



Idaho Water Resource Board
REQUEST FOR QUALIFICATIONS

RFQ 2023-02

**Priest Lake Outlet Dam Improvements Project
Contractor Pre-Qualification**

March 29, 2023

QUALIFICATIONS DUE: May 5, 2023, at
4:00 p.m. Mountain Daylight Time



Figure 1: Existing Dam Outlet Structure

REQUEST FOR QUALIFICATIONS (RFQ)
RFQ 2023-02
Priest Lake Outlet Dam Improvements Project
Contractor Pre-Qualification

The Idaho Water Resource Board (IWRB) is soliciting Statements of Qualification (SOQs) from qualified contractors. Contractors who meet the IWRB's criteria will be allowed to submit bids for the Priest Lake Outlet Dam Improvement Project.

Sealed SOQs are to be delivered or mailed to Idaho Department of Water Resources (IDWR) Procurement no later than 4:00 p.m. MT on May 5, 2023, as follows:

By Mail to:

IDWR Procurement
Attn: Glyn Roberts
IWRB - RFQ No. 2023-02
322 E Front Street
PO Box 83720
Boise, ID 83720-0098

By Personal or Courier Delivery to:

IDWR Procurement
Attn: Glyn Roberts
IWRB - RFQ No. 2023-02
322 E Front Street, Suite 648
Boise, ID 83702

Note: If mailing the SOQ, please allow additional time to ensure the package arrives before the deadline.

All SOQs will be publicly opened on May 5, 2023, on or about 4:05 p.m. MT at:

Idaho Department of Water Resources State Office
322 E Front Street
6th Floor, Conference Room 602C
Boise, ID 83702

Information and specifications for same may be obtained at www.idwr.idaho.gov/solicitations.

Auxiliary aids or services for persons with disabilities are available upon request. Please contact IDWR Procurement at (208) 287-4820.

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Attachment A - Cover Page

Attachment B - Certification Regarding Debarment, Suspension, and Other Responsibility Matters

Attachment C - Signature Page

Attachment D - Draft Construction Drawings

Attachment E - Draft Technical Specifications with Appendices

Attachment F - Draft Fixed Price Construction Contract

1. Administrative Information

1.1 Summary

The Idaho Water Resource Board (IWRB) will be soliciting competitive bids for the Priest Lake Outlet Dam Improvements project (Project) located at Priest Lake in Bonner County, Idaho.

Pursuant to Idaho Code § 67-5711C(4), the IWRB will pre-qualify contractors and subcontracts prior to bidding. Interested contractors must first submit a SOQ pursuant to this solicitation for qualification statements and be selected as a qualified respondent to receive the Invitation to Bid (ITB).

The Project will modify an existing dam to permit a 6-inch increase in the maximum water level of Priest Lake and to improve the dam's resistance to erosion caused by high stream flows. The Project includes placement of a concrete scour apron, armor stone, and other ancillary improvements and repair of items that have been damaged since the existing dam was built in 1978.

Construction work commenced in the Fall of 2020 but was not completed. The current effort is intended to complete the construction work begun by a previous contractor.

1.2 Definitions

Terminology and abbreviations appearing in this RFQ document are identified as follows:

[Reserved.]

1.3 Inquiries or Interpretation

All questions and/or requests for clarification must be submitted in writing to:

Glyn Roberts, Purchasing Agent
Idaho Department of Water Resources
322 E Front Street
PO Box 83720
Boise, ID 83720-0098
idwr.purchasing@idwr.idaho.gov

Written inquiries must be received by the IWRB by April 14, 2023, at 5:00 p.m. MT.

The IWRB will maintain all the official copies of correspondence and will respond to all inquiries through one addendum posted on the IDWR web page: <http://idwr.idaho.gov/solicitations/>. The IWRB may issue other addenda that will also be posted to the IDWR web page.

All addenda will be posted to the IDWR webpage by April 19, 2023, and shall constitute part of the instructions and specifications of this RFQ. Respondents to this RFQ must acknowledge all addenda when submitting their SOQ.

If the respondent is in doubt as to the meaning of any part of this RFQ, a written request for an interpretation may be submitted to IDWR Procurement. The IWRB will not be responsible for supplying any explanations or interpretations unless a request to do so is submitted in writing as described in this RFQ.

1.4 Informational meeting

An informational meeting will be held at 322 E Front Street 6th Floor, Conference Room 602C Boise, Idaho on April 11, 2023, at 10:00 a.m. to provide further clarifications and answer questions about the RFQ. A web conference link for the meeting will be available to Respondents not able to attend in person. Contact Glyn Roberts by email for the meeting link at: idwr.purchasing@idwr.idaho.gov All answers and pertinent discussion items will be posted via an addendum on the IDWR web page at: <https://idwr.idaho.gov/solicitations/>.

1.5 RFQ Schedule

The following is a schedule of events concerning the RFQ process:

RFQ issued.	March 29, 2023
Informational meeting at: IDWR, 322 E Front Street, Boise, Idaho, 6 th floor, Conference Room 602C.*	April 11, 2023, 10:00 a.m. MT
Deadline for questions on the RFQ.	April 14, 2023, 5:00 p.m. MT
Addenda for responses to questions posted to IDWR web page: https://idwr.idaho.gov/solicitations/ .	April 19, 2023
SOQ submission deadline. No SOQ packages will be accepted after this deadline.	May 5, 2023, 4:00 p.m. MT
SOQ opening at: * IDWR, 322 E Front Street, Boise, Idaho, Conference Room 602B.	May 5, 2023, 4:05 p.m. MT
Notify Respondents and Pre-Qualified Contractors.	May 19, 2023
Invitation to Bid and Bid Process.**	June – July 2023
Award Contract.**	July – August 2023
Construction.**	In-Water Work Begins November 1, 2023

* Web conference link for virtual meeting will be available. Contact Glyn Roberts for meeting link: idwr.purchasing@idwr.idaho.gov

** Estimated dates for ITB and Project construction. For reference only. Subject to change.

1.6 IWRB Rights

The issuance of this RFQ does not constitute an assurance by the IWRB that any contract will actually be entered into by the IWRB. The IWRB expressly reserves the right to the following:

- Waive any immaterial defect or informality in any response or response procedure.
- Reject any and all SOQs.
- Supplement, amend, or otherwise modify the RFQ prior to April 19, 2023.
- Cancel this RFQ with or without the substitution of another RFQ.
- Reissue another RFQ at the sole discretion of the IWRB.
- Request additional information and data from any or all Respondents.
- Extend the date for submission of responses.
- Disqualify any Respondent who fails to provide information or data requested in this RFQ.
- Disqualify any Respondent who provides unverified information or inaccurate data.
- Disqualify any Respondent on the basis of an identified financial conflict of interest.

By responding to this RFQ, the Respondent agrees that any finding by the IWRB of any fact in dispute as to this RFQ or its responses shall be final and conclusive, except as provided in this RFQ.

1.7 Confidential Information

All SOQs submitted in response to this RFQ will become property of the IWRB and will be kept confidential until successful pre-qualified contractors have been announced. Thereafter, except for financial statements, SOQs are subject to public inspection and disclosure under the Idaho Public Records Act, Idaho Code, Title 74, Chapter 1. Please keep a copy of all submitted information, as the original documents will not be returned. If a Respondent believes that any portion of its SOQ or related communication contains trade secrets or other proprietary information that the Respondent believes would cause substantial injury to its competitive position if disclosed, the Respondent may make specific request that the IWRB withhold from disclosure the proprietary information by marking that portion on each page containing such proprietary information as confidential. By submitting an SOQ with portions marked confidential, a Respondent represents its determination that portions marked as such qualify for exemption from disclosure under the Idaho Public Records Act. A Respondent may not designate its entire SOQ as confidential. The IWRB will not honor such designations and will disclose submittals so designated to the public. If a Respondent requests that marked information be withheld from disclosure and the IWRB complies with the Respondent's request, the Respondent shall assume all responsibility for any challenges resulting from the non-disclosure and shall indemnify and hold harmless the IWRB from and against all damages, including but not limited to attorney's fees that may be awarded to the party requesting the Respondent

information, and pay any and all costs and expenses related to the withholding of Respondent's information. Respondent shall not make a claim, sue, or maintain any legal action against the IWRB or its director, employees, agents, or advisors concerning the withholding from disclosure of Respondent's information. Absent a written request from a Respondent that the IWRB withhold from disclosure information identified as confidential, the IWRB shall have no obligation to withhold the information and may release the information without incurring any liability to Respondent.

1.8 Respondent Costs Incurred

The Respondent will be responsible for all costs incurred in preparing or responding to this RFQ. All materials and documents submitted in response to RFQ 2023-02, except marked proprietary materials, the return of which is specifically requested, and shipping fees furnished by the Respondent, become the property of IWRB and will not be returned.

1.9 General Requirements

It is essential that RFQ Respondents be adequately staffed with experienced personnel capable of and devoted to the successful accomplishment of work to be performed under the contract. Care should be taken to identify subcontractors and key personnel listed in the SOQ. The ITB will require respondents to identify its project team during the bidding process. Without disclosure and written approval of replacement key personnel by IWRB staff, teams presented in the bidding process that are inconsistent with a SOQ project team will result in disqualification. Replacement key personnel submitted for approval during the bidding process must have qualifications and experience at least equal to those listed in the SOQ.

A response to the SOQ does not obligate the contractor to the Project or IWRB in any way. Pre-qualification by the RFQ does not obligate the contractor to submit a bid as part of the Project's construction bidding process.

2. Description of Project

2.1 Services Required of Contractor

The IWRB is seeking a contractor to complete work begun, but not completed, by a previous contractor. The original project included addition of steel extensions and stiffeners to the Dam's Tainter gates, replacement of the Tainter gates' rubber J-Seals, installation of three vibrating wire piezometers, a 15-foot extension of the concrete apron below the Dam, placement of armor and bedding stone above and below the Dam, repairs to damaged concrete piers, renovation and repair of steel handrails, and renovation of the access road. The previous contractor completed the addition of the steel extensions, completed a portion of the concrete apron, installed two vibrating wire piezometers, placed a portion of the armor and bedding stone, and completed a portion of the access road.

The current project will require the following work:

- Inspection of the steel extensions on the Dam's Tainter Gates and, where necessary, renovation and repair.
- Replacement of all Tainter Gates' rubber J-Seals.
- Completion of the 15-foot concrete apron extension.
- Placement of the remaining armor and bedding stone below the Dam.
- Repair of damaged concrete to existing Pier 6.
- Renovation and repair of existing handrails.
- Inspection of the soil beneath the existing and new concrete Dam aprons and, where necessary, fill voids.
- Completion of gravel access road improvements.
- Installation of vibrating wire piezometer and ancillary facilities.
- Additional ancillary work according to Contract Documents.

To perform the Project work, it will be necessary for the contractor to design, construct, and operate a temporary combined bypass, cofferdam, and dewatering system that will allow for inspection and repair of voids beneath the apron near the middle of the dam, place geotextile, bedding stone and armor stone, and to place concrete to complete the 15-foot apron extension.

The following preliminary Project documents, which will be finalized for the ITB, are included with this RFQ as a reference for Respondents and to help Respondents understand the project and expectations of the successful bidder.

- Attachment D – Draft Construction Drawings
- Attachment E – Draft Technical Specifications with Appendices
- Attachment F – Draft Fixed Price Construction Contract

3. Instructions to Respondents

3.1 Preparations and Format of SOQs

SOQ submittal should conform with the criteria below. Failure to conform with these criteria may result in your submittal package not being considered by the evaluation committee.

SOQs shall be enclosed in a sealed, opaque envelope and must be clearly mark RFQ 2023-02, Priest Lake Outlet Dam Contractor Pre-Qualification. SOQ submittal packages must include five hard copies and a USB drive containing a PDF electronic copy of the SOQ submittal. Submittals must be typewritten for ease of evaluation. Contents of SOQs must include:

A. Cover Page (see Attachment A).

- B. The body of the submission should:
 - a. Respond to criteria 4.1 through 4.2. Each section must be identified separately and be clearly marked.
 - b. Be no more than 18 pages long total. This does not include copies of contractor licenses and certifications.
 - c. Be in a legible font, no less than 11 points.
- C. Signed Certification Regarding Debarment, Suspension, and Other Responsibility Matters (see Attachment B).
- D. Signed Signature Page (see Attachment C).
- E. Include contact information for all references cited. These may be included in a separate section.
- F. Include copies of relevant contractor licenses or certifications used to support team member qualifications. These may be included in a separate section.

SOQs will be dated and time stamped as they are received. Proposals received after May 5, 2023, at 4:00 p.m. will be deemed non-responsive and not considered. It is the sole responsibility of the Respondent to submit its SOQ to the correct office prior to the date and time specified.

3.2 Submittal Date of Response

SOQs shall be submitted to and received by IDWR Procurement no later than 4:00 p.m. MT on May 5, 2023. SOQs shall be submitted to:

By Mail to:

IDWR Procurement
Attn: Glyn Roberts
IWRB – RFQ No. 2023-02
322 E Front Street
PO Box 83720
Boise, ID 83720-0098

By Personal or Courier Delivery to:

IDWR Procurement
Attn: Glyn Roberts
IWRB – RFQ No. 2023-02
322 E Front Street, Suite 648
Boise, ID 83702

Note: If mailing the SOQ, please allow additional time to ensure the package arrives before the deadline.

SOQs are to be sealed and clearly marked “RFQ 2023-02 Priest Lake Outlet Dam Improvements Contractor Pre-Qualification” along with the Respondent’s name and address.

3.3 Appeals

Written objections to prequalification procedures must be received by IDWR, at the location provided in Section 3.2, at least three (3) business days before the date and time that SOQs are due.

3.4 Pre-Qualification of Respondents

The Respondents shall be deemed pre-qualified to submit bids when formal notice is given by IWRB staff. The IWRB anticipates that it will provide formal notice by 5:00 p.m. MT May 19, 2023.

4. Evaluation Criteria

4.1 Company Overview and Key Personnel Experience

Provide a brief overview of the work history, work experience, and capabilities of the prime contractor, subcontractor, and Key Personnel who will perform Project work identified below. Each contractor and subcontractor must have a minimum of one Key Personnel identified. Depending on experience and qualifications, one person may be identified as a Key Personnel for multiple disciplines. Provide copies of certifications and licenses for companies and Key Personnel.

- A. Prime Contractor & Construction Management
 - a. Company Name
 - b. Superintendent – Key Personnel
 - c. QA/QC Manager – Key Personnel
 - d. Safety Manager – Key Personnel
 - e. Submittal and Shop Drawing Manager – Key Personnel
- B. Bypass, Shoring, Cofferdam, and Dewatering Plan
 - a. Company Name
 - b. Design Engineer of Record – Key Personnel
 - 1. Idaho PE License required.
- C. Execution of Bypass, Shoring, Cofferdam, and Dewatering System
 - a. Company Name
 - b. Key Personnel & responsibilities.
- D. Concrete Installation and Finishing
 - a. Company Name
 - b. Key Personnel & responsibilities.
- E. Concrete Testing Agency
 - a. Company Name
 - b. Key Personnel
 - 1. ACI concrete field-testing technician, grade 1 certification or equivalent certification required.

- F. Tainter Gate J Seal Replacement
 - a. Company Name
 - b. Key Personnel & responsibilities.
- G. Welding Inspection and Repair of Steel Tainter Gate Extension
 - a. Company Name
 - b. Key Personnel & responsibilities.
 - 1. AWS Certified Welder certification according to AWS D1.1/D1.1M required.
- H. High Performance Cementitious Material Installation for Repair of Pier 6
 - a. Company Name
 - b. Key Personnel & responsibilities.

Other subcontractors used for the project but not performing the work identified above are not required to be identified in Respondent's SOQ.

4.2 Relevant Experience

Provide project examples according to the subsections below in which the company and/or subcontractors have performed similar construction work. The same project may be used in multiple subsections if work performed is separately relevant to each subsection. Key Personnel identified in Section 4.1 must be directly involved in project examples presented in Section 4.2. For newly hired Key Personnel, projects completed while at other companies may be presented.

For each project example, identify:

- A. Key Personnel individual and position or responsibilities in project example.
- B. Previous employer (if other than current company presented for this project).
- C. Name of facility owner with contact person reference with telephone and email address
- D. Location, size, and description of project
- E. Dates the work was performed.
- F. Description of work performed.
- G. At least one picture of project.

4.2.1 Relevant Experience – In-Water Construction & Execution of Bypass, Shoring, Cofferdam, and Dewatering Systems

Provide a minimum of three (3) project examples in the past ten years in which the company and/or subcontractors have performed similar construction work requiring cofferdams, dewatering, temporary bridge access structures, and/or in-water construction work. Include discussion of construction staging and planning, permit

compliance, turbidity monitoring, and mitigation requirements for each project example.

4.2.2 Relevant Experience – Hydraulic Control Structures

Provide a minimum of two (2) project examples in the past ten years in which the company and/or subcontractors have performed similar construction work on dam or water resource structures including gate repair or adjustment, gate seal modifications or replacement, and/or concrete structure repair or placement. At least one (1) project presented must be related to work on gates of hydraulic control structure or similar hydraulic control structure.

4.2.3 Relevant Experience – Bypass, Shoring, Cofferdam, and Dewatering Plan Design

Provide a minimum of three (3) project examples in the past ten years in which the Professional Engineer identified to prepare the dewatering plan for the Project has prepared dewatering and cofferdam plans for projects of similar size, nature, and scale. In project examples, identify key considerations, calculations and analysis performed as part of preparing dewatering and cofferdam plans.

4.2.4 Relevant Experience – Concrete Installation and Finishing

Provide a minimum of three (3) successful project examples in the past ten years in which the concrete installing contractor has completed concrete work similar in material, design, and extent to that indicated for this Project. At least one (1) project presented must be related to in-water concrete work, and one (1) project presented must be related to cold weather construction.

5. Selection Process

5.1 Scoring Evaluation

A selection committee will evaluate each SOQ on a pass/fail basis. To be considered a successful respondent must receive a “Pass” for each evaluation criterion. As part of the process, the IWRB will review contractor licenses and certifications for compliance with certifications required in specifications and conduct initial checking by phone and/or email of the reference(s) offered by the Respondent. One or more of the listed references will be consulted, and information obtained may be used to verify the validity of information included in SOQs. Non-responsive references or references that fail to support applicable SOQ information may disqualify the Respondent from being selected as a pre-qualified contractor for the ITB. Deficient contractor licenses or certifications may disqualify the respondent from being selected as a pre-qualified contractor. Staff currently employed by the IWRB shall be excluded from being named as a reference by the Respondent.

Criterion Number	Criterion	Evaluation
4.1	Company Overview and Key Personnel Experience	Pass/Fail
4.2.1	Relevant Experience – In-Water Construction & Execution of Bypass, Shoring, Cofferdam, and Dewatering Systems	Pass/Fail
4.2.2	Relevant Experience – Hydraulic Control Structures	Pass/Fail
4.2.3	Relevant Experience – Bypass, Shoring, Cofferdam, and Dewatering Plan Design	Pass/Fail
4.2.4	Relevant Experience – Concrete Installation and Finishing	Pass/Fail
TOTAL: Submittal Package		Pass/Fail

Table 1: Evaluation Criteria Summary

As a guide to selection committee members and ensuring transparency, for each Criterion:

- “Fail” is equivalent of an incomplete response, insufficient experience, insufficient licenses and certifications, or non-supportive references. Projects presented are not applicable projects or project approach responses do not demonstrate an understanding of the project. Key Personnel were not directly involved in projects presented.
- “Pass” is equivalent of satisfactory responses that demonstrate an understanding of the project. Key Personnel proposed for this Project, identified in Section 4.1 were directly involved in project examples presented in Section 4.2. Projects presented in Section 4.2 are relevant to this project. Licenses and certifications presented meet Project requirements.

5.2 Clarifications and Supplemental Information

During the evaluation, validation, and selection process, IWRB may request answers from the Respondent to specific questions, orally and/or in writing. Clarifications requested and questions will be limited to the scope of services, approach to the Project, and pertinent experience.

5.3 Selection

Refer to Section 3.4 for Respondent notification of Pre-Qualified Contractor List.

