a Submittal.

3. Documents and Shop Drawings shall be submitted for information, or review and Approval. Contractor shall supply complete documentation and Shop Drawings for the equipment provided in accordance with the format and procedures established by these Contract Documents.

4. Non-paper submittal items such as hardware, samples, material items, etc. that cannot be emailed shall be sent to the Project Manager.

5. Shop Drawings shall be submitted within 8 weeks after District issuance of Notice of Award and prior to commencing Work.

6. Documents shall be submitted in a timely manner to support Contractor’s engineering, design, and fabrication process. All delays due to untimely submittal of documents to District shall be the responsibility of the Contractor. Contractor shall arrange the submittal schedule such that no more than 25 documents or Shop Drawings are submitted per week, except as otherwise Approved in writing (in advance), by the Engineer, or in the case of As-Built Drawings.

7. It is in the Contractor’s best interest to submit submittals and resubmittals far enough in advance of the District’s submittal review time so that fabrication start dates are not delayed while waiting for submittal Approval.

8. The District has the right to delay Work if required pre-construction submittals are not Approved. Onsite Work will not be allowed to proceed prior to the Approval of the Contractor’s Work Plans, safety plan, and QA/QC plan. No increase in Contract Price or extension of the Contract Time will be allowed if this delay occurs.
9. The Contractor shall furnish descriptions and drawings of the equipment it proposes to furnish, showing the dimensions of all parts, the materials from which the parts are to be made, the general arrangement and cross-sectional assembly, critical tolerances, and an outline drawing of each assembly of equipment to be supplied. Drawings shall show overall dimensions, limiting space requirements, and foundation requirements, in accordance with the submittal schedule.

10. The Contractor shall provide equipment documentation and Shop Drawings with overall dimensions and interfaces with other equipment in sufficient detail for the District’s Engineer to review with the intent of verifying the Work is being performed in accordance with these Specifications. Where both design calculations and drawings are prepared, they shall be submitted together to allow complete review.

11. Materials shall be identified with the corresponding code or serial numbers referring to the standards of ASTM or to other standards recognized in the United States of America.

12. Contractor shall be responsible for the accuracy and correctness of dimensions and details on the documents and Shop Drawings. The Approval of such documents and Shop Drawings by the Engineer shall not relieve Contractor of this responsibility.

13. Any document required by this Specification which is produced by a sub-supplier, or subcontractor shall first be REVIEWED and noted as being APPROVED by Contractor and then submitted to the Engineer for review and Approval.

14. Contractor shall assume all responsibility and risk for conditions due to any error on Shop Drawings regardless of drawing Approval or field acceptance of material or delivery.

15. Any fabrication or other Work performed in advance of Contractor’s receipt of review comments and Approval shall be entirely at Contractor’s risk. After review, Contractor shall not deviate in any way from the design, details, dimensions, or other information shown on the drawings without the written Approval of Engineer.

B. Documents and Drawings

1. Documents and drawings submitted by the Contractor, as a minimum, shall refer to information specifically required in the Submittal Schedule and elsewhere in this Specification. This information shall include all drawings, diagrams, illustrations, manufacturer’s product data, catalog data, brochures, performance charts, and other information required to illustrate distinct portions of Work.

2. Documents and Drawings shall include all the details necessary for fabrication, assembly, installation, repair, and maintenance of furnished items. The minimum drawings required are specified in individual sections of the Specifications. Contractor shall furnish detailed fabrication drawings (Shop Drawings) and procedures for installation and assembly of all items provided.

3. If standard drawings or catalog cut sheets are submitted, the applicable items and devices furnished shall be clearly marked, e.g., arrows pointing
C. District's Review

1. The purpose for requiring Contractor submittals is to permit the District’s Engineer to monitor the Contractor’s progress and to determine conformance with the intent of these Specifications.

2. Contractor and Subcontractors who use unapproved documents do so at their own risk and may be required to repeat activities that were performed if the document used is subsequently rejected by Engineer.

3. Submittals reviewed by the Engineer do not become Contract Documents and are not Change Orders.

4. Engineer’s review, acceptance, or Approval of schedules, Shop Drawings, lists of materials, and procedures submitted or requested by the Contractor shall not add to the Contract Price and additional costs shall be solely the obligation of the Contractor.

5. The District will not be precluded, by virtue of review, acceptance, or Approval, from obtaining a credit for fabrication and/or construction savings resulting from allowed concessions in the Work or materials provided. Any savings shall be mutually agreed upon by the Engineer and the Contractor and evidenced by an executed FWO/CO.

6. The Engineer’s review of Contractor submittals is not intended to be a rigorous engineering analysis of the Contractor’s design or proposal. Engineer reserves the right to require the Contractor to make changes to Contractor’s submittals, which may be necessary, in their opinion, to make the Work conform to the provisions and intent of these Specifications. Any additional cost to correct a submittal, including work to maintain the schedule that may result from any delay to review a resubmittal, shall be solely the obligation of the Contractor.

7. The District will not be responsible for furnishing engineering or other services to protect the Contractor from additional costs accruing from submittals.

D. Language

1. All documents (i.e. Shop Drawings, data, manuals, plans, procedures, calculations, schedules, digital photographs, etc.) submitted to the Engineer shall be in the English language. Dual language is acceptable on Drawings, provided all information is also provided in English. All numeric data shall use foot-pound-second system of units of measurements. All elevations shall be dimensioned in feet.

E. Calculations

1. The Engineer shall have the right to review any and all of the Contractor’s calculations, including all manual and computerized design calculations. If specified and/or requested by the Engineer, the Contractor shall provide all backup calculations, assumptions, flow charts, computer program documentation, and all other data necessary for proper review of the material by the Engineer.
1.6 DISTRICT SUBMITTAL RESPONSE

A. The Engineer will respond to submittals within two (2) weeks after acknowledgement.

B. Any Work undertaken by the Contractor prior to submittal approval shall be at the Contractor’s sole risk.

C. The Engineer will mark Submittal with one of the following:

<table>
<thead>
<tr>
<th>SUBMITTAL RESPONSE &amp; ACTION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>REVIEWED</td>
<td>Reviewed. Work may proceed The Work covered by the submittal may proceed provided it complies with the Subcontract Documents. Final acceptance will depend on that compliance.</td>
</tr>
<tr>
<td>REVISE-WMP</td>
<td>Reviewed. Revise and resubmit. Work may proceed The Work covered by the submittal may proceed provided it complies both with notations and corrections on the submittal and the Subcontract Documents. Final Acceptance will depend on that compliance.</td>
</tr>
<tr>
<td>REJECT - REVISE</td>
<td>Reviewed. Revise and resubmit. Work may not proceed Do not proceed with the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity for the product submitted. Revise or prepare a new submittal according to District’s notations and corrections.</td>
</tr>
<tr>
<td>REJECT</td>
<td>Reject Do not proceed with the Work covered by the submittal. Prepare a new submittal for a product that complies with the Contract Documents.</td>
</tr>
<tr>
<td>INFO</td>
<td>Permission to proceed not required The submittal is primarily for information purposes, record purposes, special processing, or other Subcontractor activity.</td>
</tr>
</tbody>
</table>

1.7 CONTRACT CLOSE-OUT SUBMITTALS

A. Record Drawings

1. After District’s final Approval, submit the following as part of the final As-Built Record Drawings Submittal, which will include all Shop Drawings and marked-up Reference Drawings including any changes made up to the time that the Work is completed and accepted, and all As-Built and field changes, in accordance with this Section:

   a. One (1) complete, hard copy set of full-size, reproducible, final drawings (Shop and Reference);

   b. One (1) electronic media copy (soft copy) set of all drawings in AutoCad or other pre-approved file format (Shop and Reference as required) on CD or USB flash drive, including an enclosed master drawing list (with all reference files included);

   c. Email final As-Built Drawings in AutoCad or other pre-approved file format (Shop and Reference as required) to the District Project Manager.

B. Record Documents

1. Email record documents to the District Project Manager and furnish one (1) complete set of record documents in hard copy to the Engineer, including, but not limited to, the following:

   a. QA/QC Documentation.
b. Product Data

c. Test reports

d. Certificates of Compliance.

e. Warranty Documentation.

f. Drawings

2. Furnish duplicate copies of warranty documents that are executed and transferable from Subcontractors, suppliers, and manufacturers as applicable.

3. Final Documentation Submittal shall be a compilation of documents described above in 1.7 B Record Documents Items 1.a through 1.f in the order shown above into a three ring binder. Provide four (4) copies of each binder. Cover sheet for these binders shall include similar formatting to the following:

ROCK ISLAND POWERHOUSE 1 GATE SLOT SUPPORT LEDGE REHABILITATION

NAME OF DOCUMENT
(i.e., QA/QC Dossier, etc)

(NAME OF CONTRACTOR)

CONTRACT NO. 19-65
(Date)

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

PART 4 – LIST OF APPENDICES

01 33 00-1 REQUIRED SUBMITTALS

01 33 00-2 SHOWING HOW TO PROPERLY IDENTIFY EMBEDDED DOCUMENTS, CATALOG CUT SHEETS, ETC.

END OF SECTION 01 33 00
Appendix 01 33 00-1 – Required Submittals

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<tr>
<th>SECTION NUMBER</th>
<th>ACTIVITY/DESCRIPTION</th>
<th>REQUIRED DATE: Calendar days after District issuance of Notice of Award unless otherwise noted</th>
</tr>
</thead>
</table>
| 01 11 00       | Resumes detailing work experience:  
1. Project Manager.  
2. Superintendent  
3. Site Safety Representative | Within two (2) business days after Notice to Proceed.                                         |
| 01 11 00       | Work Plan                                                                            | 15 days Prior to Mobilization                                                               |
| 01 11 00       | Organization Chart of all Personnel onsite                                           | Within 15                                                                                  |
| 01 30 00       | Project schedule                                                                     | Within 30                                                                                  |
| 01 33 00       | Submittal Schedule                                                                   | Within 15                                                                                  |
| 01 45 17       | Quality Control/Quality Assurance (QC/QA) Plan                                        | Within 30                                                                                  |
| 01 77 01       | Record Documents                                                                     | Prior to application for final payment                                                      |
| 02 41 19       | Demolition and construction activities and procedures                                | Within 30                                                                                  |
| 02 41 19       | Shop drawings and installation and removal plan for temporary work platform           | Within 30                                                                                  |
| 03 60 00       | Site Inspection and Test Plan                                                        | Within 30                                                                                  |
| 03 60 00       | Manufacturers’ instructions and certifications for grout materials                    | Within 30                                                                                  |
| 03 60 00       | Name and telephone number of grout manufacturer's representative who will provide on-site service | Within 30                                                                                  |
| 03 60 00       | Manufacturer’s instructions for epoxy adhesive anchors                                | Within 30                                                                                  |
| 05 50 00       | Shop Drawings for metal members                                                      | Within 30                                                                                  |
| 05 50 00       | Layout drawings for grating                                                          | Within 30                                                                                  |
| 05 50 00       | Welding procedures, test results and certifications                                  | Within 30                                                                                  |
Appendix 01 33 00-2

Showing How to Properly Identify Embedded Documents, Catalog Cut Sheets, etc.
# SECTION 01 33 23.2

## DRAFTING REQUIREMENTS

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</tr>
<tr>
<td>PART 3 – EXECUTION (NOT USED)</td>
<td>.................................................................................................................. 4</td>
</tr>
</tbody>
</table>
SECTION 01 33 23.2
DRAFTING REQUIREMENTS

PART 1 – GENERAL

1.1 SUMMARY
A. This section describes the requirements and procedures for all drawing submittals to the District, Engineer and all parties involved with the Contract. The District reserves the right to revise or modify these procedures as necessary.

1.2 DRAWINGS
A. Project drawings include the following:
   1. Contract Drawings, if any, (as provided by District);
   2. Shop Drawings (all drawings provided by Contractor or Subcontractor, as required by Contract);
   3. Reference Drawings (as provided by District with Bid or at Contractor’s request – all dimensions and locations of existing equipment shall be field verified, as necessary, by Contractor). These Reference Drawings may be hard copy or electronic or both.

B. All Drawings prepared by Contractor or Subcontractor shall be in compliance with the following sections 1.3 through 1.6.

1.3 APPROVED DISTRICT FORMAT
A. The District’s preference is to receive DWG (*.dwg) files, but DXF (*.dxf) or TIF (*.tif) files may be accepted with the District’s prior Approval.

B. Approved file formats are listed below.

<table>
<thead>
<tr>
<th>SOFTWARE</th>
<th>FILE FORMAT</th>
<th>USAGE EXAMPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autodesk Inventor 2016 or earlier</td>
<td>Part (<em>.ipt) Files, Assembly (</em>.iam) Files, Presentation (.ipn) Files, Drawing (*.dwg) Files</td>
<td>3D parametric design</td>
</tr>
<tr>
<td>Autodesk® AutoCAD® 2016 or earlier</td>
<td>Drawing (*.dwg) 2016 or earlier</td>
<td>Shop Drawings</td>
</tr>
<tr>
<td>Autodesk® Design Review™</td>
<td>DWF (*.dwf, *dwfx)</td>
<td>Shop Drawings</td>
</tr>
</tbody>
</table>

1.4 CONTRACT AND REFERENCE DRAWINGS (EXISTING DRAWINGS)
A. Any existing Reference Drawing (electronic or hard copy) requested by the Contractor will be scanned (if necessary) and sent via email, FTP site, or CD via mail, with a CD copy going to the Project Manager.

B. The Contractor shall make all changes to these Reference Drawings adhering to the following conventions:
1. Color **RED (AutoCAD color 242)** - any additions
2. Color **GREEN (AutoCAD color 82)** - any deletions.
3. Color **BLUE (AutoCAD color 160)** - general notes to explain changes. (NOTE: these general notes will not be added to the final Drawing.)

C. Revision tracking shall be done in capital alpha character, after the initial numeric revision provided (e.g., revisions to ‘Rev 4.0’ would be ‘Rev 4.0A’, ‘Rev 4.0B’, etc.).