The contents of the submittal may be used in a legal contract. Candidates should be aware that methods and procedures proposed could become contractual obligations.

End RFQ

Attachment A

COVER PAGE

Name of Respondent Company _____

Address _____

Primary Office ☐ Subsidiary Branch or Office ☐ (List below other offices of the firm.)

Contact Name _____

Contractor Public Works License Number _____

Class of License _____

Telephone _____

Fax _____

Email _____

Type of Firm:

Corporation ☐ LLC ☐ Partnership ☐ Sole Proprietorship ☐

Other _____

Other Firm Offices, if any:

Attachment B

**CERTIFICATION REGARDING DEBARMENT, SUSPENSION,
AND OTHER RESPONSIBILITY MATTERS**

By signing this document, the Respondent certifies to the best of its knowledge and belief that except as noted on an attached Exception, the Respondent:

- A. Is not presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from covered transactions by any Federal department or agency;
- B. has not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against it for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records making false statements, or receiving stolen property;
- C. is not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (b) of this certification; and
- D. has not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

NOTE: Exceptions will not necessarily result in denial of award but will be considered in determining Respondent responsibility. For any exception noted, indicate to whom it applies, initiating agency and dates of action. Providing false information may result in criminal prosecution or administrative sanctions.

COMPANY NAME

Signature of Responsible Party

Date

Attachment C



SIGNATURE PAGE

Originals and copies of the response shall be submitted in accordance with the solicitation documents. This signature page must be submitted with the original signature (ink or electronic) of an individual authorized to bind the submitting Respondent.

NO LIABILITY WILL BE ASSUMED BY THE IDAHO WATER RESOURCE BOARD FOR A RESPONDENT'S FAILURE TO OBTAIN ANY PROPERLY ISSUED SOLICITATION ADDENDA IN A TIMELY MANNER FOR USE IN THE RESPONDENT'S RESPONSE TO THIS SOLICITATION.

Mail your response to:

IWRB – RFQ No. 2023-02
322 E Front Street
PO Box 83720
Boise, ID 83720-0098

Personal or courier delivery to:

IWRB - RFQ No. 2023-02
322 E Front Street, Suite 648
Boise, ID 83702

This RFQ response is submitted in accordance with all documents and provisions of the specified RFQ Number and Title provided below. By my signature I accept the terms, conditions and requirements contained in the solicitation. As the undersigned, I certify I am authorized to sign and submit this response for the named Respondent. I further acknowledge I am responsible for reviewing and acknowledging any addendums that have been issued for this solicitation.

RFQ No: 2023-02 **RFQ Title:** Priest Lake Outlet Dam Improvements Project Contractor Pre-Qualification

RESPONDENT (Company Name) _____

ADDRESS _____

CITY, ST, ZIP _____

PHONE: _____ FAX: _____ FEIN: _____

Email: _____

Signature

Date

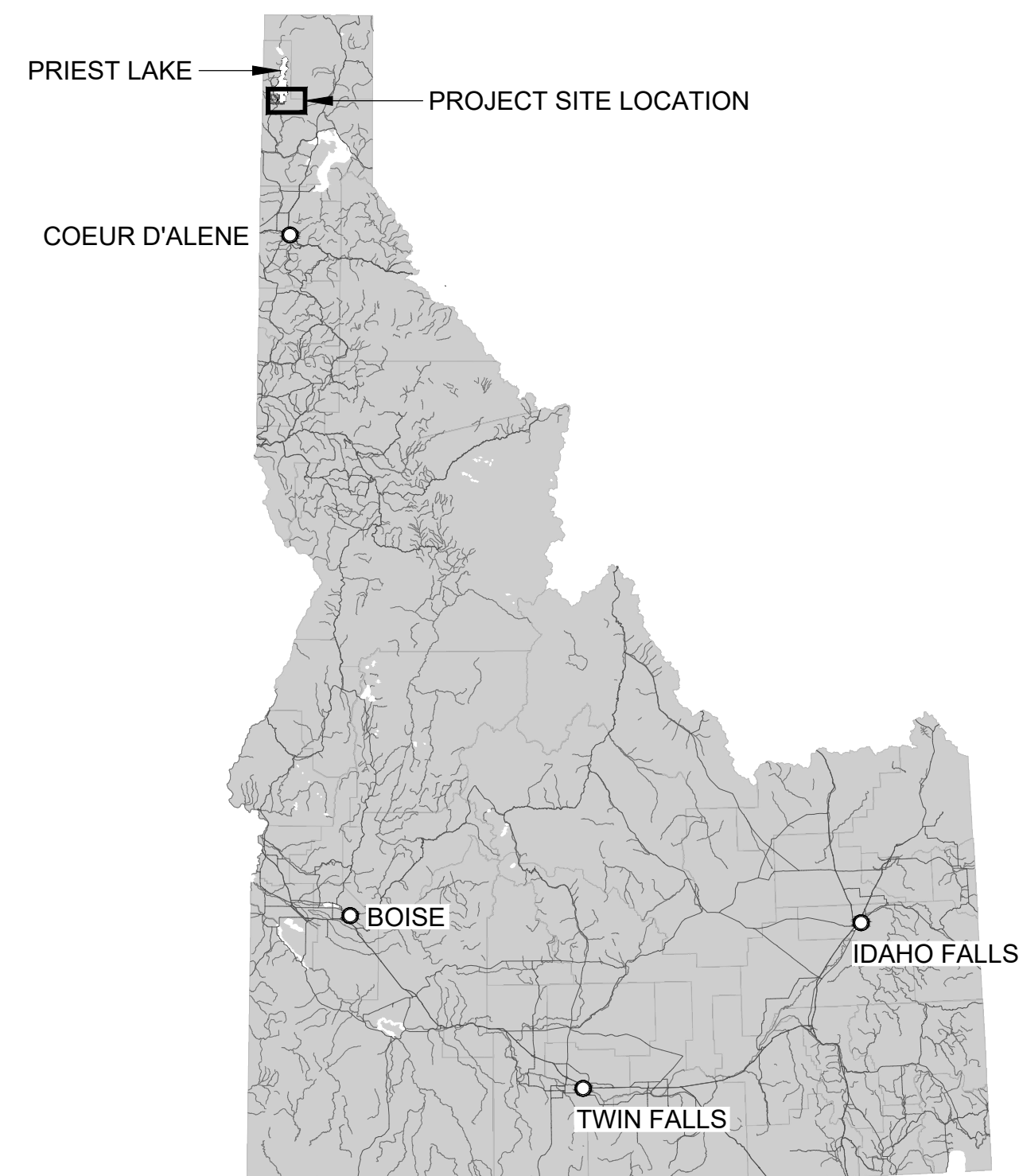
Printed Name

Title

RETURN THIS SIGNATURE PAGE WITH YOUR STATEMENT OF QUALIFICATIONS

Attachment D

PRIEST LAKE WATER MANAGEMENT PROJECT OUTLET DAM IMPROVEMENTS



LOCATION MAP

N.T.S.



SOURCE: GOOGLE EARTH, 7/14/2013

VICINITY MAP
N.T.S.



SOURCE: PICTOMETRY, OCTOBER 15, 2019

OBLIQUE AERIAL PHOTO
N.T.S.

SHEET INDEX		
DWG NO.	SHEET NO.	TITLE
CS-1	1	COVER SHEET / INDEX OF DRAWINGS
GN-1	2	GENERAL NOTES 1
GN-2	3	GENERAL NOTES 2
GP-1	4	PROPOSED WORK AND CONSTRUCTION ACCESS PLAN
GP-2	5	EXISTING SITE PLAN
GP-3	6	OVERALL SITE PLAN - EXISTING CONDITIONS
PH-1	7	PHOTOS SHEET - EXISTING CONDITIONS 1
PH-2	8	PHOTOS SHEET - EXISTING CONDITIONS 2
C-1	9	SCHEMATIC CONSTRUCTION PHASING SHEET 1 OF 2
C-2	10	SCHEMATIC CONSTRUCTION PHASING SHEET 2 OF 2
C-3	11	DEWATERING DETAILS
C-4	12	TEMPORARY EROSION & SEDIMENT CONTROL DETAILS
S-1	13	GENERAL DAM PLAN AND ELEVATION
S-2	14	OUTLET STRUCTURE SECTIONS AND WORK LIST
S-3	15	TAINTER GATE ELEVATION AND SECTION
S-4	16	TAINTER GATE DETAILS
S-5	17	TRUNNION GREASE TUBE REPLACEMENT DETAILS
S-6	18	MISCELLANEOUS STEEL DETAILS
A-1	19	SUBSTRUCTURE PLAN
A-2	20	APRON EXTENSION SECTIONS
A-3	21	APRON REINFORCING PLAN
A-4	22	APRON WALL SECTIONS AND DETAIL
A-5	23	APRON REINFORCING SECTIONS
P-1	24	PIER 6 REPAIR DETAILS
M-1	25	MISCELLANEOUS DETAILS 1

DAM INFORMATION

Dam Name: Priest Lake (Outlet Dam)
River: Priest River
NID Storage: 76,100 Acre Feet
NID Height: 12 feet (8'-6" at Radial Gates)
Primary Dam Type: Concrete
Year Completed: 1978
NID Harzard Potential: Significant

GENERAL NOTES

OWNER SUPPLIED MATERIAL

1.

THE OWNER HAS PRECAST CONCRETE KEYWAY BLOCKS, RIPRAP, AND QUARRY SPALLS FOR USE IN THE PROJECT IN THE QUANTITIES INDICATED BELOW:
- | | |
|-------------------------|----------------------------------|
| PRECAST CONCRETE KEYWAY | 4 'A' SEGMENTS
4 'B' SEGMENTS |
| RIPRAP | 350 TONS |
| BEDDING STONE TYPE I | 70 TONS |
| BEDDING STONE TYPE II | 450 TONS |
2.

THE CONTRACTOR SHALL SCHEDULE AN INSPECTION WITH THE OWNER'S REPRESENTATIVE, WITHIN 2 WEEKS FROM NOTICE TO PROCEED TO CONFIRM QUANTITY AND QUALITY OF THE MATERIAL FOR USE IN THE PROJECT.

SCOPE OF WORK:

1.

WORK DETAILED ON THE DRAWINGS AND APPLICABLE ITEMS DESCRIBED IN THE GENERAL STRUCTURAL NOTES AND SPECIFICATIONS.
2.

DRAWINGS TO BE READ IN CONJUNCTION WITH SPECIFICATIONS AND ALL OTHER DRAWINGS RELATED TO THE PERFORMANCE OF THIS WORK. THE CONTRACTOR IS RESPONSIBLE FOR THE VERIFICATION AND COORDINATION OF ALL SPECIFICATIONS, PLANS, SECTIONS AND DETAILS PRIOR TO PROCEEDING WITH ANY WORK. IMMEDIATELY NOTIFY THE ENGINEER OF RECORD OF ANY DISCREPANCIES FOUND.
3.

CONTRACTOR SHALL PROVIDE TEMPORARY SHORING, BRACING AND PROTECTION FOR ALL WORK IN PROGRESS UNTIL THE WORK IS COMPLETE.
4.

CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND UTILITIES PRIOR TO COMMENCING CONSTRUCTION.
5.

THE CONTRACTOR SHALL CONDUCT THEIR OPERATIONS IN ACCORDANCE WITH ALL CURRENT LOCAL, STATE, AND FEDERAL CODES COVERING SUCH OPERATIONS. THE CONTRACTOR WILL BE REQUIRED TO COORDINATE THEIR WORK WITH THE IDAHO WATER RESOURCE BOARD (OWNER), BONNER COUNTY, AND OTHER CONTRACTORS, IF ANY.
6.

THE CONTRACTOR SHALL HAVE AN ENGINEER LICENSED IN THE STATE OF IDAHO PREPARE AND STAMP A SET OF PLANS AND ALL CALCULATIONS FOR THE FOLLOWING WORK:

•

COFFERDAM AND DEWATERING DESIGN

•

STRUCTURAL LIFTING AND TEMPORARY SHORING OF STRUCTURES

•

JACKING FRAMES

•

DESIGN CHECK OF EXISTING STRUCTURE FOR CONTRACTOR'S OPERATIONS INVOLVING THE USE OF THE EXISTING STRUCTURE

•

OTHER WORK BY CONTRACTOR ON THESE PLANS NOT MENTIONED

PLANS AND CALCULATIONS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW AND APPROVAL. THE CONTRACTOR SHALL ALLOW AT LEAST TWO WORKING DAYS PER DRAWING AND ONE DAY PER FOUR PAGES OF CALCULATIONS FOR REVIEW. A MINIMUM OF TEN WORKING DAYS MUST BE ALLOWED FOR EACH SET OF DRAWINGS OR CALCULATIONS SUBMITTED FOR REVIEW. NO WORK MAY BEGIN UNTIL THE RESPECTIVE SUBMITTALS ARE APPROVED. ALL COSTS FOR PREPARING THESE PLANS AND CALCULATIONS SHALL BE INCLUDED IN THE CONTRACTOR'S BID PRICE, INCLUDING RESUBMITTALS. THE CONTRACTOR'S ENGINEER SHALL BE RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING ALL PHASES OF THE REHABILITATION WORK.
7.

MULTIPLE MOBILIZATIONS MAY BE REQUIRED TO COMPLETE THE WORK.

DRAWINGS AND SPECIFICATIONS:

1.

DO NOT SCALE DRAWINGS FOR DIMENSIONS. NOT GIVEN.
2.

ADVISE THE OWNER'S REPRESENTATIVE OF DIMENSIONAL DISCREPANCIES.
3.

VERIFY ALL EXISTING FIELD CONDITIONS AND DIMENSIONS PRIOR TO COMMENCING CONSTRUCTION.
4.

THE CONTRACTOR SHALL PERFORM NO PORTION OF THE WORK AT ANY TIME WITHOUT CONTRACT DOCUMENTS OR, WHERE REQUIRED, APPROVED SHOP DRAWINGS, PRODUCT DATA OR SAMPLES FOR SUCH PORTION OF THE WORK.

CONSTRUCTION SAFETY:

1.

THESE DRAWINGS DO NOT INCLUDE PROVISIONS TO SATISFY SAFETY REQUIREMENTS. CONTRACTOR IS SOLELY RESPONSIBLE FOR ENSURING SAFETY DURING CONSTRUCTION AND FOR CONFORMANCE TO ALL APPLICABLE OSHA STANDARDS AND OTHER APPLICABLE CODES. JOBSITE VISITS BY THE OWNER'S REPRESENTATIVE SHALL NOT CONSTITUTE APPROVAL, AWARENESS OR LIABILITY FOR ANY HAZARDOUS CONDITIONS.

BUILDING CODES AND SPECIFICATIONS:

1.

US ARMY CORPS OF ENGINEERS, DESIGN OF HYDRAULIC STEEL STRUCTURES, ENGINEERING TECHNICAL LETTER (ETL) 1110-2-584, JUNE 2014
2.

US ARMY CORPS OF ENGINEERS, DESIGN OF SPILLWAY TAINTER GATES, ENGINEERING MANUAL (EM) 1110-2-2702, JANUARY 2000 (SUPERCEDED BY ETL 1110-2-584)
3.

AMERICAN INSTITUTE OF STEEL CONSTRUCTION, SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, AISC 360-10, JUNE 2010
4.

AMERICAN SOCIETY OF CIVIL ENGINEERS, MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, ASCE 7-10 THIRD PRINTING, MARCH 2013
5.

AMERICAN CONCRETE INSTITUTE, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, ACI 318-14, SEPTEMBER 2014

REHABILITATION NOTES:

1.

THE CONTRACTOR SHALL EXAMINE AND VERIFY, IN THE FIELD, ALL CONDITIONS AND DIMENSIONS. DIMENSIONS OF THE EXISTING STRUCTURES SHOWN ON THESE PLANS ARE FOR GENERAL REFERENCE ONLY. THEY HAVE BEEN TAKEN FROM THE ORIGINAL CONSTRUCTION DRAWINGS AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL TAKE ALL SUCH FIELD MEASUREMENTS AS ARE NECESSARY TO ENSURE PROPER FIT OF THE FINISHED WORK, AND THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR THEIR ACCURACY. IF THE FIELD CONDITIONS AND DIMENSIONS DIFFER FROM THOSE SHOWN ON THE PLANS, THE CONTRACTOR SHALL USE THE FIELD CONDITIONS AND DIMENSIONS AND MAKE THE APPROPRIATE CHANGES TO THOSE SHOWN ON THE PLANS, AS APPROVED BY THE OWNER'S REPRESENTATIVE. WHEN SHOP DRAWINGS BASED ON FIELD MEASUREMENTS ARE SUBMITTED FOR APPROVAL, THE FIELD MEASUREMENTS MADE SHALL BE INDICATED ON THE SHOP DRAWINGS SUBMITTED FOR REFERENCE OF THE REVIEWER.
2.

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT, DUE TO THE CONDITION OF EXISTING STRUCTURES, THE EXACT EXTENT OF WORK CANNOT ALWAYS BE ACCURATELY DETERMINED PRIOR TO THE COMMENCEMENT OF WORK. THESE CONTRACT DOCUMENTS HAVE BEEN PREPARED BASED ON FIELD INSPECTION AND OTHER INFORMATION AVAILABLE AT THE TIME. ACTUAL FIELD CONDITIONS MAY REQUIRE MODIFICATIONS TO CONSTRUCTION DETAILS AND WORK QUANTITIES. THE CONTRACTOR SHALL PERFORM THE WORK IN ACCORDANCE WITH FIELD CONDITIONS AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
3.

THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ALL DAMAGE TO THE EXISTING STRUCTURE CAUSED BY THEIR OPERATIONS WHICH IS NOT INCLUDED AS PART OF THE INTENDED WORK. ALL DAMAGE TO THE EXISTING STRUCTURE, WHICH IS NOT PART OF THE INTENDED WORK, SHALL BE REPAIRED BY THE CONTRACTOR WITHOUT COST TO THE OWNER, AND TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE.
4.

LAWN AREAS DISTURBED BY THE CONTRACTOR, AS PART OF WORK TO BE PERFORMED UNDER THIS CONTRACT, SHALL BE RESTORED AS SPECIFIED, TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE, INCLUDING DISTURBANCE TO STAGING AREAS. ALL DISTURBED GRASS AREAS SHALL BE GRADED IN A MANNER APPROVED BY THE OWNER'S REPRESENTATIVE, TOPSOILED, AND SEEDED.

REMOVAL, EXCAVATION, AND BACKFILL NOTES:

1.

THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY SUPPORTS, BRACING, AND OTHER DEVICES REQUIRED OR DIRECTED BY THE OWNER'S REPRESENTATIVE, TO PROTECT THE SAFETY OF THE ADJACENT STRUCTURES AND UTILITIES. ALL COSTS FOR THIS WORK SHALL BE INCLUDED IN CONTRACTORS BID.
2.

DURING REMOVAL OPERATIONS, THE CONTRACTOR SHALL NOT DROP WASTE CONCRETE, DEBRIS, AND OTHER MATERIAL INTO PRIEST RIVER OR ON TO ADJACENT PROPERTIES EXCEPT WHERE THE PLANS OR SPECIFICATIONS SPECIFICALLY PERMIT DEPOSITION OF MATERIAL. PLATFORMS, NETS, SCREENS, OR OTHER PROTECTIVE DEVICES SHALL BE USED TO CATCH THE MATERIAL. IF THE OWNER'S REPRESENTATIVE DETERMINES THAT ADEQUATE PROTECTIVE DEVICES ARE NOT BEING EMPLOYED, THE WORK SHALL BE SUSPENDED UNTIL ADEQUATE PROTECTION IS PROVIDED. IF MATERIAL FALLS ON THE AREA BELOW AND ADJACENT TO THE DAM, IT SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR IMMEDIATELY.
3.

THE COST OF FURNISHING, INSTALLING, MAINTAINING, REMOVING, AND DISPOSING OF ALL ACCESS ROADS, PLATFORMS, NETS, SCREENS, AND OTHER PROTECTIVE DEVICES, SHALL BE INCLUDED IN THE BID PRICE OF THE CONTRACT.
4.