1.5 SHOP DRAWINGS (NEW DRAWINGS)

A. Approved District Standards:
   1. Contractor shall comply with the National CAD Standard in these areas:
      a. CAD Layering Guidelines
      b. Tri-Services Plotting Guidelines (plot file will be provided by the District)
      c. Drafting Conventions
      d. Terms & Abbreviations
      e. Symbols

B. Exceptions to the National CAD Standard shall be as follows:
   1. All Shop Drawing files shall be drawn at full scale (1:1) in Model Space.
   2. Acceptable hard copy size shall be as follows as defined in ANSI Y14.1 (preferred size will be at the Engineer’s discretion):
      a. B-size 11”x17”
      b. Arch C-size 18”x24”
      c. ANSI D-size 22”x34”
      d. Arch E1-size 30”x42”
   3. Font shall be **simplex.shx** (provided by District)
   4. Any use of cross-references (“X-REF”) shall be bound within each Shop Drawing.
   5. Contractor shall use title block(s), border(s), and Shop Drawing numbering system provided by the District. (DO NOT MODIFY TITLE BLOCK. Other than populating existing attributes.)
   6. All drawing files shall be individually named and numbered with a distinct drawing number per sheet. EXAMPLE: Drawing file name: 4040-18SD-0001.dwg Drawing number: 4040-18SD-0001. Only one (1) drawing per file will be accepted.
   7. All sections, views and details shall be referenced to and from each appropriate sheet using the District’s drawing number.

C. Each Shop Drawing shall be identified with the following data:
   1. Rock Island Powerhouse 1 Gate Slot Support Ledge Rehabilitation
   2. Date: YYYY-MM-DD
3. Project designation: Rock Island Powerhouse 1 Gate Slot Support Ledge Rehabilitation

4. Contract number: 19-65

5. Drawing information:
   a. Title
   b. Number: 4040-18aa-nnnn
   c. Revision number

6. Contractor information:
   a. Name
   b. Job reference number

D. Each Shop Drawing shall include:
   1. A revision-tracking log to indicate changes made since the last revision;
   2. Date revised;
   3. A clear mark near each change indicating the revision of the change;
   4. An area three (3) inches by three (3) inches left clear, located near the title block for the District’s use in marking the drawing’s review and approval status.

E. District drawing numbers shall be placed on all Shop Drawings by the Contractor. This identification number will be supplied by the Engineer at earliest appropriate time prior to final Shop Drawing Approval and added by the Contractor to each individual Shop Drawing.

F. The Contractor shall be responsible for making sure that all Subcontractors conform to these same standards.

G. A graphical scale and component weights shall be included on each physical drawing.

H. Non-destructive examination scope, procedures, and acceptance criteria shall be indicated on physical drawings where applicable.

I. All deviations from the Contract Documents shall be conspicuously marked on the Shop Drawings or noted on the submittal form and accompanied by a request for deviation.

1.6 AS-BUILT CONTRACT AND SHOP DRAWINGS

1. Upon Completion of the Work, the Contractor shall revise Shop Drawings to accurately reflect As-Built conditions. Those drawings (Shop) shall conform to the Contract.

PART 2 – PRODUCTS (NOT USED)
PART 3 – EXECUTION (NOT USED)

END OF SECTION 01 33 23.2
SECTION 01 45 17
CONTRACTOR QUALITY CONTROL

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SECTION 01 45 17
CONTRACTOR QUALITY CONTROL

PART 1 – GENERAL

1.1 GENERAL

A. The Contractor Superintendent or his designee is responsible for quality control and shall establish and maintain an effective quality control system for both off-site and on-site Work. The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the Contract requirements.

B. The Contractor shall develop a Quality Control/Quality Assurance (QC/QA) Plan for all phases of the Work. The plan shall be submitted to District for approval within 30 days of the Notice of Award.

1.2 RELATED DOCUMENTS

A. Contract Drawings and other provisions of the Contract Documents, including but not limited to, General Conditions (GC-) and Specific Requirements (SR-) apply to all sections.

1.3 COORDINATION MEETING

A. Before start of construction, and prior to acceptance by the District of the Quality Control Plan, the Contractor shall meet with the District's Project Manager or authorized representative and discuss the Contractor's quality control system. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the Contractor Quality Control (CQC) operations, control activities, testing, administration of the system for both on-site and off-site Work and the interrelationship of Contractor’s management and control with the District's quality assurance inspection. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

1.4 INTERPRETATIONS

A. District reserves the right for determining the applicability and interpretation of all Specifications, standards and requirements related to this Contract. Contractor shall comply with the District’s interpretation at no additional cost provided the interpretation is within the Work scope defined herein and consistent with the intent of these technical Specifications.

1.5 CONTROL

A. Contractor Quality Control is the means by which the Contractor ensures that the construction complies with the requirements of the Contract including that of subcontractors and suppliers. The controls shall be adequate to cover all construction operations, including both on-site and off-site fabrication, and shall be keyed to the proposed construction sequence. The controls shall include at least 3-phases of control to be conducted by the CQC system manager for all definable features of Work as follows:
B. Preparatory Phase

This phase shall be performed prior to beginning Work on each definable feature of Work and shall include:

1. A review of each paragraph of applicable Specifications;
2. A review of the Contract Drawings;
3. A check to assure that all materials and/or equipment have been tested, submitted, and Approved;
4. A check to assure that provisions have been made to provide required control inspection and testing;
5. Examination of the Work area to assure that all required preliminary Work has been completed and is in compliance with the Contract;
6. A physical examination of required materials, equipment and sample Work to assure that they are on hand, conform to Approved Shop Drawing or submitted data, and are properly stored;
7. A review of the appropriate activity hazard analysis to assure safety requirements are met;
8. Discussion of procedures for constructing the Work including repetitive deficiencies. Document construction tolerances and workmanship standards for that phase of Work;
9. A check to ensure that the portion of the plan for the Work to be performed has been accepted by the District’s Project Manager;
10. The District shall be notified at least one (1) business day in advance of Contractor beginning any of the required action of the preparatory phase. This phase shall include a meeting conducted by the CQC system manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC system manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet Contract Specifications.

C. Initial Phase

This phase shall be accomplished at the beginning of a definable feature of Work. The following shall be accomplished:

1. A check of preliminary Work to ensure that it is in compliance with Contract requirements. Review minutes of the preparatory meeting;
2. Verification of full Contract compliance. Verify required control inspection and testing;
3. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards;
4. Check safety to include compliance with and upgrading of the safety plan and hazard analysis. Review the hazard analysis with each worker;
5. The District shall be notified at least one (1) business day in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC system manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.

6. The initial phase shall be repeated for each new crew to work on site, or any time acceptable specified quality standards are not being met.

D. Follow-up Phase

1. Daily inspections shall be performed to assure continuing compliance with Contract requirements, including control testing, until completion of the particular feature of Work. The inspections shall be made a matter of record in the CQC documentation. Final follow-up inspections shall be conducted and all deficiencies corrected prior to the start of additional features of Work which may be affected by the deficient Work. The Contractor shall not build upon or conceal non-conforming Work.

2. Additional Preparatory and Initial Phases: Shall be conducted on the same definable features of Work as determined by the District if the quality of ongoing Work is unacceptable; or if there are changes in the applicable CQC staff or in the on-site production supervision or work crew; or if work on a definable feature is resumed after a substantial period of inactivity, or if other problems develop.

1.6 CONTROL OF NON-CONFORMANCES

A. As a part of the Quality Control/Quality Assurance Plan, the Contractor shall:

1. Define a procedure for preventing nonconforming materials and equipment that do not meet standards, criteria or Specifications from being inadvertently used for this Project.

B. Nonconforming materials and equipment that do not meet Contract standards, criteria or Specifications inadvertently used for this Project shall be resolved as a price deduction, repair, return to source, scrap, or rework at the discretion of the District.

C. Any request for approval for deviations or nonconformance to the Contract Documents or Quality Control Plan shall be made to the Engineer in writing.

D. A Nonconformance Report (NCR), (example Appendix 014517-1) shall be written and submitted to the District for each nonconforming item. As a minimum, the NCR shall:

1. Describe the system or part in nonconformance;
2. Make reference to the controlling plan, Specification, or procedure in violation;
3. Include the Contractor’s recommended disposition; and
4. Include signatures of the Contractor’s Quality and Engineering personnel.

E. An NCR Form shall be submitted to the District for approval prior to first use.

1.7 QUALITY RECORDS

A. The CQC Assurance Plan shall define the records that must be prepared and maintained. Such records shall include data, which could be required for future
reference. This includes but is not limited to, as-built conditions, material certifications, installation records, and warranty information.

B. The records shall be controlled by the Contractor to provide easy access for record retrieval and maintenance. All records shall be made available to the District upon request for inspection or the District’s use.

1.8 DISTRICT QUALITY INTERFACE

A. The District has the right to observe any of the Contractor’s Work including design, installation, field inspections and tests. The Contractor shall coordinate all quality activities with the District.

B. The District may perform or have performed on its behalf inspections during the Work. The District shall be provided with unrestricted access to the Contractor’s and Subcontractor’s shops for such inspections.

C. The District’s exercise of or failure to exercise its right to inspect, witness, test, or audit and any subsequent approval of Work by the District or designee, shall not relieve the Contractor of its obligation to comply with the terms and conditions of the Contract.

PART 2 – PRODUCTS (NOT USED)
PART 3 – EXECUTION (NOT USED)
PART 4 – APPENDICES

Appendix 01 45 17-1, Non-Conformance Report

END OF SECTION 01 45 17
## Appendix 01 45 17-1 Non-Conformance Report (Form)

### 01 45 17-1 NON-CONFORMANCE REPORT

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<td>Part Name:</td>
<td>Part Location: Shop □ Field □ Other □</td>
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### CONTRACTOR REASON

- [ ] Deviation from Spec
- [ ] Deviation from Dwg
- [ ] Code Violated
- [ ] Other, describe:

- Spec Violated:
- Related Ref. Doc: dated:
- Dwg Violated:
- CPUD:
- Vendor:
- Name/Sec/Para:
- Item No.:

Condition Details:

Attachments:

Condition details by: Date:

Disposition assigned to Contractor Engineer: Date:

### CONTRACTOR DISPOSITION 1

**Action:**
- [ ] Accept As Is
- [ ] Scrap
- [ ] Rework
- [ ] Revise
- [ ] Return to Vendor
- [ ] DCN Required

**Disposition Details:**

Attachments:

Contractor Disposition by: Date:

### DISPOSITION 1 STATUS

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**REASON FOR NOT APP:**

### CONTRACTOR DISPOSITION 2 (if D1 becomes NOT APP)

**Action:**
- [ ] Accept As Is
- [ ] Scrap
- [ ] Rework
- [ ] Revise
- [ ] Return to Vendor
- [ ] DCN Required

**Disposition Details:**

Attachments:

VATH Disposition by: Date:

### DISPOSITION 2 STATUS

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**REASON FOR NOT APP:**

### INSPECTION/ VERIFICATION:

- [ ] Acceptable
- [ ] Not Acceptable

Signature: Date:

### REINSPECTION/ RE-VERIFICATION:

- [ ] Acceptable
- [ ] Not Acceptable

Signature: Date:

**New NCR No.:**

**Supersedes NCR No.:**

**New IR No.:**

[ ] CPUD Engineer signature: Date:
## Non-conformance Report Correspondence

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**Requested Due Date:**

**Attachments:**

**Copy:**

**VENDOR:**

**CPUD:**

**Date:**

**Response:**

### A - Response: CPUD:

**Requested Due Date:**

**Attachments:**

**Copy:**

**VENDOR:**

**CPUD:**

**Date:**

**Response:**

### B - Response: VENDOR:

**Requested Due Date:**

**Attachments:**

**Copy:**

**VENDOR:**

**CPUD:**

**Date:**

**Response:**

### C - Response: CPUD:

**Requested Due Date:**

**Attachments:**

**Copy:**

**VENDOR:**

**CPUD:**

**Date:**

**Response:**

### D - Response: VENDOR:

**Requested Due Date:**

**Attachments:**

**Copy:**

**VENDOR:**

**CPUD:**

**Date:**

**QA/QC Manager signature:**

**Date:**
SECTION 01 77 01
CONTRACT CLOSEOUT

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SECTION 01 77 01
CONTRACT CLOSEOUT

PART 1 – GENERAL

1.1 SUBMITTALS
   A. Submit prior to application for final payment:
      1. Record Documents: As Required within this section, Appendix 01 33 00-1, and the Contract Documents.
      2. Extra Materials: As Required by individual Specification sections.

1.2 RECORD DOCUMENTS
   A. Quality Assurance: Furnish qualified and experienced person, whose duty and responsibility shall be to maintain Record Documents.
   B. Accuracy of Records:
      1. Coordinate changes within Record Documents, making legible and accurate entries on each sheet of Contract Drawings and other documents where such entry is required to show change.
      2. Purpose of Project Record Documents is to document factual information regarding aspects of the Work, both concealed and visible, to enable future modification of the Work to proceed without lengthy and expensive site measurement, investigation and examination. Make entries within 24-hours after receipt of information that a change in the Work has occurred. Prior to submitting each request for progress payment, request District’s review and approval of current status of Record Documents.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 MAINTENANCE OF RECORD DOCUMENTS
   A. General
      1. Promptly following Notice of Award, secure from District at no cost to Contractor, one (1) complete set of Contract Documents, and Contract Drawing and Reference Drawings. Contract Drawings will be full size.
      2. Label or stamp each Record Document with title, “RECORD DOCUMENTS,” in neat large printed letters.
      3. Record information concurrently with construction progress and within 24-hours after receipt of information that change has occurred. Do not cover or conceal Work until required information is recorded.
   B. Preservation
      1. Maintain documents in a clean, dry, legible condition and in good order. Do not use Record Documents for construction purposes.
      2. Make documents and samples available at all times for observation by District.
C. Making Entries on Contract Drawings: Using an erasable colored pencil (not ink or indelible pencil), clearly describe change by graphic line and note as Required.

1. Color Coding:
   a. Green when showing information deleted from Contract Drawings.
   b. Red when showing information added to Contract Drawings.
   c. Blue and circled in blue to show notes.