CARE SHALL BE TAKEN TO RETAIN NATURAL GROWTH AND PREVENT DAMAGE TO TREES WITHIN AND OUTSIDE THE LIMITS OF CONSTRUCTION, AND NOT SCHEDULED FOR REMOVAL. ANY DAMAGE CAUSED TO THIS NATURAL GROWTH SHALL BE RESTORED AT THE EXPENSE OF THE CONTRACTOR, AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
5.

THE CONTRACTOR SHALL CONDUCT REMOVAL OPERATIONS TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE SO AS NOT TO UNDULY DISTURB UNDERLYING MATERIALS WHICH ARE TO REMAIN IN PLACE. THE CONTRACTOR SHALL PERFORM ALL WORK WITH CARE SO THAT ANY MATERIALS WHICH ARE TO REMAIN IN PLACE, OR WHICH ARE TO REMAIN THE PROPERTY OF THE OWNER, WILL NOT BE DISTURBED.

REMOVAL, EXCAVATION, AND BACKFILL NOTES (CONT'D):

6.

THE CONTRACTOR SHALL REPAIR OR REPLACE ANY DAMAGE CAUSED BY THE CONTRACTOR'S ACTIVITIES TO ALL ACCESS ROADS TO THE OWNER'S SATISFACTION AND AT NO ADDITIONAL COST TO THE OWNER'S REPRESENTATIVE.

UTILITY NOTES:

1.

LOCATION OF UTILITIES, PUBLIC AND/OR PRIVATE, INDICATED AS EXISTING AS SHOWN ON THE PLANS, ADDITIONAL UTILITY LINES, WHETHER ABANDONED OR IN SERVICE, MAY EXIST AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONDUCT OPERATIONS AND TAKE THE NECESSARY PRECAUTIONS TO PREVENT INTERFERENCE WITH OR DAMAGE TO THESE OR OTHER FACILITIES DURING THE COURSE OF CONSTRUCTION.
2.

SHOULD UTILITIES BE ENCOUNTERED DURING CONSTRUCTION WHICH INTERFERE WITH THE WORK AND FOR WHICH PROVISIONS ARE NOT PROVIDED ON THE PLANS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE OF THEIR EXISTENCE AND EXTENT OF CONFLICT WITH THE WORK. THE CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE OWNING AGENCY TO MODIFY ITS FACILITY IN ORDER TO ALLOW THE WORK TO PROGRESS.
3.

ANY DAMAGE, CAUSED BY THE CONTRACTOR'S OPERATIONS, FROM MINOR SCRAPES TO SEVERING OF THE UTILITY SERVICE, SHALL BE IMMEDIATELY REPORTED TO THE UTILITY OWNER AND THE OWNER'S REPRESENTATIVE, AND SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.

ENVIRONMENTAL PROTECTION NOTES:

1.

STREAM CONSERVATION: THE CONTRACTOR SHALL CONDUCT OPERATIONS TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE TO PREVENT ANY DAMAGE TO PRIEST RIVER FROM POLLUTION BY DEBRIS, SEDIMENT, OR OTHER FOREIGN MATERIAL, OR FROM THE MANIPULATION OF EQUIPMENT AND/OR MATERIALS IN OR NEAR THE WATERWAYS. THE CONTRACTOR SHALL NOT RETURN DIRECTLY TO A STREAM, OR TO A DITCH IMMEDIATELY FLOWING INTO A STREAM, ANY WATER WHICH HAS BEEN USED FOR WASH PURPOSES OR OTHER SIMILAR OPERATIONS WHICH COULD CAUSE THIS WATER TO BECOME POLLUTED WITH SAND, SILT, CEMENT, OIL, OR OTHER IMPURITIES. IF THE CONTRACTOR WANTS TO USE RIVER / LAKE WATER FOR CONSTRUCTION PURPOSES, A TEMPORARY WATER USE PERMIT IS REQUIRED FROM IDAHO DEPARTMENT OF WATER RESOURCES. IF THE CONTRACTOR USES WATER FROM A STREAM, THEY SHALL CONSTRUCT AN INTAKE OR TEMPORARY DAM TO PROTECT AND MAINTAIN WATER RIGHTS AND TO SUSTAIN FISH LIFE DOWNSTREAM. THESE TEMPORARY MEASURES SHALL BE REMOVED AND THE AREA RESTORED AT THE COMPLETION OF THE WORK.
2.

DEWATERING WILL BE REQUIRED FOR THE CONSTRUCTION OF CONCRETE SUBSTRUCTURES AND GATES. THE COST OF DEWATERING IS TO BE INCLUDED IN THE CONTRACTOR'S PRICE BID.
3.

VISIBLY TURBID DISCHARGES FROM DEWATERING OPERATIONS OR EXCAVATION ACTIVITIES SHALL NOT BE ALLOWED TO ENTER THE RIVER. ANY SUCH DISCHARGE SHALL BE (1) RETAINED IN AN APPROPRIATELY MAINTAINED UPLAND SETTLING BASIN, OR (2) FILTERED THROUGH CRUSHED STONE, SAND, HAY BALES, AND SILT SCREENING (EQUIVALENT OPENING SIZE OF U.S. SIEVE NUMBER 20).
4.

ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO PREVENT THE ENTRANCE OF FRESH CONCRETE INTO THE WATERS. EQUIPMENT, TOOLS, AND TRUCKS USED IN THIS PROJECT SHALL BE CLEANED IN SUCH A MANNER AS TO PREVENT WASH WATER FROM ENTERING ANY STREAM OR LAKE. WET CONCRETE IS HIGHLY TOXIC TO FISH. SPILLAGE OF OIL AND HAZARDOUS SUBSTANCES IS ESPECIALLY PROHIBITED BY SECTION 311 OF THE CLEAN WATER ACT OF 1977. MEASURES INCLUDING PROPER MAINTENANCE OF CONSTRUCTION EQUIPMENT, DESIGNATING FUEL/HAZARDOUS SUBSTANCES HANDLING AREAS TO ALLOW SPILLS TO BE CONTAINED BEFORE REACHING THE WATERWAY, INSTRUCTING PERSONNEL NOT TO DISPOSE OF OIL AND OTHER SUCH MATERIALS INTO DRAINS OR INTO THE WATERWAY DIRECTLY, AND OTHER NECESSARY PROCEDURES SHALL BE IMPLEMENTED PRIOR TO ANY CONSTRUCTION ACTIVITIES. IF IN SPITE OF SUCH PLANNING, OIL/HAZARDOUS SUBSTANCES ARE SPILLED INTO A WATER COURSE, IMMEDIATE NOTIFICATION SHALL BE GIVEN TO THE OWNER, OWNER'S REPRESENTATIVE, THE OWNER'S CONSTRUCTION MANAGER AND IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY. A CONTAINMENT BOOM AND A SUPPLY OF HAY, STRAW, OR OTHER ABSORBENT SHOULD BE RETAINED SO THAT IT MAY BE RAPIDLY DEPLOYED TO SOAK UP ANY POSSIBLE SPILLAGE, PENDING IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY ARRIVAL ON THE SCENE. THE USE OF CHEMICAL DISPERSING AGENTS AND EMULSIFIERS IS NOT AUTHORIZED WITHOUT PRIOR SPECIFIC FEDERAL OR STATE APPROVAL.
6.

A PRE-CONSTRUCTION NOTIFICATION WILL BE SUBMITTED TO THE U.S. ARMY CORPS OF ENGINEERS FOR THE PROPOSED WORK TO BE PERFORMED BY THE OWNER UNDER NATIONWIDE PERMIT #3. THE CONTRACTOR SHALL COMPLY WITH THE TERMS AND CONDITIONS OF THE NATIONWIDE PERMIT AND THE PROVISIONS OF THE TITLE 5 OF ARTICLE 15 OF THE ENVIRONMENTAL CONSERVATION LAW.
7.

A SILT FENCE SHALL BE INSTALLED AROUND THE ENTIRE PERIMETER OF ANY STONE, TOPSOIL, WASTE, OR OTHER STOCKPILES THAT WILL NOT BE USED OR STABILIZED WITHIN 14 DAYS.
8.

SEDIMENTS COLLECTED DURING DE-WATERING ARE TO BE DISPOSED OF AT A NON-HAZARDOUS SOLID WASTE APPROVED FACILITY. THESE MATERIALS ARE NOT TO BE RE-USED ON SITE AS FILL MATERIAL UNLESS APPROVED BY THE OWNER'S REPRESENTATIVE.
9.

CONTRACTOR SHALL COMPLY WITH THE LOCAL NOISE ORDINANCE.

DAM NOTES:

1.

ALL GATES MUST BE IN PLACE AND FUNCTIONAL PRIOR TO REMOVING COFFERDAMS. THE CONTRACTOR WILL NOT BE PERMITTED TO ERCT OR PLACE SCAFFOLDING OR OTHER TEMPORARY STRUCTURES OVER THE DAM WITHOUT THE WRITTEN APPROVAL OF THE OWNER'S REPRESENTATIVE. THE REQUEST FOR APPROVAL OF PROPOSED SCAFFOLDING OR TEMPORARY STRUCTURES OVER THE DAM MUST BE ACCOMPANIED BY PLANS OR SKETCHES OF THE SCAFFOLDING OR TEMPORARY STRUCTURES, INCLUDING PLANS FOR REMOVAL OF SAID ELEMENTS.
3.

ANY SCAFFOLDING, TEMPORARY STRUCTURES, MASKING SYSTEM, CONTAINMENT COMPONENT OR TIE DOWNS, ETC. SHALL NOT INTERFERE WITH THE OPERABLE GATES.
4.

DURING THE COURSE OF WORK UNDER THIS CONTRACT, CARE SHALL BE EXERCISED THAT NO MATERIAL IS DROPPED INTO THE RIVER.
5.

EACH YEAR, IN THE SPRING THE GATES ARE CLOSED AND PLACED INTO THE WATER TO BEGIN THE RECREATION SEASON AND IN THE WINTER THE GATES ARE OPENED AND REMOVED FROM THE WATER TO END THE RECREATION SEASON. APPROXIMATE OPENING AND CLOSING DATES FOR THE DAM ARE AS SCHEDULED BELOW:

2023/2024:		
OPEN:	OCTOBER 1	
CLOSED:	AFTER APRIL 1	
6.	THE CONTRACTOR SHALL SCHEDULE AND PROGRESS WORK SUCH THAT THE DAM IS OPEN FOR USE WITHIN THE DATES NOTED ABOVE.	
7.	THE CONTRACTOR SHALL LIMIT THEIR WORK REQUIRING USE OF ANY WATER CONTROL STRUCTURE TO THE TIME PERIOD FROM "OPEN" TO "CLOSED" NOTED ABOVE.	
8.	THE CONTRACTOR SHALL NOT PERFORM ANY WORK DURING THE PEAK RECREATIONAL SEASON IN THE TIME PERIOD FROM "CLOSED" TO "OPEN" NOTED ABOVE WHICH AFFECTS THE OPERATION OF THE GATES WITHOUT PRIOR APPROVAL FROM THE OWNER'S REPRESENTATIVE.	

GENERAL NOTES

- -- —

PROPERTY LINES
- OHW —

ORDINARY HIGH WATER (OHW)
- A —

PIER ACCESS ROAD
- P —

POWER LINE
- SS —

SEWER LINE (VERIFY IN FIELD)
- LOC —

LIMITS OF CONSTRUCTION
- □ —

TEMPORARY FENCING
- X —

SILT FENCE
- ○ — ○ — ○ —

ACCESS GATE

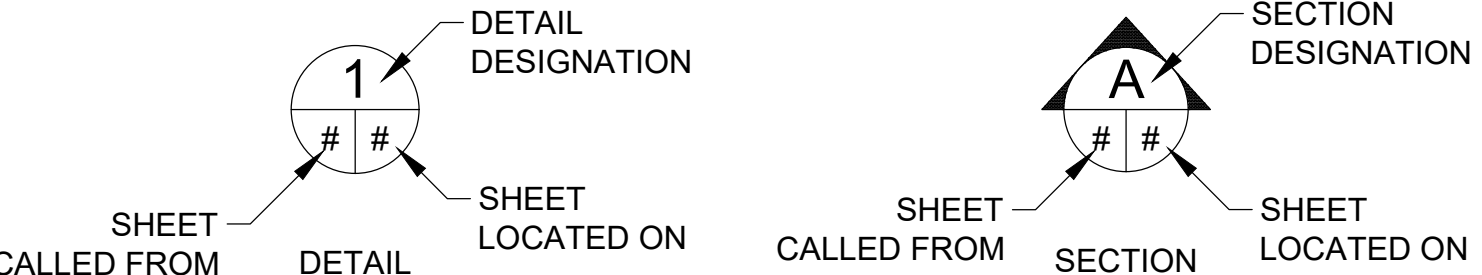
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BAY NUMBER
- X

PHOTO NUMBER

- ACCESS ROAD EASEMENT
- LAYDOWN AND ACCESS AREA
- POWER UTILITY TRENCH
- ARMOR STONE
- QUARRY SPALLS
- CONCRETE APRON EXTENSION

SHEET SYMBOLS



ABBREVIATIONS:

ABUT	ABUTMENT	IWRB	IDAHO WATER RESOURCE BOARD
ACI	AMERICAN CONCRETE INSTITUTE	LOC	LIMITS OF CONSTRUCTION
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	MAX	MAXIMUM
		MIN	MINIMUM
AWS	AMERICAN WELDING SOCIETY	MLW	MEAN LOW WATER
APPROX.	APPROXIMATELY	MP	MAGNETIC PARTICLE TESTING
BM	BENCHMARK	N	NORTHING OR NORTH
B.O.	BOTTOM OF	NAD83	NORTH AMERICAN DATUM OF 1983
BOT	BOTTOM	NAVD88	NORTH AMERICAN VERTICAL DATUM OF 1988
B.W.	BOTH WAYS		
☐	CENTERLINE	N.T.S.	NOT TO SCALE
COMM	COMMUNICATIONS	O.C.	ON CENTER
CDF	CONTROLLED DENSITY FILL	OHW	ORDINARY HIGH WATER
CIP	CAST-IN-PLACE	PPGW	PARTIAL PENETRATION GROOVE WELD
CLR	CLEAR		
CONC	CONCRETE	PQR	PROCEDURE QUALIFICATION RECORD
CPGW	COMPLETE PENETRATION GROOVE WELD	QA	QUALITY ASSURANCE
∅	DIAMETER	QC	QUALITY CONTROL
E	EASTING	REF	REFERENCE
EA	EACH	RF	REAR FACE
EF	EACH FACE	REINF	REINFORCEMENT
EG	FOR EXAMPLE	RT	RADIOGRAPHIC TESTING
EQ.	EQUAL	S	SOUTH
ES	EACH SIDE	SIM	SIMILAR
E.W.	EACH WAY	SMAW	SHIELDED METAL ARC WELDING
EOP	EDGE OF PAVEMENT	STD	STANDARD
EL	ELEVATION	STA	STATION
ETC	AND SO ON	T.O.	TOP OF
EX	EXISTING	TYP	TYPICAL
FCAW	FLUX CORED ARC WELDING	UT	ULTRASONIC TESTING
FCM	FRACTURE CRITICAL MEMBER	VIF	VERIFY IN FIELD
FF	FRONT FACE	VWP	VIBRATING WIRE PIEZOMETER
FT	FEET	WP	WORKING POINT
GCP	GROUND CONTROL POSITION	WPS	WELD PROCEDURE SPECIFICATION
GALV	GALVANIZED		
HT	HARDNESS TESTING	WSEL	WATER SURFACE ELEVATION
HMA	HOT MIX ASPHALT	W/	WITH
IBC	INTERNATIONAL BUILDING CODE	@	AT
ITD	IDAHO TRANSPORTATION DEPARTMENT	"	MINUTES OR FEET SECONDS OR INCHES

<div><div>MOTT MACDONALD</div><div>1601 5th Avenue Suite 800 Seattle, Washington 98101</div><div>T +1 (425) 778 6243 W mottmac.com</div></div>	<div><div>IDAHO DEPARTMENT OF WATER RESOURCES</div><div>322 Front Street Suite 648 P.O. Box 83720 Boise, Idaho 83702 P (208) 287-4800 F (208) 287-6700</div></div>	<div>PRELIMINARY</div>						<div>Project Number376997</div> <div>B/O2</div> <div>Total25</div>				<div>DesignedA. Hart</div> <div>DrawnT. Morrison</div> <div>Dwg checkJ. Dawson</div> <div>Scale at ANSI DStatusRevSecurity</div> <div>Drawing NumberGN-1</div>				<div>Title</div> <div>Priest Lake Water Management Project Outlet Dam Improvements</div> <div>GENERAL NOTES 1</div>																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

GENERAL NOTES - CONT'D

CONCRETE NOTES:

1. ALL STRUCTURAL CONCRETE WORK SHALL COMPLY WITH ACI 301-10 AND TO THE REQUIREMENTS IN SPECIFICATION SECTIONS 033000 AND 034100.
2. ALL REINFORCED CAST-IN-PLACE CONCRETE AND PRECAST CONCRETE CONSTRUCTION SHALL CONFORM TO THE ACI "MANUAL OF CONCRETE PRACTICE", "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" (ACI 318-14), PRECAST CONCRETE INSTITUTE MANUAL 116, AND "ACI DETAILING MANUAL" (ACI SP 66), EXCEPT AS MODIFIED BY THE CONTRACT DRAWINGS AND SPECIFICATIONS.
3. CONCRETE FOUNDATIONS SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS:

	f'c	W/C RATIO
APRON SLAB, KEYWAY, WALLS	5000 PSI	0.40
PIERS	5000 PSI	0.40

ALL CONCRETE SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 033000 CAST-IN-PLACE CONCRETE, EXCEPT THE KEYWAY, WHICH MAY BE CAST IN ACCORDANCE WITH THE SPECIFICATION SECTION 034100 PRECAST STRUCTURAL CONCRETE.

4. ALL REINFORCING STEEL SHALL HAVE MINIMUM YIELD STRENGTH, $f_y=60$ KSI AND SHALL BE NEW DEFORMED BILLET-STEEL CONFORMING TO ASTM A615, GRADE 60.
5. ALL DETAILING, BENDING, PLACEMENT AND SUPPORT OF REINFORCING SHALL CONFORM TO THE STANDARDS CITED.
6. CLEAR CONCRETE COVER OVER PRINCIPAL REINFORCING SHALL BE 3" WHEN CONCRETE IS CAST AGAINST OR PERMANENTLY IN CONTACT WITH GROUND AND 2" AT ALL OTHER LOCATIONS.
7. ALL STRUCTURAL MEMBERS SHALL BE CAST MONOLITHICALLY FOR THEIR FULL DEPTH, UNLESS OTHERWISE NOTED.
8. ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED, WETTED AND SPLASHED WITH CEMENT GROUT JUST PRIOR TO PLACING NEW CONCRETE.
9. THE SPACING OF REINFORCING SHOWN ON THE CONTRACT DRAWINGS IS THE MAXIMUM PERMITTED. IT MAY BE REDUCED FOR CONSTRUCTION CONSIDERATIONS, BUT IS NOT TO BE EXCEEDED.
10. WHERE INDICATED ON THE PLANS, ALL STRUCTURAL CONCRETE SHALL BE REMOVED TO THE DEPTH SPECIFIED, OR TO THE DEPTH AS ORDERED BY THE OWNER'S REPRESENTATIVE. BEFORE STARTING THIS WORK, THE CONTRACTOR SHALL SUBMIT A PLAN SHOWING THE PROPOSED METHOD, EQUIPMENT, AND SEQUENCE FOR THE REMOVAL WORK TO THE OWNER'S REPRESENTATIVE FOR APPROVAL.
11. EXPOSED REINFORCING STEEL THAT WILL REMAIN IN THE STRUCTURE SHALL BE PROTECTED FROM DAMAGE, AND BLAST-CLEANED TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE.
12. ALL EXPOSED EDGES OF CONCRETE ARE TO BE CHAMFERED UNLESS OTHERWISE NOTED.
13. ALL FORMING HARDWARE SUCH AS TIES AND "ALL-THREADS" THAT ARE TO REMAIN IN THE CONCRETE SHALL BE ELECTROPLATED OR MADE OF A NON-FERROUS MATERIAL TO PREVENT CORROSION.
14. WHERE DRILLING AND GROUTING REINFORCING BARS, THE DIAMETER OF THE DRILLED HOLE SHALL BE AS RECOMMENDED BY THE EPOXY GROUT MANUFACTURER.
15. ALL CONCRETE ELEMENTS SHALL CONTAIN AN AIR ENTRAINMENT ADMIXTURE.

REINFORCING BAR EMBEDMENT/ LAP SPLICE SCHEDULE				
BAR SIZE	TOP BARS		OTHER BARS	
	EMBEDMENT	LAP	EMBEDMENT	LAP
	5000 PSI	5000 PSI	5000 PSI	5000 PSI
#3	17"	22"	13"	17"
#4	22"	29"	17"	22"
#5	28"	36"	21"	28"
#6	33"	43"	25"	33"
#7	48"	63"	37"	48"
#8	55"	72"	42"	55"

NOTES

1. TOP BARS ARE THOSE WHICH ARE ORIENTED HORIZONTAL AND HAVE MORE THAN 12" OF CONCRETE BELOW THE BAR.
2. SPLICE BOTTOM BARS AT SUPPORTS.
3. SPLICE UPPER BARS IN MIDDLE $\frac{1}{3}$ OF SPAN.
4. WHERE CONCRETE DEPTH PRECLUDES FULL EMBEDMENT, PROVIDE 90 HOOK.
5. PROVIDE CONCRETE PROTECTION FOR REINFORCEMENT AS DESCRIBED IN ACI 318 CHAPTER 20.
6. EMBEDMENT AND LAP SPLICE LENGTHS SHOWN ARE APPLICABLE TO ASTM A615 GR. 60 REINFORCING BARS.

STEEL NOTES:

1. ALL STRUCTURAL STEEL INCLUDING CONNECTIONS AND MISCELLANEOUS STEEL SHALL CONFORM TO THE REQUIREMENTS IN SPECIFICATION SECTION 051200.
2. ALL GALVANIC SHOP APPLIED COATINGS FOR STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS SPECIFIED IN SPECIFICATION SECTION 050500.
3. ALL STEEL FABRICATION, FURNISHING, DELIVERY, AND ERECTION OF STRUCTURAL STEEL AND ITS COMPONENTS SHALL BE PERFORMED IN ACCORDANCE WITH AWS D1.1 AND AISC MANUAL OF STEEL CONSTRUCTION (14TH EDITION).
4. ALL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH SPECIFICATION SECTION 050500.
5. SHOP DRAWINGS OF ALL STRUCTURAL STEEL SHALL BE PREPARED AND SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW IN ACCORDANCE WITH AISC STANDARDS SHOWING ALL SHOP AND ERECTION DETAILS INCLUDING CUTS, COPEs, CONNECTIONS, ETC.
6. FIELD BURNING OF HOLES WILL NOT BE PERMITTED.
7. ALL WELDING ELECTRODES SHALL CONFORM TO THE E-70 SERIES AS PER AWS STRUCTURAL WELDING CODE D1.1/D1.1M.
8. CARE SHALL BE TAKEN TO AVOID CAUSING DAMAGE TO EXISTING MEMBERS WHICH ARE TO REMAIN IN PLACE.

J-SEAL NOTES:

1. J-SEAL REQUIREMENTS:
THE PROPOSED RADIAL GATE J-SEALS SHALL HAVE THE SAME CROSS-SECTIONAL DIMENSIONS AS THE EXISTING J-SEALS. THE CONTRACTOR SHALL MEASURE THE EXISTING J-SEAL DIMENSIONS AND/OR DEVELOP THE DIMENSIONS BASED ON THE ORIGINAL 1978 DRAWINGS IN ORDER TO DEVELOP THE PROPOSED J-SEAL DRAWINGS. THE CONTRACTOR SHALL SUBMIT J-SEAL MATERIAL INFORMATION AND J-SEAL SHOP DRAWINGS TO THE OWNER'S REPRESENTATIVE FOR APPROVAL.
2. DELIVERY, STORAGE, AND HANDLING OF J-SEALS:
STORE J-SEALS IN A PLACE WHICH PERMITS FREE CIRCULATION OF AIR, MAINTAINS A TEMPERATURE OF 70 DEGREES F OR LESS, AND PREVENTS THE RUBBER FROM BEING EXPOSED TO THE DIRECT RAYS OF THE SUN. KEEP J-SEALS FREE OF OILS, GREASE, AND OTHER MATERIALS WHICH WOULD DETERIORATE THE RUBBER. J-SEALS SHALL NOT BE DISTORTED DURING HANDLING.
3. PRODUCTS – J-SEALS:
J-SEALS SHALL BE RUBBER SEALS OF THE MOLD TYPE ONLY, SHALL BE COMPOUNDED OF NATURAL RUBBER, SYNTHETIC POLYISOPRENE, OR A BLEND OF BOTH, AND SHALL CONTAIN REINFORCING CARBON BLACK, ZINC OXIDE, ACCELERATORS, ANTIOXIDANTS, VULCANIZING AGENTS, AND PLASTICIZERS. PHYSICAL CHARACTERISTICS OF THE J-SEALS SHALL MEET THE FOLLOWING REQUIREMENTS:

PHYSICAL TEST	TEST VALUE	TEST METHOD SPECIFICATION
TENSILE STRENGTH	2500 PSI (MIN.)	ASTM D412
ELONGATION AT BREAK	450% (MIN.)	ASTM D412
300 PERCENT MODULUS	900 PSI (MIN.)	ASTM D412
DUROMETER HARDNESS (SHORE TYPE A)	60 TO 70	ASTM D2240
WATER ABSORPTION	5% BY WEIGHT (MAX)	ASTM D471
COMPRESSION SET	30% TENSILE STRENGTH (MIN.)	ASTM D395
TENSILE STRENGTH (AFTER AGING 48 HRS)	80% TENSILE STRENGTH (MIN.)	ASTM D572

THE "WATER ABSORPTION" TEST SHALL BE PERFORMED WITH DISTILLED WATER. THE WASHED SPECIMEN SHALL BE BLOTTED DRY WITH FILTER PAPER OR OTHER ABSORBENT MATERIAL AND SUSPENDED BY MEANS OF SMALL GLASS RODS IN THE OVEN AT A TEMPERATURE OF 158 DEGREES F PLUS OR MINUS 2 DEGREES F FOR 22 HOURS PLUS OR MINUS 1/4 HOUR. THE SPECIMEN SHALL BE REMOVED, ALLOWED TO COOL TO ROOM TEMPERATURE IN AIR, AND WEIGHED. THE WEIGHT SHALL BE RECORDED TO THE NEAREST OUNCE AS W1 (W1 IS DEFINED IN ASTM D471). THE IMMERSION TEMPERATURE SHALL BE 158 DEGREES F PLUS OR MINUS 1 DEGREE F AND THE DURATION OF IMMERSION SHALL BE 166 HOURS.

4. **ASTM PUBLICATIONS:**
ASTM D395 (2016; E 2017) STANDARD TEST METHODS FOR RUBBER PROPERTY - COMPRESSION SET
ASTM D412 (2016) STANDARD TEST METHODS FOR VULCANIZED RUBBER AND THERMOPLASTIC ELASTOMERS - TENSION
ASTM D413 (1998; R 2017) STANDARD TEST METHODS FOR RUBBER PROPERTY - ADHESION TO FLEXIBLE SUBSTRATE.
ASTM D471 (2016A) STANDARD TEST METHOD FOR RUBBER PROPERTY - EFFECT OF LIQUIDS
ASTM D572 (2004; R 2010) RUBBER DETERIORATION BY HEAT AND OXYGEN
ASTM D2240 (2015; E 2017) STANDARD TEST METHOD FOR RUBBER PROPERTY - DUROMETER HARDNESS
5. **J-SEAL FABRICATION AND INSTALLATION:**
J-SEALS SHALL BE CONTINUOUS OVER THE FULL LENGTH. J-SEALS SHALL BE ACCURATELY FITTED AND DRILLED WITH SLOTTED HOLES FOR ADJUSTABILITY FOR PROPER INSTALLATION TO PROVIDE A WATER-TIGHT SEAL AGAINST THE EXISTING CONCRETE. BOLT HOLES SHALL BE DRILLED IN THE J-SEALS BY USING PREPARED TEMPLATES OR THE RETAINER BARS AS TEMPLATES AND BE SLOTTED FOR ADJUSTMENTS TO FIT UP. SPLICES IN J-SEALS SHALL BE FULLY MOLDED, DEVELOP A MINIMUM TENSILE STRENGTH OF 50 PERCENT OF THE UNSPLICED SEAL, AND OCCUR ONLY AT LOCATIONS SHOWN ON THE DRAWINGS. ALL VULCANIZING OF SPLICES SHALL BE DONE IN THE SHOP. THE VULCANIZED SPLICES BETWEEN MOLDED CORNERS AND STRAIGHT LENGTHS SHALL BE LOCATED AS CLOSE TO THE CORNERS AS PRACTICABLE. SPLICES SHALL BE ON A 45-DEGREE BEVEL RELATED TO THE "THICKNESS" OF THE J-SEAL. THE SURFACES OF FINISHED SPLICES SHALL BE SMOOTH AND FREE OF IRREGULARITIES. J-SEALS SHALL BE ADJUSTED SO THAT THEY ARE COMPRESSED WITH THE GATE IN THE CLOSED, UNWATERED CONDITION TO PREVENT EXCESSIVE DEPRESSION AND WEAR IN THE CLOSED, WATERED CONDITION. BEFORE OPERATING THE GATES, A SUITABLE LUBRICANT SHALL BE APPLIED TO THE J-SEAL RUBBING PLATES TO PROTECT THE RUBBER.

METAL FABRICATION NOTES:

1. THESE NOTES ARE INTENDED TO BE A GUIDELINE. THESE NOTES ARE NOT A COMPLETE LISTING OF ALL REQUIREMENTS. THE CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH THE SPECIFICATIONS.
2. ALL STEEL SHALL BE OF DOMESTIC ORIGIN.
3. THE DIMENSIONAL TOLERANCE OF EACH INDIVIDUAL MEMBER SHALL BE IN ACCORDANCE WITH THE GOVERNING CODE, UNLESS OTHERWISE NOTED IN THE CONTRACT DOCUMENTS. THE DIMENSIONAL TOLERANCE OF THE COMPLETED ASSEMBLY SHALL ALSO BE IN ACCORDANCE WITH THE LEAST RESTRICTIVE TOLERANCE OF THE INDIVIDUAL MEMBERS.
4. BOLTED CONNECTIONS:
 - A.) MEMBERS OF CONNECTIONS SHALL BE MATCH MARKED AS NECESSARY FOR ASSEMBLY AFTER CLEANING AND GALVANIZING OF THE CONNECTION INNER PLIES.
 - B.) INNER PLIES OF ALL BOLTED CONNECTIONS SHALL BE CLEANED.
 - C.) ALL BOLTING SHALL BE PERFORMED IN ACCORDANCE WITH AISC. THIS SHALL INCLUDE BOLT TENSION VERIFICATION AND SAMPLING OF FASTENERS.
5. ALL EXPOSED EDGES ON PLATES AND SHAPES SHALL BE CHAMFERED TO A MINIMUM RADIUS OF 1/16" TO FACILITATE GALVANIZING.

QUALITY CONTROL (QC) / QUALITY ASSURANCE (QA):

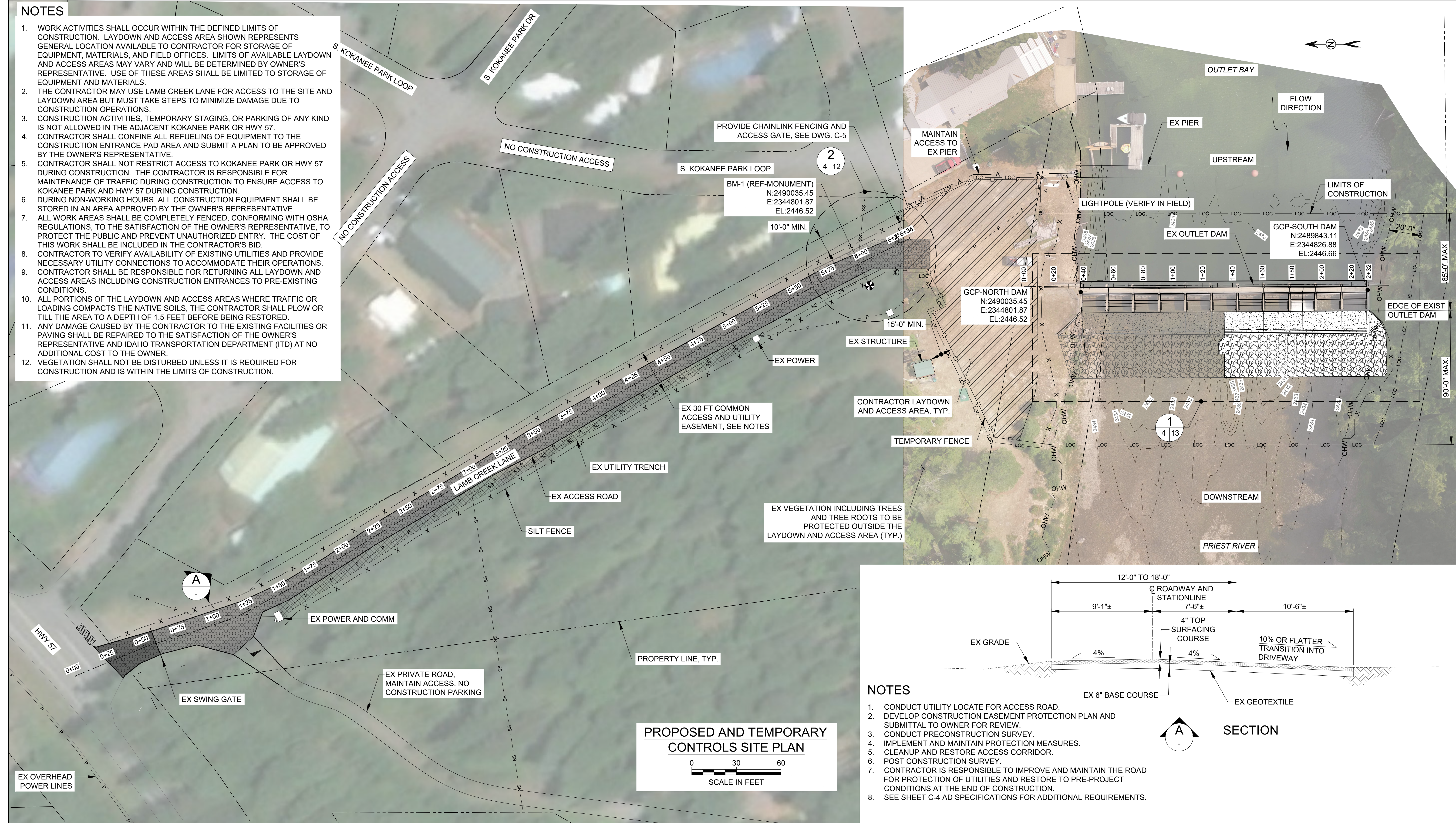
1. THE CONTRACTOR/FABRICATOR IS RESPONSIBLE FOR QC AND THE OWNER'S REPRESENTATIVE MAY PERFORM QA AS DESCRIBED IN AISC. ANY QA PERFORMED BY THE OWNER'S REPRESENTATIVE WILL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO PERFORM BOTH QC AND QA INSPECTION TESTS TO ENSURE THAT ALL PRODUCTS MEET THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY CONCERNING UNACCEPTABLE MATERIALS AND WORKMANSHIP AND THE RESPONSIBILITY TO ACCEPTABLY REPAIR OR REPLACE THE SAME.
2. THE OWNER'S REPRESENTATIVE WILL INSPECT ALL STEEL AT THE TIME OF DELIVERY FOR WORKMANSHIP, FIT, AND CONFORMANCE TO THE CONTRACT DOCUMENTS. ANY MATERIAL WITH DEFECTS, DEFICIENCIES, UNAPPROVED CHANGES OR REPAIRS WILL BE CAUSE FOR IMMEDIATE REJECTION. REJECTED STEEL SHALL BE REMOVED AND REPLACED, OR REPAIRED BY A PROCEDURE APPROVED BY THE OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST TO THE OWNER.

REPAIR REQUIREMENTS:

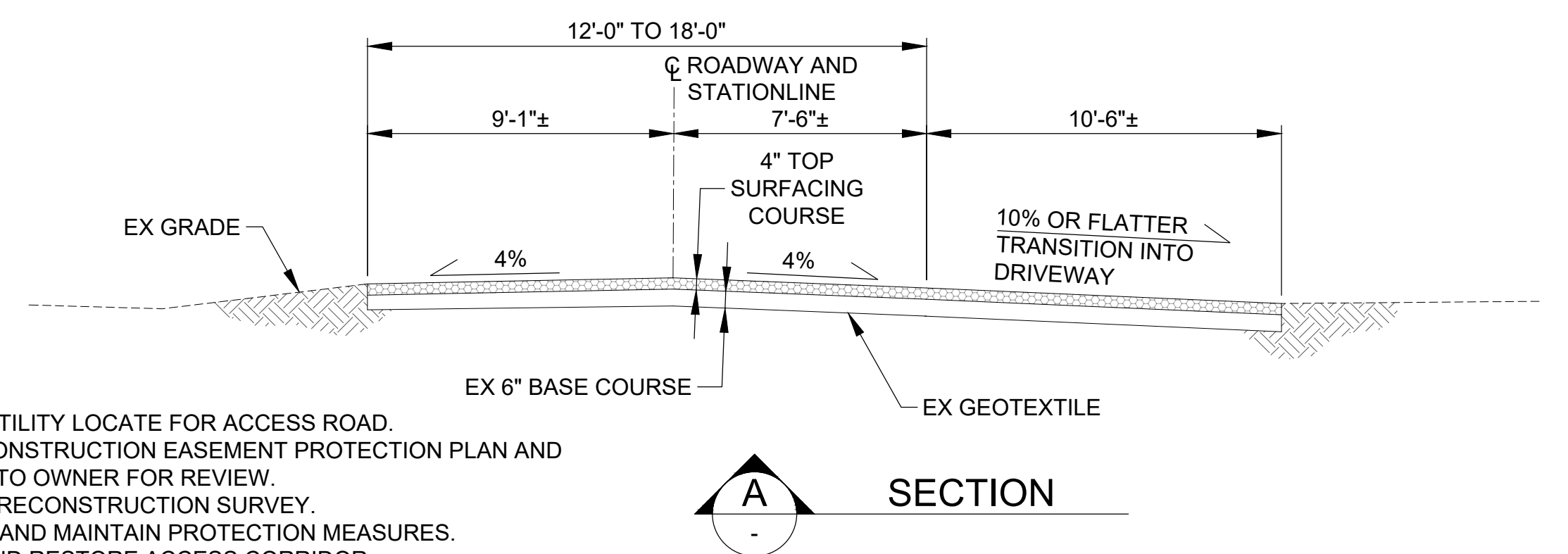
1. ANY REPAIRS TO STRUCTURAL STEEL MEMBER SHALL NOT BE PERFORMED UNTIL THE REPAIR PROCEDURE HAS BEEN APPROVED BY THE ENGINEER OF RECORD.
2. ANY MEMBER THAT HAS BEEN REPAIRED, OR IS BEING REPAIRED, WITHOUT PRIOR APPROVAL FROM THE ENGINEER OF RECORD SHALL BE REJECTED, AND A NEW MEMBER SHALL BE FABRICATED AT NO ADDITIONAL COST TO THE OWNER.
3. ANY MEMBER WITH UNAPPROVED MILL CERTIFICATIONS, CATALOG CUT SHEETS, CHANGES OR REPAIRS, HAS MATERIAL DEFECTS, DISCONTINUITIES, MISPLACED BOLT HOLES, OR HAS BEEN WELDED BY AN UNQUALIFIED WELDER WILL BE CAUSE FOR IMMEDIATE REJECTION. REJECTED STEEL SHALL BE REMOVED AND REPLACED, OR REPAIRED BY A PROCEDURE APPROVED BY THE ENGINEER OF RECORD OR OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST TO THE OWNER.
4. GOVERNING WELDING SPECIFICATION:
 - A.) THE FABRICATION AND WELDING OF ALL WELDS ON STEEL MEMBERS SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT EDITION OF THE AMERICAN WELDING SOCIETY'S STRUCTURAL WELDING CODE - D1.1/D1.1M.
5. SHOP OR FIELD WELDING SHALL NOT BE PERFORMED ON ANY STEEL MEMBER UNTIL:
 - A.) MILL CERTIFICATIONS AND CATALOG CUT SHEETS HAVE BEEN SUBMITTED AND EITHER "APPROVED" OR "APPROVED AS NOTED BY THE OWNER'S REPRESENTATIVE".
 - B.) A COPY OF THE WELDER QUALIFICATIONS HAS BEEN SUBMITTED AND APPROVED BY THE OWNER'S REPRESENTATIVE, FOR ALL PERSONNEL WHO WILL BE WELDING ON THE WORK.
 - C.) THE WELD PROCEDURE SPECIFICATION (WPS) HAS BEEN SUBMITTED AND APPROVED, BY THE OWNER'S REPRESENTATIVE, FOR EACH JOINT IN THE WORK.
 - D.) THE PROCEDURE QUALIFICATION RECORD (PQR) HAS BEEN SUBMITTED AND APPROVED, BY THE OWNER'S REPRESENTATIVE, FOR EACH PROCESS TO BE USED IN THE WORK.
6. WELDER, WELDING OPERATOR, AND TACKER REQUIREMENTS:
 - A.) ALL TACK, FILLET, AND CPGW'S SHALL BE PERFORMED BY WELDERS CURRENTLY QUALIFIED FOR THE POSITION, PROCESS AND LOCATION (FIELD OR SHOP) TO BE USED IN THE WORK IN ACCORDANCE WITH AWS D1.1.
 - B.) ALL PPGW'S SHALL BE PERFORMED BY WELDERS CURRENTLY QUALIFIED FOR THE POSITION, PROCESS AND LOCATION (FIELD OR SHOP) TO BE USED IN THE WORK IN ACCORDANCE WITH AWS D1.1.
7. TEMPORARY AND TACK WELDS:
 - A.) PREHEAT IS REQUIRED FOR FIELD WELDED TEMPORARY OR TACK WELDS.
 - B.) PREHEAT IS REQUIRED WHEN A TACK WELD IS NOT INCORPORATED INTO THE FINAL SUBMERGED ARC WELD.
 - C.) TEMPORARY OR TACK WELDS NOT INCORPORATED INTO THE FINAL WELD SHALL BE GROUND FLUSH WITH THE ORIGINAL SURFACE.
8. BOLTED CONNECTIONS:
 - A.) BOLTING OR DRILLING OF HOLES SHALL NOT BE PERFORMED ON ANY STEEL MEMBER UNTIL THE MILL CERTIFICATIONS AND CATALOG CUT SHEETS HAVE BEEN SUBMITTED AND EITHER "APPROVED" OR "APPROVED AS NOTED BY THE OWNER'S REPRESENTATIVE".
 - B.) BOLT HOLES SHALL NOT BE INSTALLED UNLESS SPECIFICALLY AND ACCURATELY DIMENSIONED ON THE SHOP DRAWINGS. MAXIMUM AND MINIMUM BOLT SPACING, EDGE DISTANCE, STITCH AND SEALING SPACINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF AISC.