2. Date Entries: Call attention to entry by “cloud” drawn around area or areas affected.

3. Legibly mark to record actual changes made during construction, including, but not limited to:
   a. Location of internal utilities and appurtenances concealed in the construction referenced to visible and accessible features of the structure.
   b. Changes made by Addenda, Speedy Memo, Field Work Order/Change Order, and written interpretation and clarification using consistent symbols for each and showing appropriate document tracking number.

4. Dimensions on Schematic Layouts: Show on record drawings, by dimension, the centerline of each run of items such as described in previous subparagraph above.

5. Make identification descriptive so that it may be related reliably to Specifications.

3.2 FINAL CLEANING

A. At completion of the Work or of a part thereof and immediately prior to Contractor’s notice of completion, clean entire site or parts thereof, as applicable.

1. Leave the Work and adjacent areas affected in a cleaned condition Satisfactory to District; including, but not limited to the following: Dust all horizontal surfaces. Wipe down or polish counters. Remove all stickers, adhesive, paint etc. Sweep and mop all hard surface floors. Vacuum and spot clean all carpet. Wipe down adjacent walls that have not been freshly painted.

2. Repair, patch and touch up marred surfaces to specified finish and match adjacent surfaces.

B. Use only cleaning materials recommended by manufacturer of surfaces to be cleaned.

END OF SECTION
SECTION 02 41 19
SELECTIVE DEMOLITION

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SECTION 02 41 19
SELECTIVE DEMOLITION

PART 1 – GENERAL

1.1 SUMMARY
A. Contractor shall demolish and remove existing concrete, grout and gate slot elements as shown on the Contract Drawings, in accordance with the Contract Documents.

1.2 RELATED DOCUMENTS
A. Contract Drawings and other provisions of the Contract Documents including, but not limited to General Conditions (GC-) and Specific Requirements (SR-) apply to all sections.

1.3 COORDINATION
A. Contractor shall carefully coordinate the Work in areas where existing facilities are interconnected with new facilities and where existing facilities remain operational.
B. The Work as indicated is not all-inclusive, and the Contractor shall be responsible to perform the reconstruction indicated plus that which can be reasonably inferred from the Contract Documents as necessary to complete the Project.
C. Contractor shall note that the Contract Drawings used to indicate demolition, reconstruction, and new construction are based on record drawings of the existing facilities. These record drawings have been reproduced to show existing conditions and have been supplemented with photographs of existing conditions to clarify the scope of Work as much as possible.
D. During the pre bid meeting, the Contractor shall conduct a comprehensive survey of the gate slots to verify the details shown on the Contract Drawings.
E. While demolition and construction are being performed, the Contractor shall provide adequate access for the continued District operation and maintenance of facilities.
F. Contractor shall erect and maintain platforms in the gate slots and fences, warning signs, barricades, and other devices around the gate slot construction area as required for the protection of the Contractor's employees and the District’s personnel. Contractor shall remove such protection when construction activities are complete, or as Work progresses, or when requested by the District.

1.4 CONTRACTOR SUBMITTALS
A. Furnish submittals in accordance with the requirements of Section 01 33 00 – Submittal Procedures.
B. Demolition and construction activities and procedures, including operational sequences, shall be submitted to the District for approval. The procedures shall provide for safe conduct of the Work, careful removal and disposition of materials and equipment, protection of existing facilities which are to remain undisturbed, coordination with existing facilities to remain in service, and timely disconnection and reconnection of utility services. The procedures shall include a detailed description and time schedule of the methods and equipment to be used for each operation and the sequence of operation.
C. Installation and removal plan, calculations performed by a professional engineer registered in the State of Washington, and Shop Drawings for a temporary platform to prevent any debris, tools, equipment, abrasive blasting media, and other items or materials resulting from, or necessary for completion of the Work, from falling into the waterway below the gate slot opening.

1.5 DEMOLITION
A. Existing gate slot elements and appurtenances such as anchor bolts, electrical boxes, wiring, bearing bars, supports, and hardware indicated or required to be demolished as part of the Work shall be removed and disposed of unless otherwise indicated.

B. Removed items shall be disposed of offsite by the Contractor.

C. Items to be removed include, but are not limited to:
   1. Wiring, cable, and electrical junction boxes housed along the gate slot ledges.
   2. Eye bolts and rings.
   3. Selected piping and valves.
   5. HSS bearing bars.
   6. Selected rail anchor bolts.
   7. Deteriorated concrete and grout.

D. Coordinate schedule of demolition and unit outages and lock-out and tag-out procedures with the District.

1.6 REHABILITATION
A. Existing deck concrete, head gates, transformer truck rails, and structural, mechanical, and electrical Work disturbed or damaged by gate slot demolition and construction activities shall be repaired and rehabilitated as indicated herein.

B. Damaged items shall be repaired or replaced with new items to restore items or surfaces to a condition equal to and matching that existing prior to damage.

1.7 DISPOSAL
Contractor shall be responsible for the offsite disposal of debris resulting from construction in compliance with local, state, and federal codes and requirements.

PART 2 – PRODUCTS (NOT USED)
PART 3 – EXECUTION

3.1 GENERAL
A. Contractor shall coordinate demolition and construction Work with the District. Unless otherwise indicated, the Contractor shall be responsible for the sequence of activities in coordination with District outage requirements and other operations and maintenance work being performed at the Project.

B. Work shall be performed in accordance with applicable safety rules and regulations.
C. Contractor shall verify that any utilities connected to structures, equipment, and facilities to be removed, relocated, salvaged, replaced, or abandoned are rendered inoperable, replaced with new utilities, or adequately bypassed with temporary utilities before proceeding with demolition and reconstruction.

D. Contractor shall take precautions to avoid damage to adjacent facilities and to limit the Work activities to the extent indicated. If rehabilitation beyond the scope indicated is required, the Contractor shall obtain approval from the District prior to commencing.

E. No material or equipment at any time may occupy the dam roadway without written permission of the District.

3.2 PROTECTION OF EXISTING FACILITIES

A. Before beginning any demolition or construction Work, the Contractor shall carefully survey the existing facilities and examine the Specifications and Contract Drawings to determine the extent of reconstruction and coordination with the Work.

B. Existing facilities adjacent to the gate slots and not subject to the rehabilitation work shall be protected and maintained as required by the District.

C. Contractor-damaged existing facilities shall be repaired to the previous condition or replaced.

D. Persons shall be afforded safe passages around areas of demolition.

E. The area within the gate slot shall be fitted with a means to catch debris, dirt, dust and other materials and items from falling into the water below. Contractor shall submit his plan for containing these items to the District for review prior to commencing demolition Work in accordance with Paragraph 1.4C of this Section.

F. Structural elements shall not be overloaded. The Contractor shall be responsible for shoring, bracing, or adding new supports as may be required for adequate structural support as a result of Work performed under this Section.

G. Contractor shall remove temporary protection when the Work is complete or when so authorized by the District.

H. Contractor shall carefully consider bearing loads and capacities before placement of equipment and material on the powerhouse deck. In the event of any questions as to whether an area to be loaded has adequate bearing capacity, the Contractor shall consult with the District prior to the placement of such equipment or material.

3.3 DEMOLITION

A. The Contract Drawings indicate existing gate slot elements to be demolished. The removal of existing parts for demolition shall include, but is not limited to, supports, including baseplates, mounting bolts, and support hangers.