[illegible]

1. WORK ACTIVITIES SHALL OCCUR WITHIN THE DEFINED LIMITS OF CONSTRUCTION. LAYDOWN AND ACCESS AREA SHOWN REPRESENTS GENERAL LOCATION AVAILABLE TO CONTRACTOR FOR STORAGE OF EQUIPMENT, MATERIALS, AND FIELD OFFICES. LIMITS OF AVAILABLE LAYDOWN AND ACCESS AREAS MAY VARY AND WILL BE DETERMINED BY OWNER'S REPRESENTATIVE. USE OF THESE AREAS SHALL BE LIMITED TO STORAGE OF EQUIPMENT AND MATERIALS.
2. THE CONTRACTOR MAY USE LAMB CREEK LANE FOR ACCESS TO THE SITE AND LAYDOWN AREA BUT MUST TAKE STEPS TO MINIMIZE DAMAGE DUE TO CONSTRUCTION OPERATIONS.
3. CONSTRUCTION ACTIVITIES, TEMPORARY STAGING, OR PARKING OF ANY KIND IS NOT ALLOWED IN THE ADJACENT KOKANEE PARK OR HWY 57.
4. CONTRACTOR SHALL CONFINE ALL REFUELING OF EQUIPMENT TO THE CONSTRUCTION ENTRANCE PAD AREA AND SUBMIT A PLAN TO BE APPROVED BY THE OWNER'S REPRESENTATIVE.
5. CONTRACTOR SHALL NOT RESTRICT ACCESS TO KOKANEE PARK OR HWY 57 DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF TRAFFIC DURING CONSTRUCTION TO ENSURE ACCESS TO KOKANEE PARK AND HWY 57 DURING CONSTRUCTION.
6. DURING NON-WORKING HOURS, ALL CONSTRUCTION EQUIPMENT SHALL BE STORED IN AN AREA APPROVED BY THE OWNER'S REPRESENTATIVE.
7. ALL WORK AREAS SHALL BE COMPLETELY FENCED, CONFORMING WITH OSHA REGULATIONS, TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE, TO PROTECT THE PUBLIC AND PREVENT UNAUTHORIZED ENTRY. THE COST OF THIS WORK SHALL BE INCLUDED IN THE CONTRACTOR'S BID.
8. CONTRACTOR TO VERIFY AVAILABILITY OF EXISTING UTILITIES AND PROVIDE NECESSARY UTILITY CONNECTIONS TO ACCOMMODATE THEIR OPERATIONS.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR RETURNING ALL LAYDOWN AND ACCESS AREAS INCLUDING CONSTRUCTION ENTRANCES TO PRE-EXISTING CONDITIONS.
10. ALL PORTIONS OF THE LAYDOWN AND ACCESS AREAS WHERE TRAFFIC OR LOADING COMPACTS THE NATIVE SOILS, THE CONTRACTOR SHALL PLOW OR TILL THE AREA TO A DEPTH OF 1.5 FEET BEFORE BEING RESTORED.
11. ANY DAMAGE CAUSED BY THE CONTRACTOR TO THE EXISTING FACILITIES OR PAVING SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE AND IDAHO TRANSPORTATION DEPARTMENT (ITD) AT NO ADDITIONAL COST TO THE OWNER.
12. VEGETATION SHALL NOT BE DISTURBED UNLESS IT IS REQUIRED FOR CONSTRUCTION AND IS WITHIN THE LIMITS OF CONSTRUCTION.

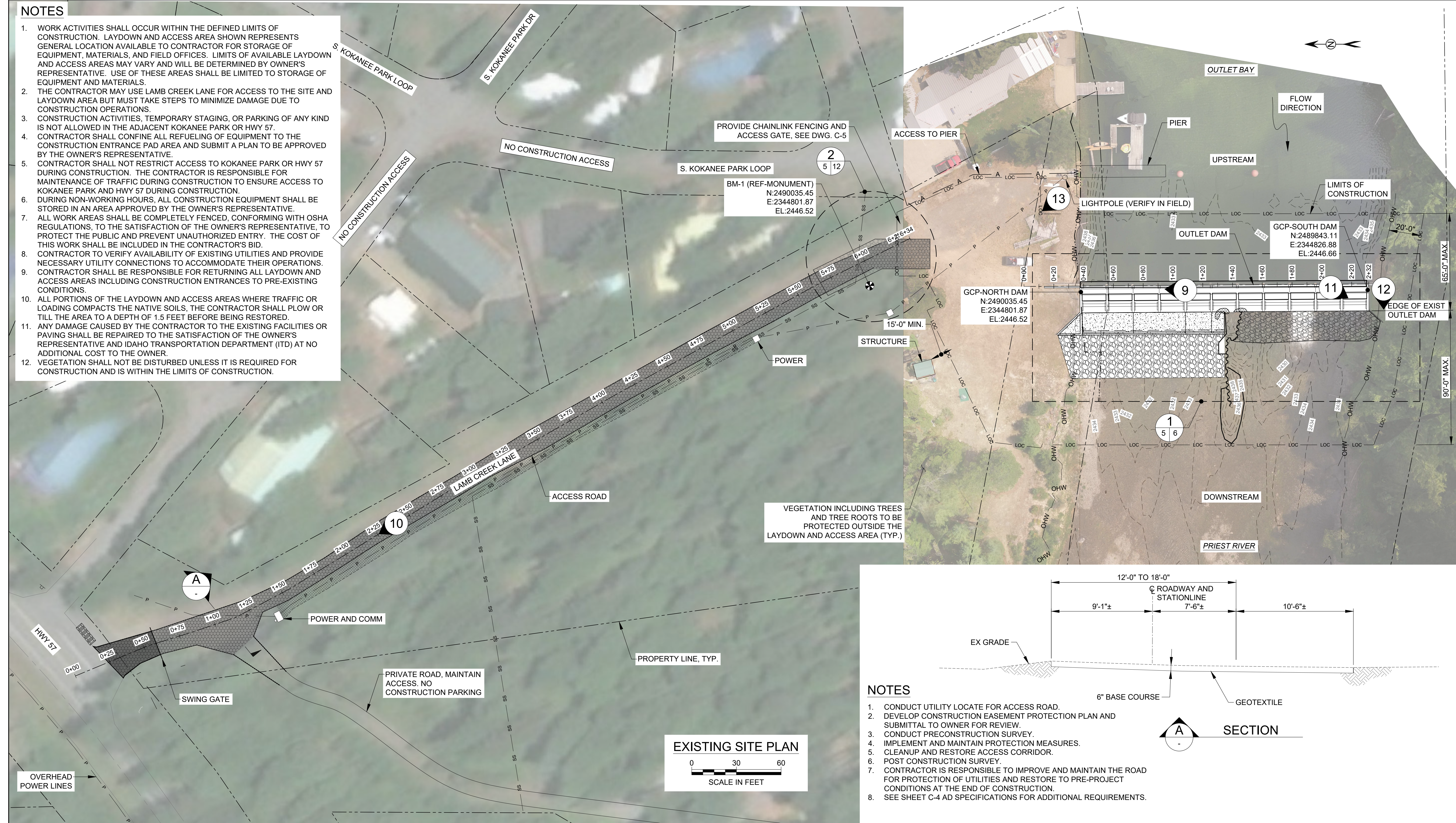


1. CONDUCT UTILITY LOCATE FOR ACCESS ROAD.
2. DEVELOP CONSTRUCTION EASEMENT PROTECTION PLAN AND SUBMITTAL TO OWNER FOR REVIEW.
3. CONDUCT PRECONSTRUCTION SURVEY.
4. IMPLEMENT AND MAINTAIN PROTECTION MEASURES.
5. CLEANUP AND RESTORE ACCESS CORRIDOR.
6. POST CONSTRUCTION SURVEY.
7. CONTRACTOR IS RESPONSIBLE TO IMPROVE AND MAINTAIN THE ROAD FOR PROTECTION OF UTILITIES AND RESTORE TO PRE-PROJECT CONDITIONS AT THE END OF CONSTRUCTION.
8. SEE SHEET C-4 AD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

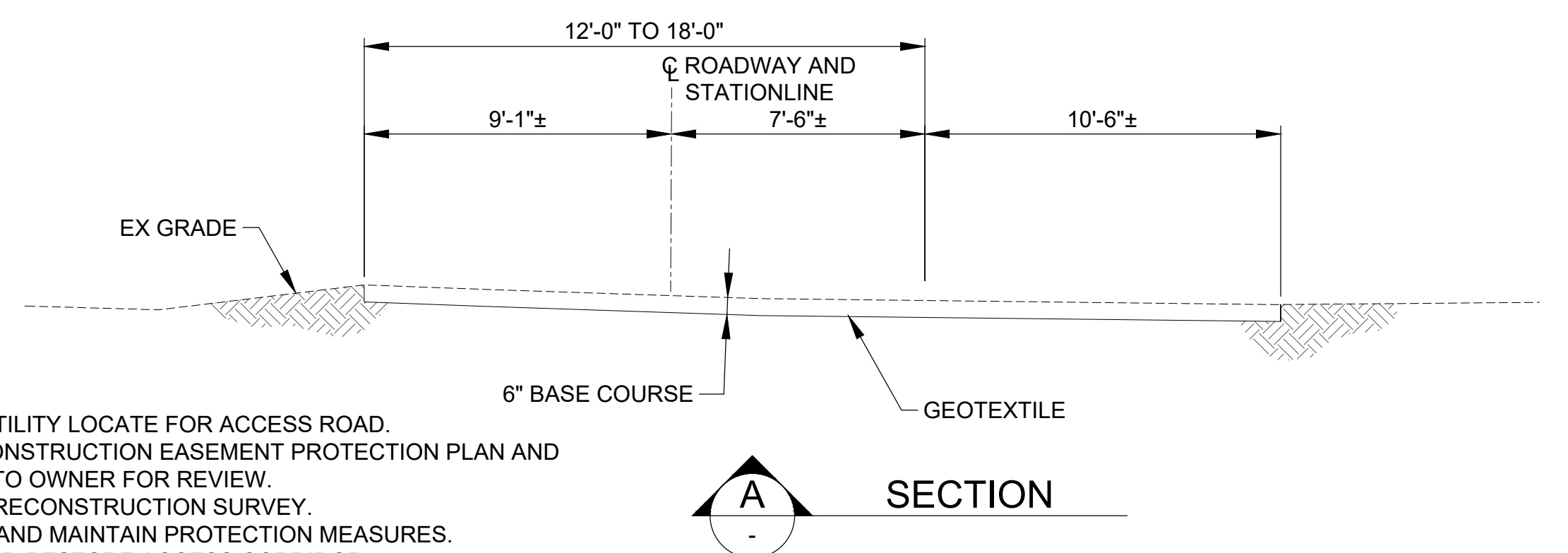


<div style="text-align: center;">  <p>MOTT MACDONALD</p> </div> <p>1601 5th Avenue Suite 800 Seattle, Washington 98101</p> <p>T +1 (425) 778 6243 W mottmac.com</p>	<p>Client</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>IDAHO DEPARTMENT OF WATER RESOURCES</p> <p>322 Front Street Suite 648 P.O. Box 83720 Boise, Idaho 83702 P (208) 287-4800 F (208) 287-6700</p> </div> </div>													<div style="border: 2px solid black; border-radius: 20px; padding: 10px; font-size: 2em; font-weight: bold;">PRELIMINARY</div>	Designed	A. Hart		Eng check	P. Kobialka		Title Priest Lake Water Management Project Outlet Dam Improvements PROPOSED WORK AND CONSTRUCTION ACCESS PLAN
		Drawn	T. Morrison		Coordination	J. Dawson															
		Dwg check	J. Dawson		Approved	E. Sheesley															
		Scale as ANSI D As Noted		Status	Rev		Security														
		Drawing Number		GP-1																	
Project Number		B/O	Total																		
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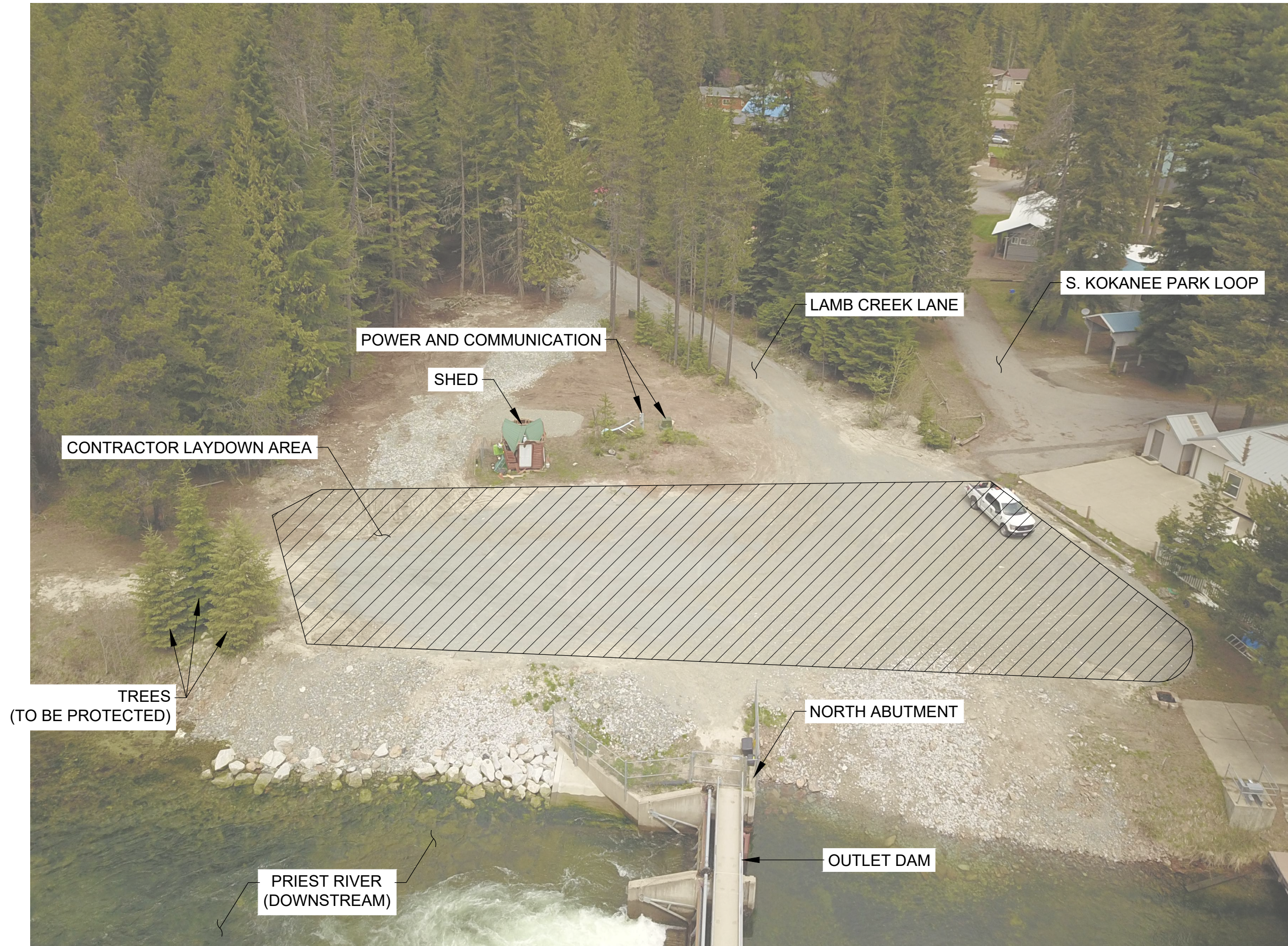
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8. SEE SHEET C-4 AD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

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AERIAL PHOTO 9



GROUND PHOTO 10



GROUND PHOTO 13



GROUND PHOTO 11



GROUND PHOTO 12



1601 5th Avenue
Suite 800
Seattle, Washington 98101

T +1 (425) 778 6243
W mottmac.com



IDAHO
DEPARTMENT OF WATER RESOURCES
322 Front Street Suite 648
P.O. Box 83720
Boise, Idaho 83702
P (208) 287-4800
F (208) 287-6700

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Rev	Date	Drawn	Description	Ch'k'd	App'd						