B. During demolition, exercise care not to damage structures and facilities to remain in place. Any damage to structures remaining in place caused by, and during, removal operations shall be repaired as directed by the District without additional cost to the District.

C. Support the parts being demolished and adjacent structures and services if structural integrity, safety, or functionality is a concern.
3.4 REHABILITATION

A. Certain areas of existing structures will be affected by Work necessary to complete modifications under this Contract. The Contractor shall be responsible to rehabilitate those areas affected by its construction activities.

B. Where existing rail anchor bolts are removed and new anchor bolts are installed adjacent to them, holes from the removed bolts shall be filled with grout. Deteriorated bolts may also be cut off flush with the surrounding concrete.

3.5 DISPOSAL

A. Demolition and removal of debris shall minimize interference with access to the powerhouse deck and gate slots for District operations. No area shall be closed or obstructed without permission from the District. See also Section 011100 – Summary of Work.

B. Concrete and grout debris, demolished metals, rubbish, and other materials resulting from rehabilitation operations shall be removed from the Project site and legally disposed of.

3.6 OCCUPANCY AND POLLUTION CONTROL

A. Suitable methods shall be used to limit dust and dirt rising and scattering in the area. All concrete/grout demolition dust shall be contained in compliance with applicable governmental regulations pertaining to environmental protection.

3.7 CLEANING

A. During and upon completion of Work, the Contractor shall promptly remove tools and equipment, surplus materials, rubbish, debris, and dust and shall leave areas affected by Work in a clean, District approved condition.

B. Adjacent structures shall be cleaned of dust, dirt, and debris caused by rehabilitation, as requested by the District, and adjacent areas shall be returned to condition existing prior to start of Work.

END OF SECTION 02 41 19
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SECTION 03 60 00
GROUTING

PART 1 – GENERAL

1.1 SUMMARY
   A. The Contractor shall provide grout, complete and in place, in accordance with the Contract Documents.
   B. The following types of grout are covered in this Section:
      1. Cement-Based Non-Shrink Grout
      2. Epoxy Anchor Grout for Adhesive Anchors
      3. Structural Repair Grout

1.2 CONTRACTOR SUBMITTALS
   A. Furnish submittals in accordance with Section 01 33 00 Submittal Procedures.
      1. Site Inspection Test Plan within 30 days after Notice of Award
      2. Certified testing lab reports for tests indicated herein.
      3. Test results and service report from the field tests and the demonstration and training session verifying the requirements indicated herein.
      4. Certifications that grouts used on the project contain no chlorides or other chemicals that cause corrosion.
      5. Manufacturer’s literature containing instructions and recommendations on the mixing, handling, placement, curing, and appropriate uses for each type of grout used in the Work, and location of use. The current ICC-ES or IAPMO-UES report shall be submitted for all epoxy anchor grouts for adhesive anchors.
      6. Manufacturer’s certification that its non-shrink grout does not contain aluminum, zinc, or magnesium powders as a method of expansion.
      7. Submit manufacturer's written warranty.
      8. Name and telephone number of grout manufacturer's representative who will provide on-site service. The representative shall have at least one year of experience with the indicated grouts.

1.3 QUALITY ASSURANCE
   A. Field Tests
      1. Compression test specimens shall be taken from the first placement of each type of grout, and at intervals thereafter selected by the District. The specimens will be made by the District or its representative.
      2. Compression tests and fabrication of specimens for cement based non-shrink grout shall be performed in accordance with ASTM C 1107 – Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink), at intervals during construction selected by the District. As a minimum, a set of 3 specimens will be made for testing at 7 Days, 28 Days, and each additional time period as appropriate.
3. Compression tests and fabrication of specimens for epoxy grouts will be performed in accordance with ASTM C 579 – Standard Test Methods for Compressive Strength of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes, Method B, at intervals during construction selected by the District. A set of 3 specimens will be made for testing at 7 Days and each earlier time period as appropriate.

4. The cost of laboratory tests on grout will be paid by the District except where test results show the grout to be defective. In such case, the Contractor shall pay for the tests, removal and replacement of Defective Work, and re-testing, all as part of the Work.

5. The Contractor shall assist the District in obtaining specimens for testing and shall furnish materials necessary for fabricating the test specimens.

B. Construction Tolerances: Construction tolerances shall be as indicated on the Contract Drawings.

C. Pre-Installation Demonstration and Training
   1. Cement and Epoxy-Based Non-Shrink Grouts
      a. The grout manufacturer shall give a demonstration and training session for the cement based non-shrink and epoxy grouts to be used on the Project, before any installation of grout is allowed.
      b. The Contractor employees who will be doing the grouting shall participate in this training and demonstration session. The training session shall include methods for curing the grout.
      c. The manufacturer shall also train the Contractor’s employees in the mixing and curing of the epoxy grouts to be used for the adhesive anchors.

PART 2 – PRODUCTS

2.1 NON-SHRINK GROUT

A. General
   1. Cement-based non-shrink grout shall be a prepackaged, inorganic, fluid, non-gas liberating, non-metallic, cement type grout requiring only the addition of water. Cement from kilns burning metal-rich hazardous waste fuel shall not be used.
   2. Manufacturer's instructions shall be printed on each bag or other container in which the materials are packaged. The specific formulation for each class of non-shrink grout shall be as recommended by the manufacturer for the particular application.
   3. Grout shall not contain chlorides or additives that may contribute to corrosion.
   4. Grout shall be formulated to be used at any consistency from fluid to plastic.
   5. Grout shall be certified for use in freeze/thaw environments.
B. Non-Shrink Grout

1. Non-Shrink Grout shall have a maximum early age height change of 4.0 percent expansion, and shall have no shrinkage (0.0 percent) in accordance with ASTM C 827.

2. Non-Shrink Grout shall have no shrinkage (0.0 percent) and a maximum of 0.3 percent expansion in the hardened state when tested in accordance with ASTM C 1090.

3. Non-Shrink Grout shall have an extended working time of 30 minutes minimum when mixed to a fluid consistency as defined in ASTM C 827 at temperature extremes of 45 to 90 degrees F in accordance with ASTM C 1107.

4. Non-Shrink Grout shall meet the requirements of ASTM C 1107, Grade B or C when tested using the amount of water needed to achieve fluid consistency per ASTM C 939.

5. The grout when tested shall not bleed or segregate at maximum allowed water content.

6. Provide certification that its non-shrink property is not based on gas production or gypsum expansion.

7. Non-Shrink Grout shall be Masterflow 928 by BASF, Five Star Fluid Grout 100 by Five Star Products, Crystex by L&M Construction Chemicals, Or Equal.

2.2 EPOXY GROUT FOR ADHESIVE ANCHORS

A. Epoxy anchor grout for use in concrete shall be certified for use in resisting seismic loads in cracked concrete applications in accordance with ICC-ES AC 308.

B. Epoxy anchor grout shall conform to ASTM C 881 – Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete, Type IV, Class A, B and C, Grade 3 with the exception of gel time.

C. Epoxy anchor grout heat deflection temperature shall conform to ASTM D 648 – Standard Test Method for Deflection Temperature of Plastics under Flexural Load in the Edgewise Position shall be a minimum 120 degrees F.