PRELIMINARY

Project Number
376997

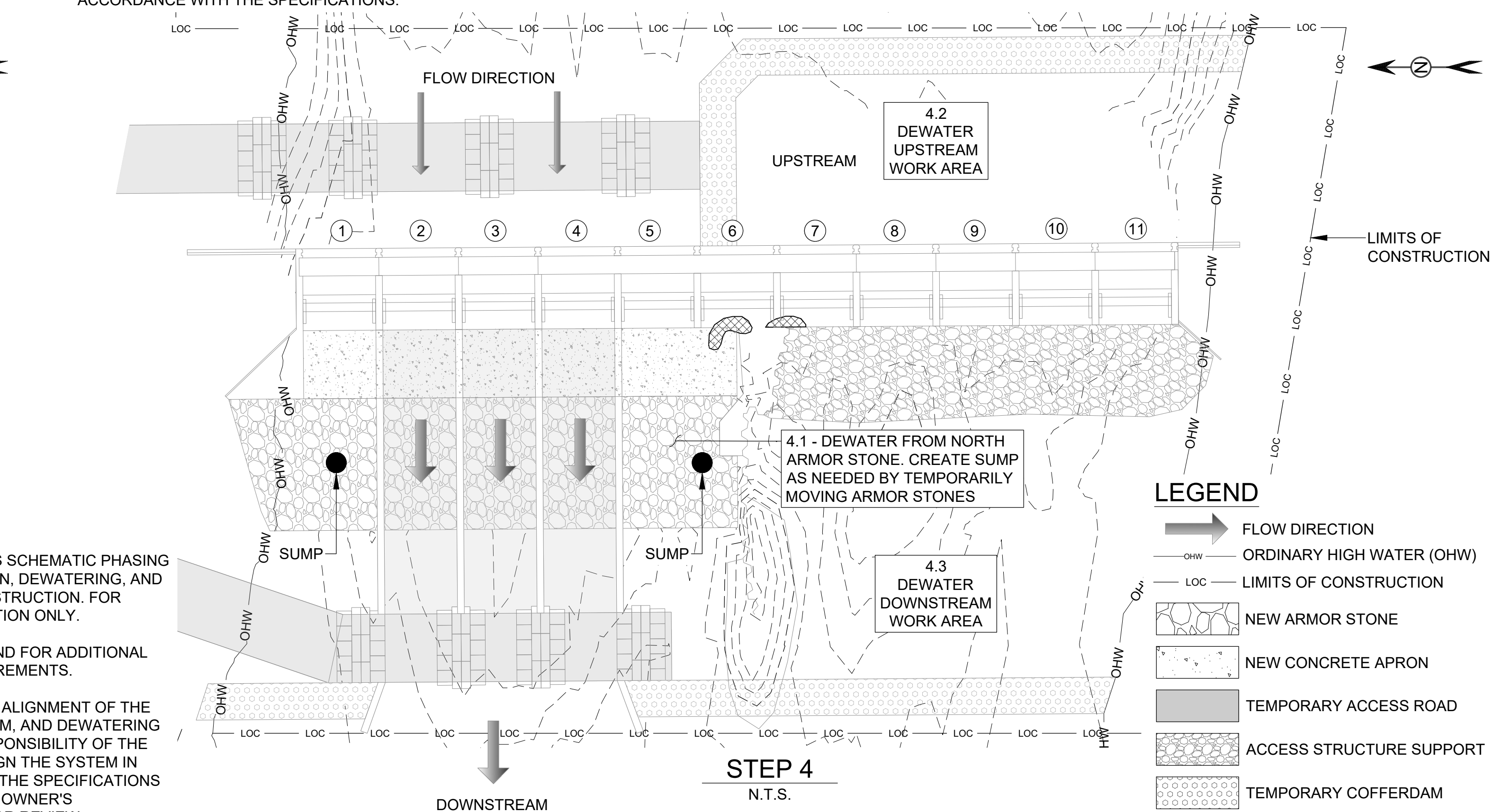
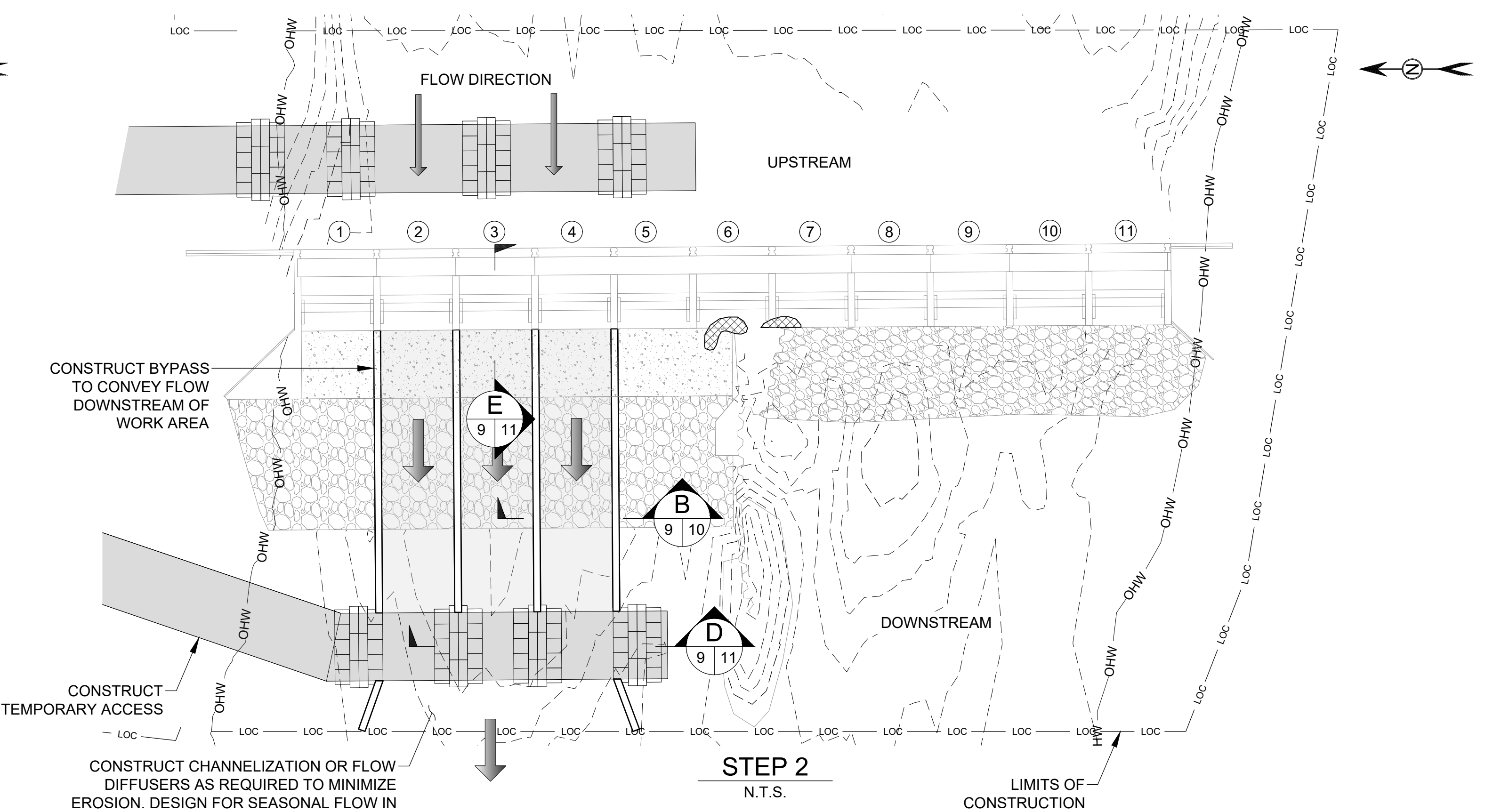
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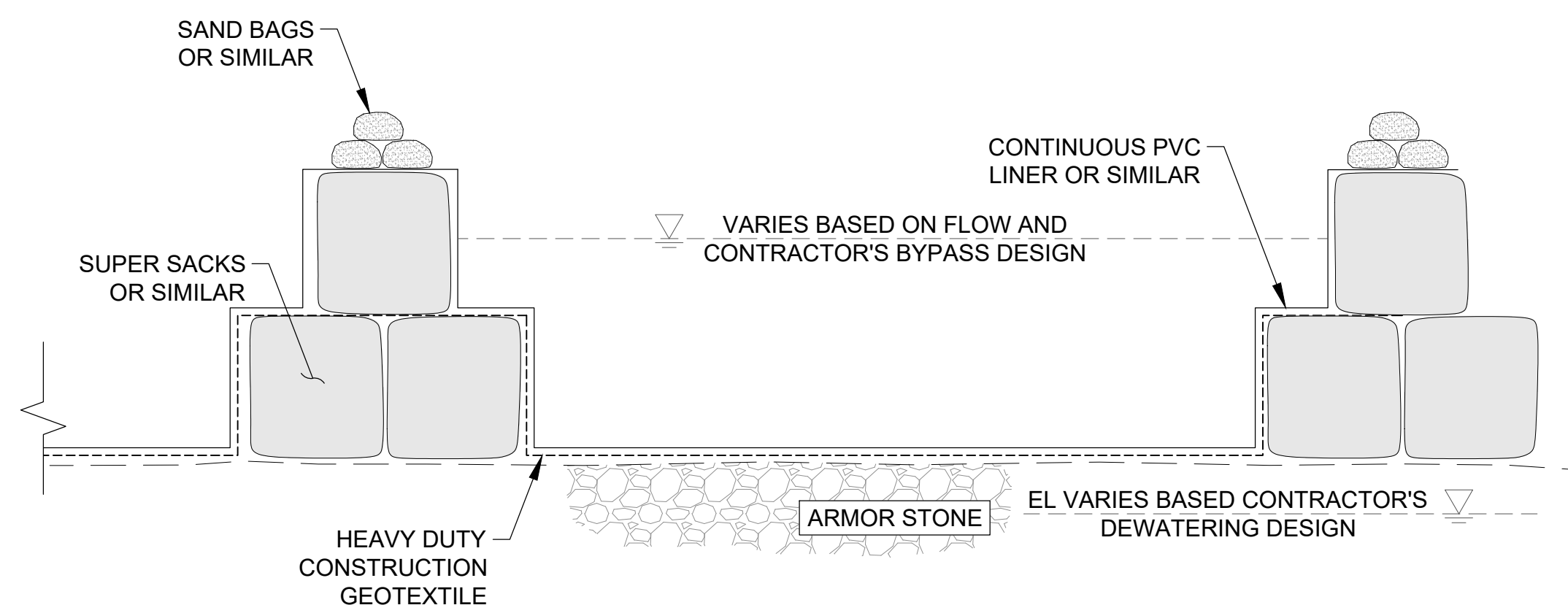
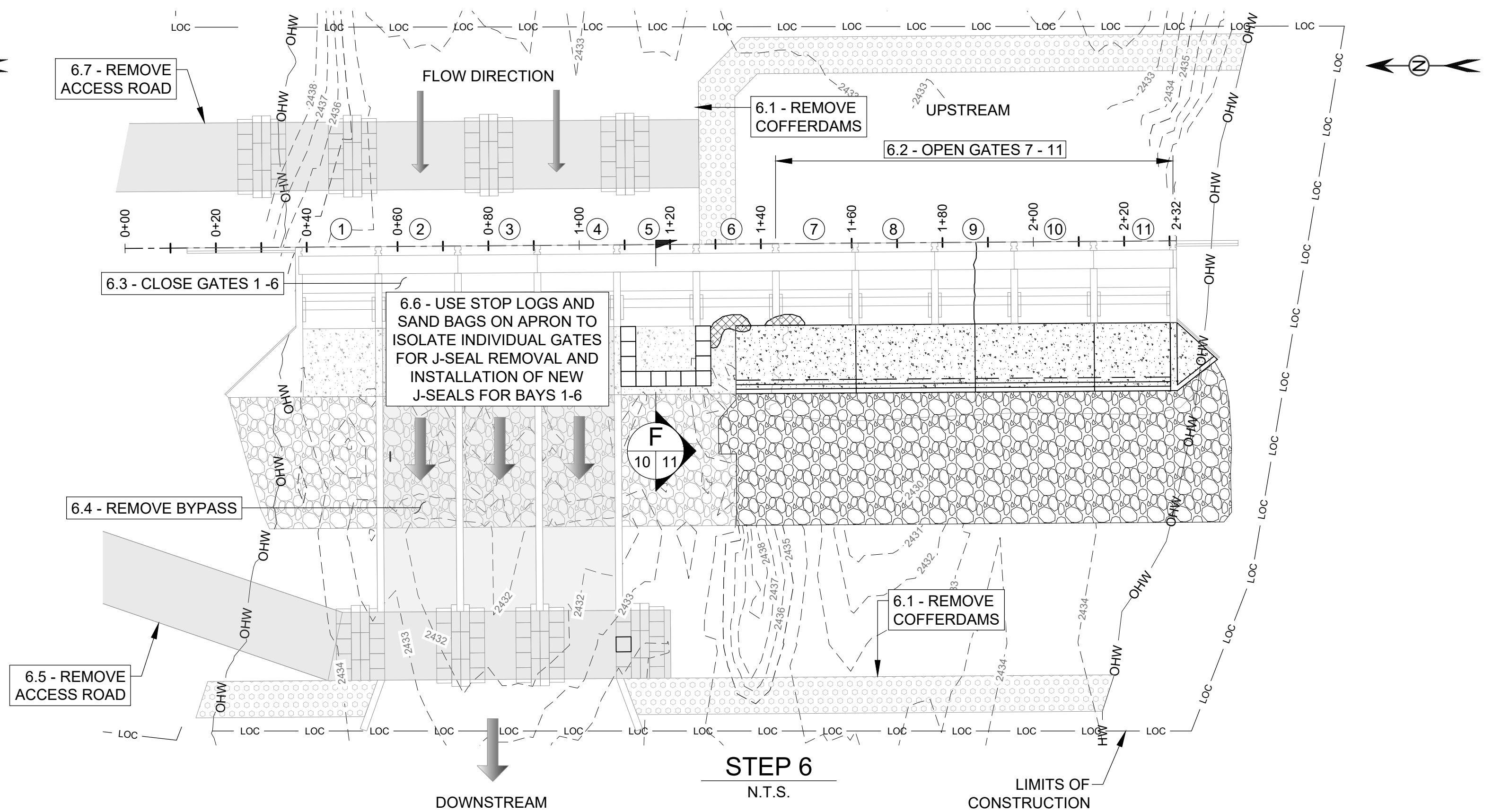
Designed	A. Hart		Eng check	P. Kobialka	
Drawn	T. Morrison		Coordination	J. Dawson	
Dwg check	J. Dawson		Approved	E. Sheesley	
Scale at ANSI D	Status		Rev		Security
Drawing Number					
PH-2					









Title
**Priest Lake Water
Management Project
Outlet Dam Improvements**

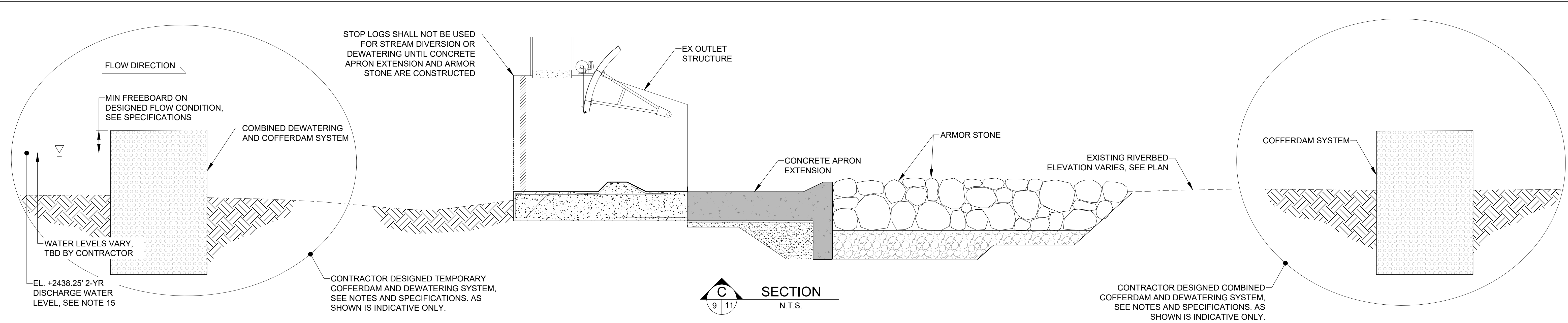
**PHOTOS SHEET -
EXISTING CONDITIONS 2**



1. THIS SHEET DEPICTS SCHEMATIC PHASING FOR FLOW DIVERSION, DEWATERING, AND PROGRESS OF CONSTRUCTION. FOR CONCEPT ILLUSTRATION ONLY.
2. SEE DRAWING C-4 AND FOR ADDITIONAL DETAILS AND REQUIREMENTS.
3. THE DESIGN OF AND ALIGNMENT OF THE BYPASS, COFFER DAM, AND DEWATERING SYSTEM IS THE RESPONSIBILITY OF THE CONTRACTOR. DESIGN THE SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS AND SUBMIT TO THE OWNER'S REPRESENTATIVE FOR REVIEW.



- | | |
|---|---------------------------|
|  | FLOW DIRECTION |
|  | ORDINARY HIGH WATER (OHW) |
|  | LIMITS OF CONSTRUCTION |
|  | NEW ARMOR STONE |
|  | NEW CONCRETE APRON |
|  | TEMPORARY ACCESS ROAD |
|  | ACCESS STRUCTURE SUPPORT |
|  | TEMPORARY COFFERDAM |



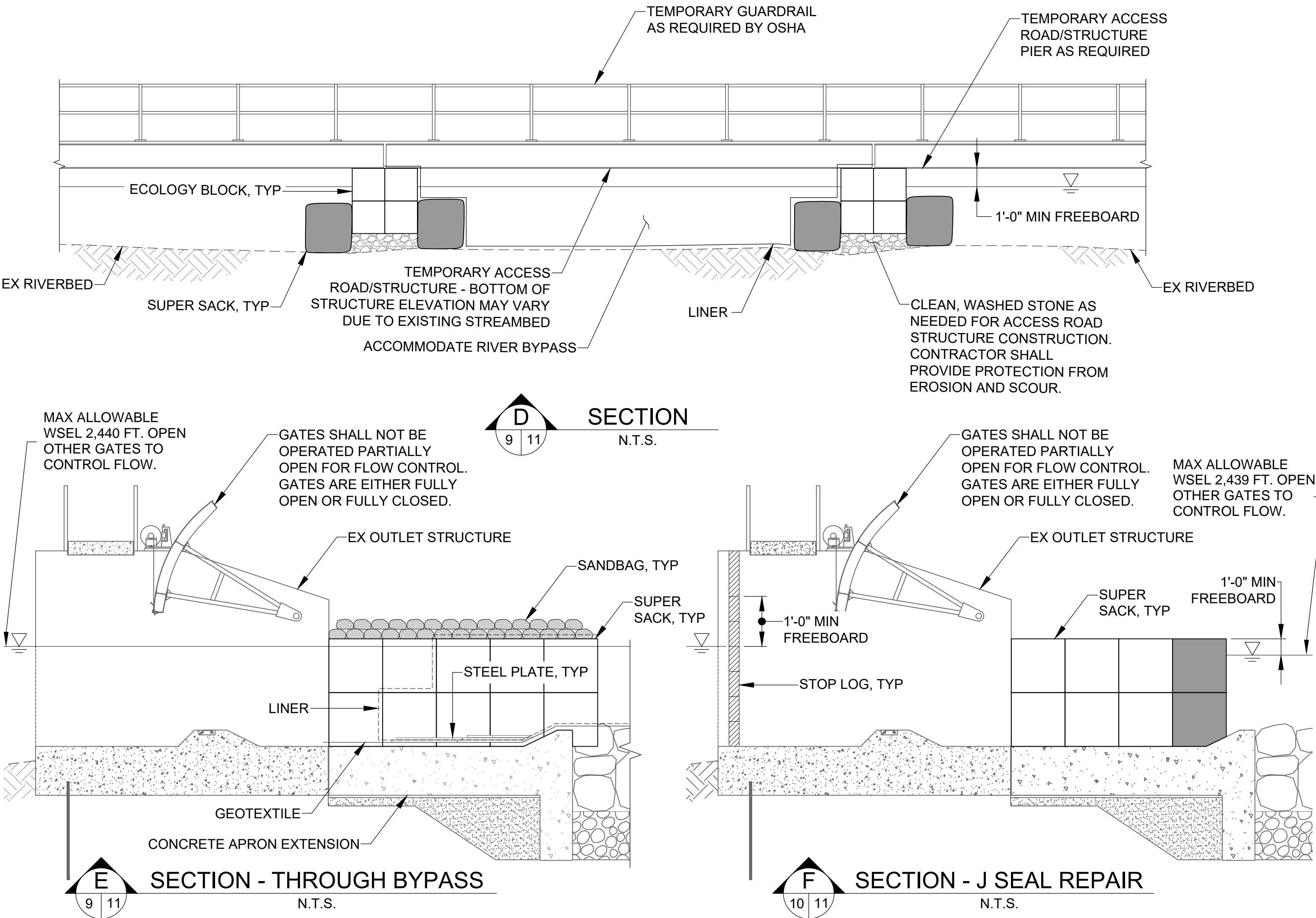
CONSTRUCTION PHASING NOTES

1. COMBINED FLOW DIVERSION, COFFERDAM, AND DEWATERING SYSTEM
 - A. CONSTRUCTION PHASING IS ENVISIONED IN THE FOLLOWING ORDER; HOWEVER THE ACTUAL PHASING AND MEANS AND METHODS USED FOR COMPLETION OF THE WORK SHALL BE DETERMINED BY, AND ARE THE SOLE RESPONSIBILITY OF, THE CONTRACTOR:
 - CONSTRUCT BYPASS, ACCESS ROAD, AND SILT CURTAINS.
 - INSTALL COFFERDAMS.
 - INSTALL DEWATERING, WATER DISCHARGE CONTROL SETTLING BASIN, AND DEWATER WORK AREA.
 - REMOVE EXIST SHEETPILES.
 - ALLOW ENGINEER TO INSPECT UNDER EXISTING APRON AND APRON EXTENSION.
 - CONSTRUCT APRON EXTENSION AND ARMOR STONE. CONSTRUCT SOUTH SIDE GATE MODIFICATIONS.
 - DISCONTINUE PUMPING AND ALLOW COFFERDAM AREA TO FLOOD TO THE LEVEL OF THE ADJACENT POOL.
 - REMOVE COFFERDAMS AND RESTORE SITE SOUTH SIDE OF RIVERBED.
 - REMOVE BYPASS STRUCTURE AND ACCESS ROAD AND RESTORE SITE NORTH SIDE OF RIVERBED.
 - USE STOPLOGS AND SANDBAGS TO ISOLATE INDIVIDUAL GATES FOR J-SEAL REPAIRS.
 - REMOVE ALL TEMPORARY WORKS AND RESTORE SITE.
 - B. THE COMBINED FLOW DIVERSION, COFFERDAM, AND DEWATERING SYSTEM SHALL BE DESIGNED BY THE CONTRACTOR, SEE SPECIFICATIONS.
 - C. A DEWATERING SYSTEM SHALL BE USED TO CONTROL BOTH SURFACE WATER AND GROUNDWATER, SEE SPECIFICATIONS FOR WATER QUALITY REQUIREMENTS.
2. THE CONTRACTOR SHALL PROVIDE A COMBINED FLOW DIVERSION, COFFERDAM, AND DEWATERING SYSTEM THAT WILL ALLOW FOR CONSTRUCTION OF THE WORK WITHIN THE LIMITS SHOWN ON THE PLAN. THE PLANS SHOWN ARE SCHEMATIC ONLY. ALL DESIGNS, DETAILS, AND PLACEMENTS ARE THE RESPONSIBILITY OF THE CONTRACTOR. SEE SPECIFICATION FOR ADDITIONAL REQUIREMENTS.
3. THE CONTRACTOR SHALL HAVE A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF IDAHO PREPARE A SET OF COFFERDAM AND DEWATERING SYSTEM PLANS AND CALCULATIONS WHICH ARE TO BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW AND APPROVAL. ALL PLANS AND CALCULATIONS SHALL BEAR THE SEAL AND SIGNATURE OF THE PROFESSIONAL ENGINEER LICENSED IN THE STATE OF IDAHO PREPARING THE DOCUMENTS.
4. CONTRACTOR SHALL CONSTRUCT SEDIMENT TRAPS THAT DRAIN BY GRAVITY FLOW OR MECHANICAL MEANS (PUMPS) TO PREVENT TURBID WATER FROM ENTERING THE RIVER.
5. CONTRACTOR'S COMBINED FLOW DIVERSION, COFFERDAM, AND DEWATERING SYSTEM DESIGN SHALL INCLUDE DETAILS FOR THE CONNECTIONS AT THE PIER AND ABUTMENT INTERFACES TO SEAL THEM AND CONTROL SEEPAGE.
6. CONTRACTOR'S COMBINED FLOW DIVERSION, COFFERDAM, AND DEWATERING SYSTEM DESIGN SHALL INCLUDE DETAILS FOR TRANSITIONS BETWEEN PHASES AND SHALL INCLUDE DETAILS FOR CONNECTIONS TO EXISTING STRUCTURES NEEDED TO SEAL THE COFFERDAMS AND CONTROL SEEPAGE.

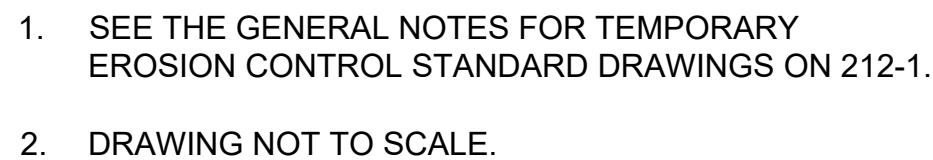
7. CONTOURS SHOWN MIGHT NOT DEPICT ALL CONDITIONS WITHIN THE STREAMBED THAT COULD EFFECT THE DESIGN OF THE COFFERDAMS AND HEIGHT OF RETAINED WATER. CONTRACTOR IS RESPONSIBLE FOR PERFORMING A FIELD PRE-CONSTRUCTION SURVEY OF THE RIVERBED TO ENSURE THE DESIGN OF THE COFFERDAMS COVERS ALL CONDITIONS ENCOUNTERED DURING INSTALLATION AND CONSTRUCTION OPERATIONS. SEE SPECIFICATIONS FOR REQUIREMENTS.
8. CONTRACTOR SHALL CONSTRUCT A TEMPORARY SEDIMENT SETTLING SYSTEM FOR WATER DISCHARGE CONTROL AND PERFORM DEWATERING FOR THE DURATION OF THE WORK.
9. CONTRACTOR SHALL PROVIDE PUMPING AND MAINTENANCE OF THE WATER DISCHARGE CONTROL SETTLING BASIN FOR THE DURATION OF THE PROJECT.
10. CONTRACTOR SHALL DISCONTINUE PUMPING AND ALLOW THE COFFERDAM AREA TO FLOOD TO THE LEVEL OF ADJACENT POOL UPON COMPLETION AND ACCEPTANCE OF THE WORK REQUIRING COFFERDAMS BY OWNER'S REPRESENTATIVE.
11. REMOVAL OF THE COMBINED SYSTEM SHALL NOT CAUSE AN INCREASE IN TURBIDITY IN THE RIVERBED.
12. CONTRACTOR SHALL DETERMINE THE METHOD TO REDUCE TURBIDITY DURING CONSTRUCTION TO MEET PERMIT REQUIREMENTS. SILT CURTAIN IS INDICATIVE ONLY AND SHOWN DURING COFFERDAM INSTALLATION, ACCESS STRUCTURE CONSTRUCTION, AND EXCAVATION OPERATIONS.
13. HISTORICAL STREAMFLOW DISCHARGE STATISTICS (2, 5, AND 10-YR) ARE PROVIDED IN THE TECHNICAL SPECIFICATIONS AND APPENDICES. CONTRACTOR TO DETERMINE THE REQUIRED DESIGN POOL ELEVATION COMBINED FLOW DIVERSION, COFFERDAM, AND DEWATERING SYSTEM DESIGN. WATER LEVELS DURING CONSTRUCTION WILL VARY BASED ON STREAM DISCHARGE AND THE NUMBER OF SPILLWAY BAYS THAT ARE CLOSED OFF FOR THE FLOW DIVERSION. CONTRACTOR TO DETERMINE DEPTH OF FLOW AND DESIGN THE COFFERDAM AND DEWATERING SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS.
14. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING THE WORK, PRIOR TO FINAL ACCEPTANCE, FOR FLOW CONDITIONS UP TO A 10-YR FLOW EVENT, SEE TECHNICAL SPECIFICATIONS.
15. 2-YR DISCHARGE WATER ELEVATION SHOWN IS UPSTREAM OF THE DAM WITH ALL GATES OPEN WITHOUT A COFFERDAM. REFER TO SPECIFICATIONS FOR DISCHARGE FLOW RATES AND COFFER DAM DESIGN REQUIREMENTS.

TEMPORARY ACCESS ROAD/STRUCTURE NOTES

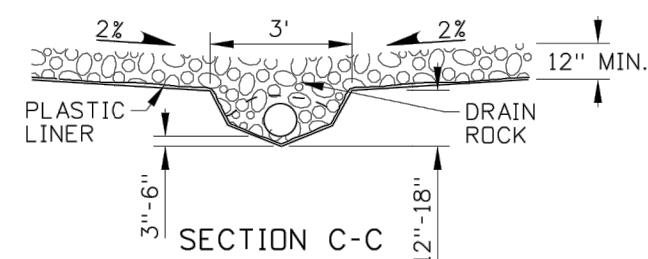
1. CONTRACTOR SHALL CONSTRUCT A TEMPORARY ACCESS ROAD/STRUCTURE FOR CONSTRUCTION ACCESS AS NEEDED. THE ACCESS ROAD/STRUCTURE SHOWN ABOVE IS SCHEMATIC. TEMPORARY ACCESS ROAD/STRUCTURE DESIGN, DETAILING, AND PLACEMENT IS THE RESPONSIBILITY OF THE CONTRACTOR.
2. THE CONTRACTOR SHALL HAVE A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF IDAHO PREPARE A SET OF PLANS AND CALCULATIONS WHICH WILL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW AND APPROVAL. ALL PLANS AND CALCULATIONS SHALL BEAR THE SEAL AND SIGNATURE OF THE PROFESSIONAL ENGINEER LICENSED IN THE STATE OF IDAHO PREPARING THE DOCUMENTS.



<div>MOTT MACDONALD</div> <div>1601 5th Avenue Suite 800 Seattle, Washington 98101</div> <div>T +1 (425) 778 6243 W mottmac.com</div>	<div>Client</div> <div><div><div>IDAHO</div><div>WATER RESOURCE BOARD</div></div><div>IDAHO DEPARTMENT OF WATER RESOURCES 322 Front Street Suite 648 P.O. Box 83720 Boise, Idaho 83702 P (208) 287-4800 F (208) 287-6700</div></div>							<div>PRELIMINARY</div>			Designed A. Hart Drawn T. Morrison Dwg check J. Dawson Scale at ANSI D N.T.S. Status Rev Security				<div>Title</div> <div>Priest Lake Water Management Project Outlet Dam Improvements</div> <div>DEWATERING DETAILS</div>			
								Project Number 376997 B/O 11 Total 25			Drawing Number C-3							
				0	3/23/23	TM	90% Draft Deliverable	JD	SK									
				Rev	Date	Drawn	Description	Ch'k'd	App'd									



SILT FENCE SPACING TABLE			
SLOPE	SOIL TYPE		
	SILTY	CLAYS	SANDY
1:1	50 FT	75 FT	100 FT
2:1	75 FT	100 FT	125 FT
4:1	100 FT	125 FT	150 FT
10:1 OR FLATTER	125 FT	150 FT	200 FT



PROVIDE WASHDOWN AREA IN ACCORDANCE
WITH ITD STANDARD DRAWING 212-6.

MATCH EXISTING GRADE

EXISTING PAVED ROADWAY

SEE BALAST DETAIL

CAPTURED RUNOFF TO A SEDIMENT TRAP

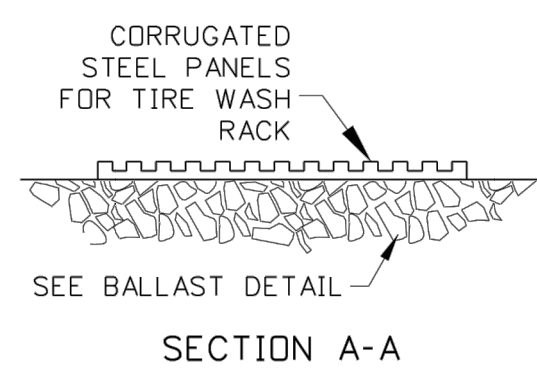
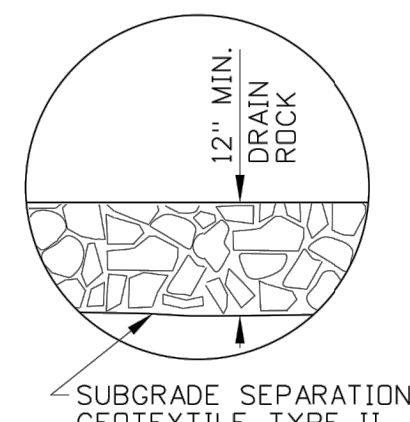
OPTIONAL TIRE WASH RACK (SEE NOTE NO. 2)

DRAIN ROCK

GREATER OF 50 OR FOUR TIMES THE CIRCUMFERENCE OF THE LARGEST CONSTRUCTION VEHICLE TIRE

WIDTH TO ACCOMMODATE ANTI-POLLUTION EQUIPMENT

PERPENDICULAR TO HIGHWAY



2 TEMPORARY CONSTRUCTION ENTRANCE
4 12 N.T.S.

PROVIDE TEMPORARY CONSTRUCTION ENTRANCE IN ACCORDANCE WITH ITD STANDARD DRAWING 212-6.



1. INSTALL TEMPORARY SEDIMENT CONTROL BARRIERS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND SPECIFICATIONS. THE DIMENSIONS SHOWN ARE GENERAL GUIDELINES.
2. PLACE SEDIMENT BARRIERS TO FOLLOW THE SLOPE CONTOURS. METAL POSTS OR WOOD STAKES MAY BE USED.
3. ENSURE THAT RUNOFF PASSES THROUGH THE SILT FENCE AND NOT AROUND THE FENCE.
4. THE NEED FOR TEMPORARY SEDIMENT CONTROL DEVICES ARE DETERMINED BY SITE DESIGN. SPACE SILT FENCES IN ACCORDANCE WITH THE SILT FENCE SPACING TABLE.
5. EXTEND OR JOIN SILT FENCE USING SILT FENCE LAP WITH NESTED POSTS.
6. REMOVE SEDIMENT FROM THE UPSLOPE SIDE OF SILT FENCES WHEN ACCUMULATION HAS REACHED THE EFFECTIVE HEIGHT OF THE BARRIER.
7. SILT CURTAIN SHALL BE A MAXIMUM OF 100 FEET LONG FOR EACH SECTION OF CURTAIN REQUIRED. END SECTIONS SHALL TERMINATE 10 FEET BEYOND THE LIMIT OF DISTURBANCE.
8. THE SILT CURTAIN SHALL BE PLACED AS CLOSE TO THE WORK AS POSSIBLE WITHOUT INTERFERING WITH CONSTRUCTION OPERATIONS.
9. THE CONTRACTOR SHALL CONTINUALLY MONITOR THE INSTALLATION, TAKING INTO ACCOUNT WEATHER PATTERNS AND PREVAILING WIND DIRECTIONS THAT MAY AFFECT WATER LEVELS, VELOCITY AND MOVEMENT OF THE SILT CURTAIN.
10. THE SILT CURTAIN SHALL BE REMOVED BY PULLING TOWARD THE SHORE TO MINIMIZE ESCAPE OF SEDIMENTS INTO THE WATERWAY.
11. THE WEIGHTED ANCHORING SYSTEM SHALL BE A TYPE THAT ALLOWS THE CURTAIN TO CONFORM TO THE CONTOUR OF THE BOTTOM OF THE WATERWAY.
12. CONSTRUCTION, DISTURBANCE AND LAYDOWN AREAS SHOWN ON PLAN ARE APPROXIMATE AND THE CONTRACTOR IS RESPONSIBLE FOR THE COST RELATED TO CHANGES TO THE SWPP AT NO ADDITIONAL COST TO THE OWNER IF ANY OF THESE AREAS ARE EXCEEDED.
13. THE CONTRACTOR IS RESPONSIBLE TO ENSURE ALL AREAS OF SOIL DISTURBANCE ARE STABILIZED DURING CONSTRUCTION AND WHENEVER WORK IS SUSPENDED ON THE PROJECT. CONTRACTOR SHALL SEED AND MULCH THESE AREAS AS REQUESTED BY THE OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST TO THE OWNER.
14. CONTRACTOR SHALL NOT WASH CONCRETE TRUCKS ONTO THE BARE GROUND, DIRECTLY INTO STORM OR SANITARY SYSTEMS INCLUDING SWALES, DITCHES OR ADJACENT PROPERTIES. EXCESS CONCRETE AND WASH WATER SHALL BE COLLECTED IN WASH BASIN AND DISPOSED OF PROPERLY.

① SPECIAL CONDITIONS APPLY TO THE USE OF LAMB CREEK LANE, SEE TECHNICAL SPECIFICATIONS AND DRAWING NUMBER C-6. THE FOLLOWING CONDITIONS APPLY TO THE ACCESS ROAD:

CONTRACTOR SHALL PROVIDE PERIODIC GRAVEL AND GRADING TO ENSURE RUTTING DOESN'T OCCUR AND ROAD SECTION IS MAINTAINED THROUGHOUT THE DURATION OF CONSTRUCTION.

CONTRACTOR SHALL INSTALL STEEL TRENCH PLATES AT LOCATION WHERE CONSTRUCTION TRAFFIC WILL PASS OVER BURIED UTILITIES WITH LESS THAN 4 FEET OF COVER AND ALL LATERALS TO EACH LOT.

② CONTRACTOR ACCESS OUTSIDE OF THE INDICATED ACCESS ROAD ROUTE AND PROJECT SITE LIMITS WILL NOT BE ALLOWED WITHOUT PRIOR APPROVAL FROM THE OWNER.

③ CONTRACTOR SHALL ACTIVELY CLEAR THE ACCESS ROAD HAUL ROUTE DURING PERIODS WHEN SNOW IS PRESENT, AND IT PRECLUDES SAFE EQUIPMENT ACCESS TO THE PROJECT SITE LIMITS.