D. Manufacturer shall certify that the epoxy anchor grout will maintain 100 percent of its capacity up to a short term temperature of 110 degrees F and 50 percent of its capacity up to a short term temperature of 150 degrees F.

E. Grout shall come in a 2 chambered cartridge with a metering system that provides the proper ratio of hardener and resin. The grout shall also come with a static mixer nozzle to thoroughly mix the hardener and resin together.

F. Epoxy anchor grout shall be capable of being used in submerged applications once cured.


H. Embedment of adhesive anchors shall be to the depth shown on the Contract Drawings.

I. Epoxy anchor grout shall be HIT-HY 200 by Hilti, Or Equal.
2.3 STRUCTURAL REPAIR GROUT
A. Structural repair grout shall be an extended set, pre-packaged cement based mortar requiring only the addition of potable water. The material shall not contain any chlorides or lime other than the amounts contained within the hydraulic cement composition.
B. Structural repair grout shall have a minimum compressive strength per ASTM C 109 of 6,000 psi at 7 days.
C. Structural repair grout shall have a minimum bond strength per ASTM C 882 of 2,000 psi at 1 day.
D. Structural repair grout shall be Structural Concrete ES by Five Star Products, Or Equal.

2.4 CURING MATERIALS
A. Curing materials shall be those recommended by the manufacturer of the prepackaged grouts.

2.5 CONSISTENCY
A. The consistency of grouts shall be that necessary to completely fill the space to be grouted for the particular application. Dry pack consistency is defined such that the grout is plastic and moldable but will not flow. Where "dry pack" is called for in the Contract Documents, it shall mean a grout of that consistency; the type of grout to be used shall be as indicated herein for the particular application.

2.6 MEASUREMENT OF INGREDIENTS
A. Measurements for cement grout shall be made accurately by volume using containers. Shovel measurements shall not be allowed.
B. Prepackaged grouts shall have ingredients measured by means recommended by the manufacturer.

PART 3 – EXECUTION
3.1 PRODUCT DELIVERY, STORAGE AND HANDLING
A. Grout shall be stored in accordance with manufacturer's recommendations.

3.2 GENERAL
A. Contractor shall arrange for the manufacturer of prepackaged grouts to provide on-Site technical assistance within 72 hours of request, as part of the Work.
B. When cementitious grouts are used on concrete surfaces, the concrete surface shall be saturated with water for 24 hours prior to placement. Upon completion of the saturation period, excess water shall be removed with clean, oil free compressed air prior to grouting. Concrete substrate shall not be wet prior to placement of epoxy grouts.
C. The finish of the grout surface shall match that of the adjacent surface as indicated on the Contract Drawings.
D. Surfaces that will be in contact with grout shall be free of dirt, loose rust, oil, wax, grease, curing compounds, laitance, loose concrete, and other deleterious materials.
E. Shade the Work from sunlight for at least 24 hours before and 48 hours after grouting.
F. Contact the grout manufacturer's representative for assistance for hot and cold weather grouting techniques and precautions if applicable.

3.3 NON-SHRINK GROUTING PROCEDURES
   A. General: Mixing, surface preparation, handling, placing, consolidation, curing, and other means of execution for prepackaged grouts shall be done according to the instructions and recommendations of the manufacturer.
   B. Cleaning: Clean surfaces of existing concrete and grout on which or adjacent to which the new grout is to be placed by lightly chipping and high-pressure water blasting. Vacuum up all loose material. All grease, oil, dirt, curing compounds, laitance, and other deleterious material must be completely removed.
   C. The support ledges and transformer truck rails and associated parts shall be grouted as shown on the Contract Drawings.
      1. After ledge beams have been set in position at the proper elevation by steel wedges or double nuts on the anchor bolts, the space between the plate and the existing concrete, and the space beneath the existing transformer truck rail leveling plates shall be filled with non-shrink-type grout through a headbox of appropriate size. The mixture shall be of a fluid consistency and poured continuously into the space between the plate and the base concrete.
      2. Forms for grout shall be tight against retaining surfaces, and joints shall be sealed as recommended by the grout manufacturer to be liquid-tight. Forms shall be coated as recommended by the grout manufacturer for easy form release. Where this method of placement is not practical or where required by the District, alternate grouting methods shall be submitted by the Contractor for acceptance by the District. The finish of the grout surface shall be a smooth trowel finish unless otherwise indicated.

3.4 DRILLED ANCHORS
   A. General
      1. Drilled anchors shall be installed in strict accordance with the manufacturer's instructions and applicable ICC-ES or IAPMO-UES report requirements. Holes shall be drilled, brushed and cleaned in accordance with the manufacturer's instructions. Anchors shall not be loaded until the grout has cured for the full cure time indicated by the manufacturer and reached its indicated strength in accordance with the manufacturer's instructions.
      2. The Contractor shall identify the position of reinforcing steel and other embedded items prior to drilling holes by scanning the concrete surfaces with a ground penetrating radar system or similar. Care shall be exercised in drilling to avoid damaging existing reinforcing or embedded items. The location of drilled holes shall be adjusted to avoid drilling through or cutting any existing reinforcing bars or embedded items. Notify the District if reinforcing steel or other embedded items are encountered during drilling. Take precautions as necessary to avoid damaging embedded conduit and piping.
   B. Epoxy Adhesive Anchors
      1. Adhesive shall be proportioned and mixed per the manufacturer's instructions.
      2. Holes shall be dry and cleaned according the manufacturer's instructions.
3. Adhesive shall be applied according to the manufacturer's instructions using injection tools and mixing nozzles recommended by the manufacturer.

4. Prepare and install anchors in accordance with manufacturer's recommendation.

3.5 GROUT FILL

1. Installation of ledge support members and associated parts shall be completed prior to placement of concrete/grout fill. To ensure bonding to existing concrete, the concrete surfaces to receive the grout shall be roughened.

2. The minimum thickness of concrete/grout fill shall be as shown on the Contract Drawings.

3. For cement-based grout, existing concrete shall be thoroughly cleaned and wetted to saturated surface dry (SSD) condition per the International Concrete Repair Institute (ICRI) -- Technical Guide for Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays, prior to placing fill. No grout fill shall be placed until the surface is completely free from standing pools or ponds of water.

4. The finished surface shall be tested with a straight edge to detect high and low spots which shall be immediately eliminated. When the fill has hardened sufficiently, it shall be steel troweled to a smooth surface free from pinholes and other imperfections. During finishing, no water, dry cement, or mixture of dry cement and sand shall be applied to the surface.

5. As soon as fill finishing is completed, coat surface with curing compound.

3.6 CONSOLIDATION

A. Grout shall be placed in such a manner, for the consistency necessary for each application, to assure that the space to be grouted is completely filled.

3.7 CURING

A. Cement based grouts shall be cured per the manufacturer's instructions.

END OF SECTION
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SECTION 05 50 00
MISCELLANEOUS METALWORK

PART 1 – GENERAL

1.1 SUMMARY

A. This Section covers materials, fabrication, and installation of miscellaneous metalwork and appurtenances, complete and in place, in accordance with the Contract Documents. Miscellaneous metal items shall include, but not be limited to, the following items:

1. Beams;
2. Anchors;
3. Platforms;
4. Grating; and
5. Other miscellaneous metal fabrications shown on the Contract Drawings, but not specifically called out elsewhere in these Specifications.

B. Contractor shall provide miscellaneous metalwork and appurtenances, complete and in place, as indicated in accordance with the Contract Documents.

1.2 RELATED DOCUMENTS

A. Contract Drawings and other provisions of the Contract Documents including, but not limited to General Conditions (GC-) and Specific Requirements (SR-) apply to all sections.

1.3 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. American Institute of Steel Construction (AISC)

B. ASTM International (ASTM)
   1. AISC Manual of Steel Construction
   2. ASTM A36 Carbon Structural Steel
   3. ASTM A48 Gray Iron Castings
   4. ASTM A53 Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
   5. ASTM A193 Alloy Steel and Stainless Steel Bolting Materials for High Temperature Service
   6. ASTM A194 Carbon and Alloy Steel Nuts for Bolts for High Pressure and High Temperature Service
   7. ASTM A307 Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength
   8. ASTM A325 Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
   9. ASTM A500 Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
   10. ASTM A992 Steel for Structural Shapes for Use in Building Framing
C. American Welding Society (AWS)
   1. AWS D1.1 Structural Welding Code – Steel
   2. AWS QC1 Qualification and Certification of Welding Inspectors

D. The Society for Protective Coatings
   1. SP-1 Solvent Cleaning
   2. SP-7 Brush-Off Blast Cleaning

1.4 CONTRACTOR SUBMITTALS
   A. Furnish submittals in accordance with the requirements of Section 01 33 00 – Submittal Procedures.
   B. Shop Drawings shall conform to AISC recommendations and specifications, and shall show holes, and the like, as may be required for other parts of the Work.
   C. Shop Drawings shall include complete details of members and connections, anchor bolt layouts, schedules for fabrication procedures, and diagrams for the sequence of erection.
   D. Grating: Submit layout drawings for grating, showing the direction of span, type and depth of grating, size and shape of grating panels, seat angle details, and details of grating hold down fasteners.
   E. Welding Procedure.
   F. Shop and Field Welders’ Certifications.
   G. Non-Destructive Weld Testing Results.

1.5 QUALITY ASSURANCE
   A. Establish and maintain quality control for the Work specified to ensure compliance with the Contract Documents during fabrication.
   B. Maintain detailed records of quality control for shop operations.
   C. Three copies of records and tests, as well as the records of corrective action taken, shall be furnished before final inspection or sooner when requested.
   D. Fabricate structural steel members in accordance with the AISC Code of Standard Practice.
   E. Perform welding with electric arc process and in accordance with AWS D1.1, "Structural Welding Code".
   F. In addition to complying with pertinent codes and regulations, comply with:
      1. AISC “Code of Standard Practice for Steel Buildings and Bridges”.
      2. AISC “Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings” and including the “Commentary on the AISC Specification”.

1.6 QUALITY RECORDS
   A. Inspection of all materials to be used for fabrication before start of fabrication.
   B. Maintenance of all quality control records during fabrication.
   C. Maintenance of all records of shop inspections, including dimensional tolerances, finishes, mating of interfacing parts, and non-destructive testing of welds.
PART 2 – PRODUCTS

2.1 MATERIALS

A. Steel

<table>
<thead>
<tr>
<th>Part</th>
<th>Standard</th>
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<tbody>
<tr>
<td>Shapes, Plates, Bars</td>
<td>ASTM A36</td>
</tr>
<tr>
<td>Hollow Structural Sections (HSS)</td>
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</tr>
</tbody>
</table>

B. Corrosion protection: Structural steel shall be hot-dip galvanized unless otherwise indicated.

C. Structural members shall be furnished full length without splices unless otherwise indicated.

2.2 WELDING

A. All welding of miscellaneous steel metalwork shall be welded in accordance with AWS D.1.1.

B. Welding of miscellaneous steel metalwork to the tank shell shall be in accordance with AWS D1.1 and AWWA D100. If conflicts exist between the two codes, the stricter requirement shall apply. Contractor shall develop weld procedure to minimize heat induced deformation that could lead to leakage of riveted connections.

C. Contractor shall be responsible for developing the weld procedures and performing the welding in accordance with the approved procedure at no additional cost to the District.

2.3 METAL GRATING

A. New steel grating shall be fabricated for Gate Slots B-9 South, B-10 North, B-10 Center and B-10 South as detailed on the Contract Drawings.

B. Steel grating main bars shall be of the thickness and of the depth indicated on the Contract Drawings.

C. Provide manufacturer’s standard grating hold-down clips unless otherwise noted on the Contract Drawings.

D. Field measure grating and cover plates for proper cutouts and size.

E. Grating shall be completely banded. The banded material and cross-section shall be equivalent to the bearing bars. The banding bars shall be welded to each cut bearing bar. Hot-dip galvanized after fabrication.

2.4 BOLTS - GENERAL

A. Carbon steel bolts, nuts, and washers shall be hot-dip galvanized.

B. Provide self-locking nuts or lock washers and plain nuts where shown on Contract Drawings.

C. Certify that the bolts and nuts have been proof tested.

D. The length of each bolt shall be such that the bolt extends at least 1/8 inch beyond the outside face of the nut before tightening.
2.5 LEDGE ANCHORS
   A. Drilled anchors for attaching the new grating support ledge beams shall be high strength threaded steel rods manufactured from ASTM A193 Gr B7 alloy steel, Hilti HAS B7 or equal. Size shall be 1¼ inch diameter unless indicated otherwise.
   B. Nuts shall conform to SAE J995 Grade 5.
   C. Washers shall conform to ASTM F884, HV, and ANSI B18.22 Type A Plain.
   D. Adhesive shall be Hilti HIT-HY 200 injectable, two-component, hybrid adhesive.

2.6 RAIL ANCHOR BOLTS
   A. Drilled anchors for replacing transformer truck rail anchor bolts shall high strength threaded steel rods manufactured from ASTM A193 Gr B7 alloy steel, Hilti HAS B7 or equal. Size shall be ¾ inch diameter unless indicated otherwise.
   B. Nuts shall conform to SAE J995 Grade 5.
   C. Washers shall conform to ASTM F884, HV, and ANSI B18.22 Type A Plain.
   D. Adhesive shall be Hilti HIT-HY 200 injectable, two-component, hybrid adhesive. No substitute is allowed.

PART 3 – EXECUTION

3.1 INSTALLATION OF METAL FABRICATIONS
   A. Install metal fabrications plumb and/or level, accurately fitted, free from distortion or defects.
   B. Install rigid, substantial, and neat in appearance.
   C. Install slot edge grating support plates such that the top edge is level with the top of the rail leveling plates as shown on the Contract Drawings.
   D. Install bar wedges for positioning grating in the corners of each gate slot as shown on the Contract Drawings.
   E. Erect steel in accordance with applicable portions of AISC Code of Standard Practice.
   F. Install manufactured products in accordance with manufacturer's recommendations.
   G. Allow for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
   H. Perform welding using certified welders with a District approved WPS
   I. Perform shop and field welding under supervision of certified welding inspector (CWI).
   J. Obtain the District’s approval prior to site cutting or making adjustments to shop fabricated metals not so scheduled.

END OF SECTION 05 50 00