4 CONSTRUCTION ACCESS TO HAVE CHAINLINK SECURITY FENCING AND GATE TO PRECLUDE PUBLIC ACCESS DURING NON-WORKING HOURS.

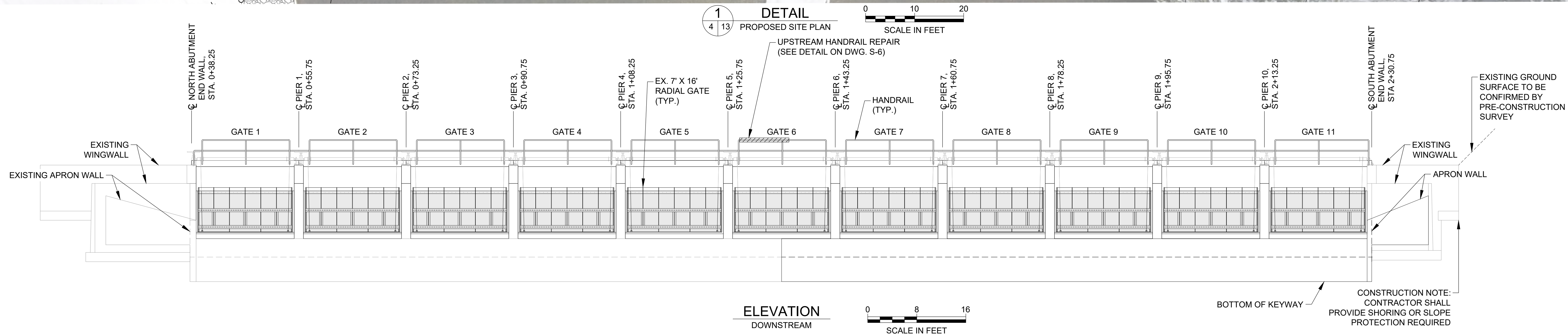
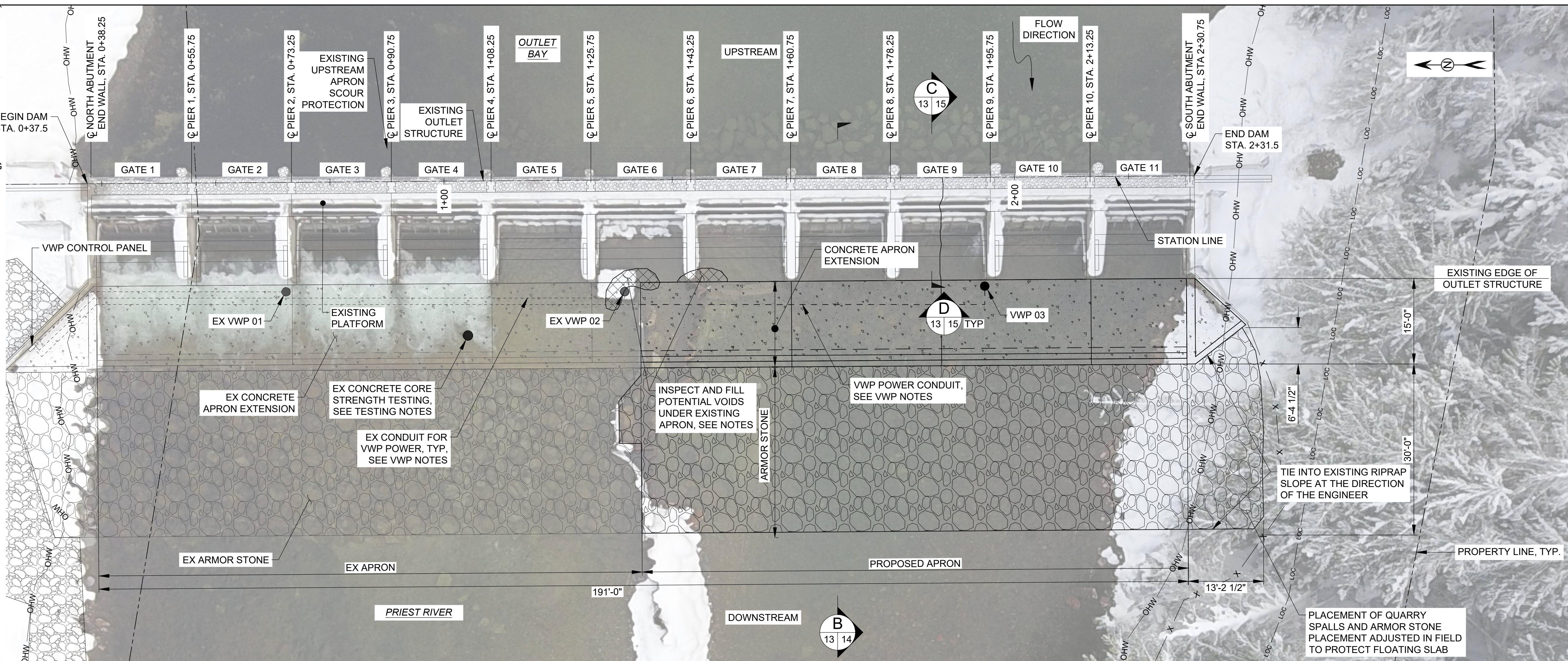
⑤ CONSTRUCTION SAFETY FENCING SHALL BE INSTALLED ALONG ACCESS CORRIDOR FROM SANDPIPER SHORE ROAD LOT 10 TO OHW LINE.

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1. CONDUIT FOR VWP CABLING SHOULD EXTEND CABLES TO VWP CONTROL PANEL. AT VWP CONTROL PANEL, WIRES SHALL BE STRIPPED BARE TO TAKE READINGS, BUT IN A HOUSING PROVIDING PROTECTION FROM WEATHER. WIRES SHALL BE LABELED TO CLEARLY DIFFERENTIATE WIRING.
2. CONDUIT AND WIRING FOR VWP 1 AND VWP 2 IS INSTALLED AND CONNECTED.
3. CONDUIT FOR VWP 3 IS INSTALLED IN THE EXISTING CONCRETE APRON EXTENSION UP TO GATE 6. INSTALL REMAINING CONDUIT AND POWER LINE.
4. CONFIGURATION OF THE CONDUIT IS AT CONTRACTOR'S OPTION. VWP CABLES SHOULD BE ORDERED OF SUFFICIENT LENGTH TO COMPLETE THE RUN.

1. DETERMINE THE CONCRETE COMPRESSIVE STRENGTH OF THE EXISTING CONCRETE APRON EXTENSION IN ACCORDANCE WITH ASTM C 42. SAMPLES SHALL BE TAKEN AND TESTED BY A LICENSED TESTING AGENCY.
2. THE LOCATION OF THE TESTING SAMPLES WILL BE DETERMINED BY THE ENGINEER.
3. DEWATER THE SELECTED AREA AND LOCATE EXISTING STEEL REINFORCING BARS IN THE CONCRETE APRON. MARK LOCATION CLEARLY FOR THE TESTING AGENCY.
4. LOCATION OF SAMPLES SHALL NOT CAUSE DAMAGE TO EXISTING REINFORCING BARS.
5. REPAIR THE HOLES, LEFT BY THE CORE SAMPLES WITH AN APPROVED CONCRETE REPAIR MORTAR AND PROCEDURE.

1. VOIDS MAY BE PRESENT UNDERNEATH THE EXISTING APRON NEAR THE LOCATIONS INDICATED IN THE PLAN.
2. INSPECT POTENTIAL VOIDS WITH THE OWNER'S REPRESENTATIVE.
3. DETERMINE LOCATION AND EXISTENTS OF THE VOIDS, IF PRESENT.
4. FILL VOIDS AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
5. SEE SPECIFICATIONS.

[illegible]

WORK LIST

SCOUR COUNTERMEASURES

1. REMOVE EXISTING ARMOR STONE DOWNSTREAM OF EXISTING SOUTHERN HALF OF THE CONCRETE APRON. PROVIDE NEW ARMOR STONE DOWNSTREAM OF NEW APRON.
2. PREPARE SUBGRADE BENEATH APRON EXTENSION, KEYWAY, AND ARMOR STONE.

CONCRETE ELEMENTS

1. REFACE THE EDGE OF PIER 6.
2. INSTALL NEW CAST-IN-PLACE APRON EXTENSION WITH UPSTAND AND CAST-IN-PLACE CLOSURE POUR OR PRECAST KEYWAY.
3. REPAIR EXISTING UPSTREAM AND DOWNSTREAM WING WALL EXPANSION JOINTS.
4. TEST EXISTING CONCRETE APRON EXTENSION COMPRESSIVE STRENGTH.

TAINTER GATE SYSTEM

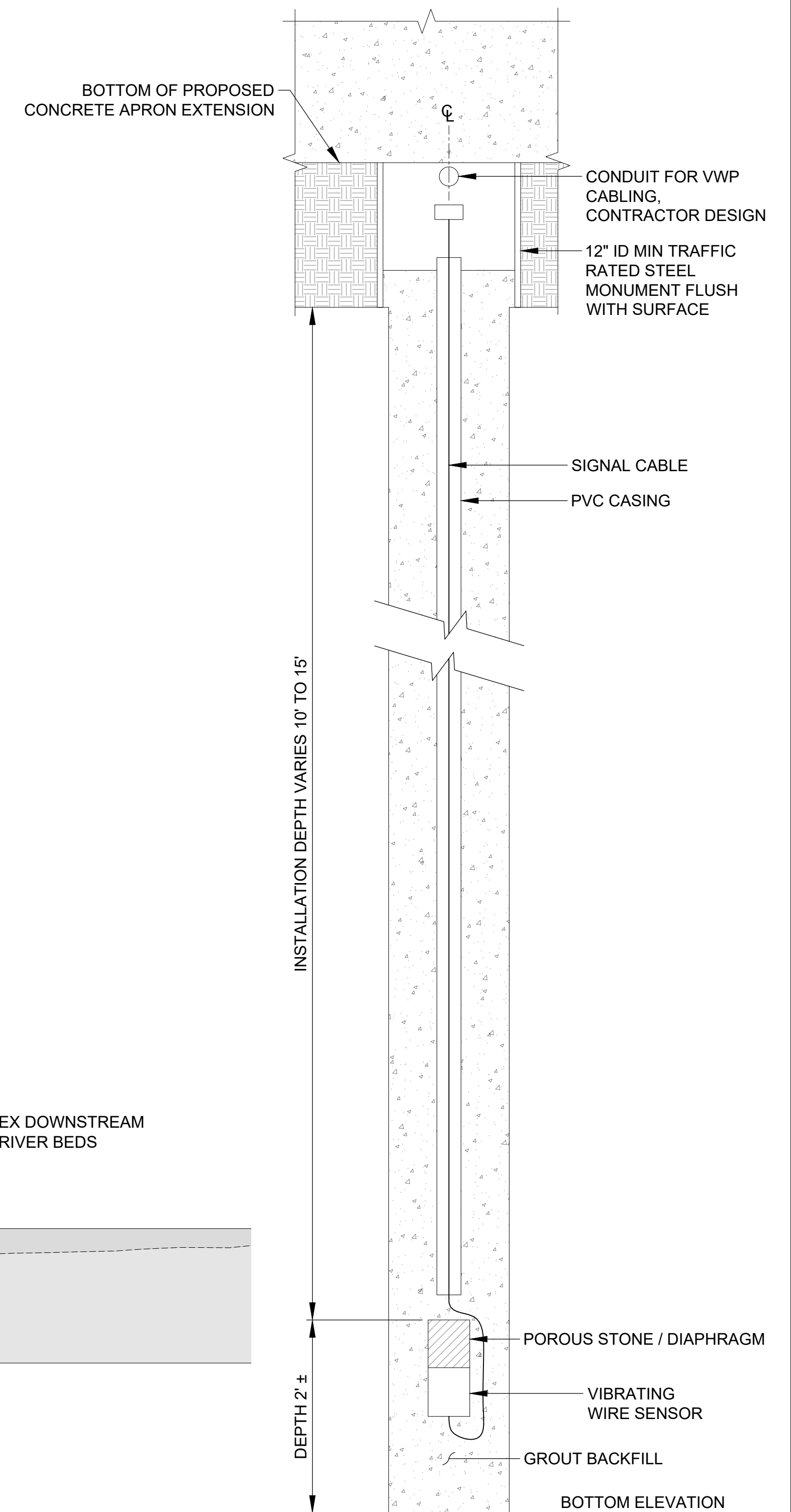
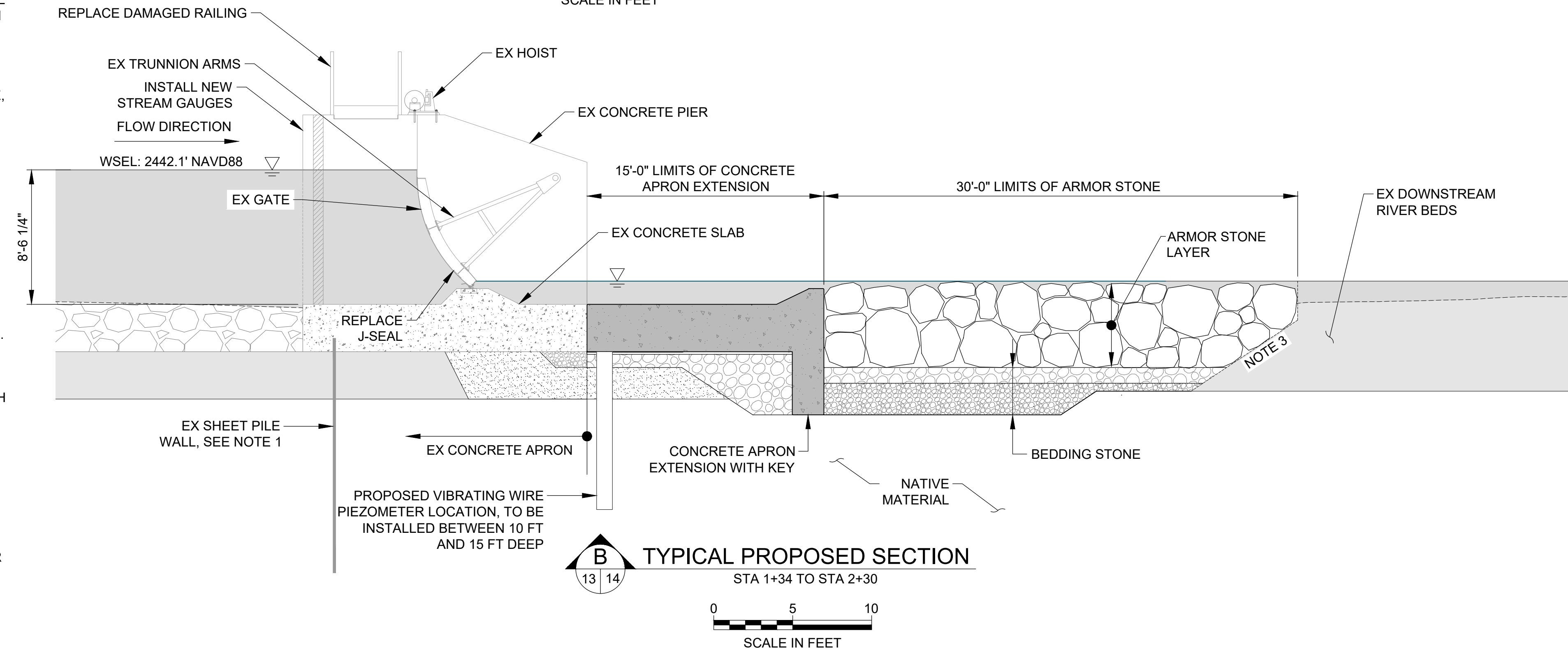
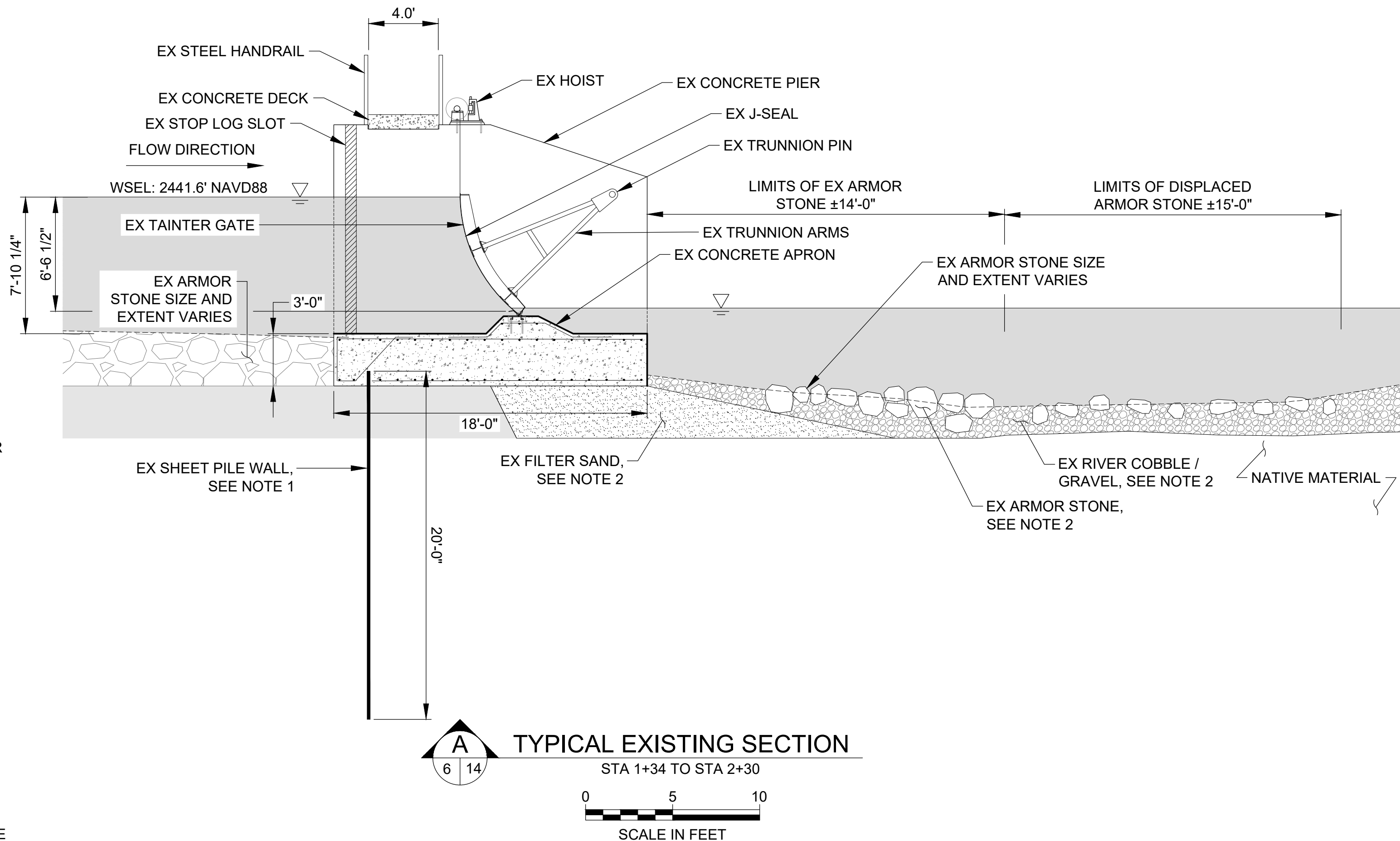
1. REPLACE EXISTING J - SEALS ON BOTH SIDES OF ALL 11 EXISTING TAINTER GATES WITH EXTENSION TO ACCOMMODATE GATE EXTENSION.
2. REMOVE AND REPLACE EXISTING TRUNNION PIN GREASE FITTINGS WITH LONGER FITTINGS.

MISCELLANEOUS ELEMENTS

1. REPLACE DAMAGED PORTION OF HANDRAIL.
2. INSTALL VIBRATING PIEZOMETER AND CONNECT WITH EXISTING PIEZOMETERS W/ CONTROL PANEL ON N. ABUTMENT.
3. INSTALL 2 NEW STREAM GAUGES ON UPSTREAM FACE OF NORTH AND SOUTH ABUTMENTS.

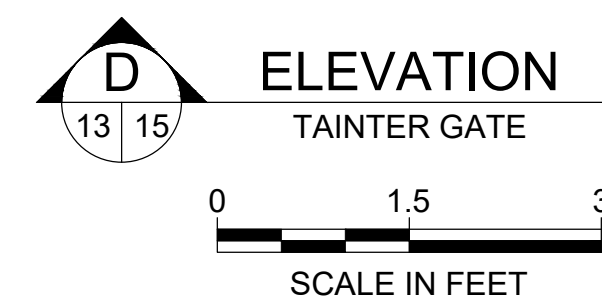
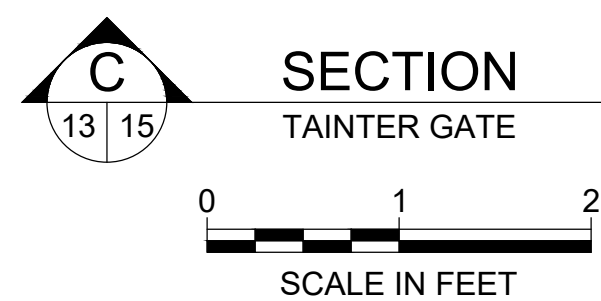
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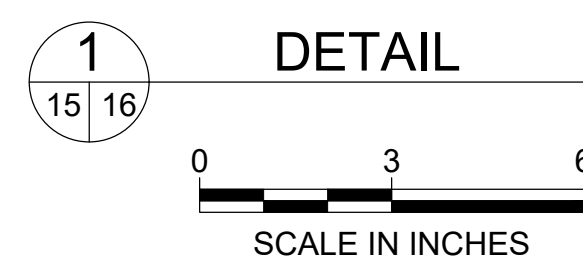
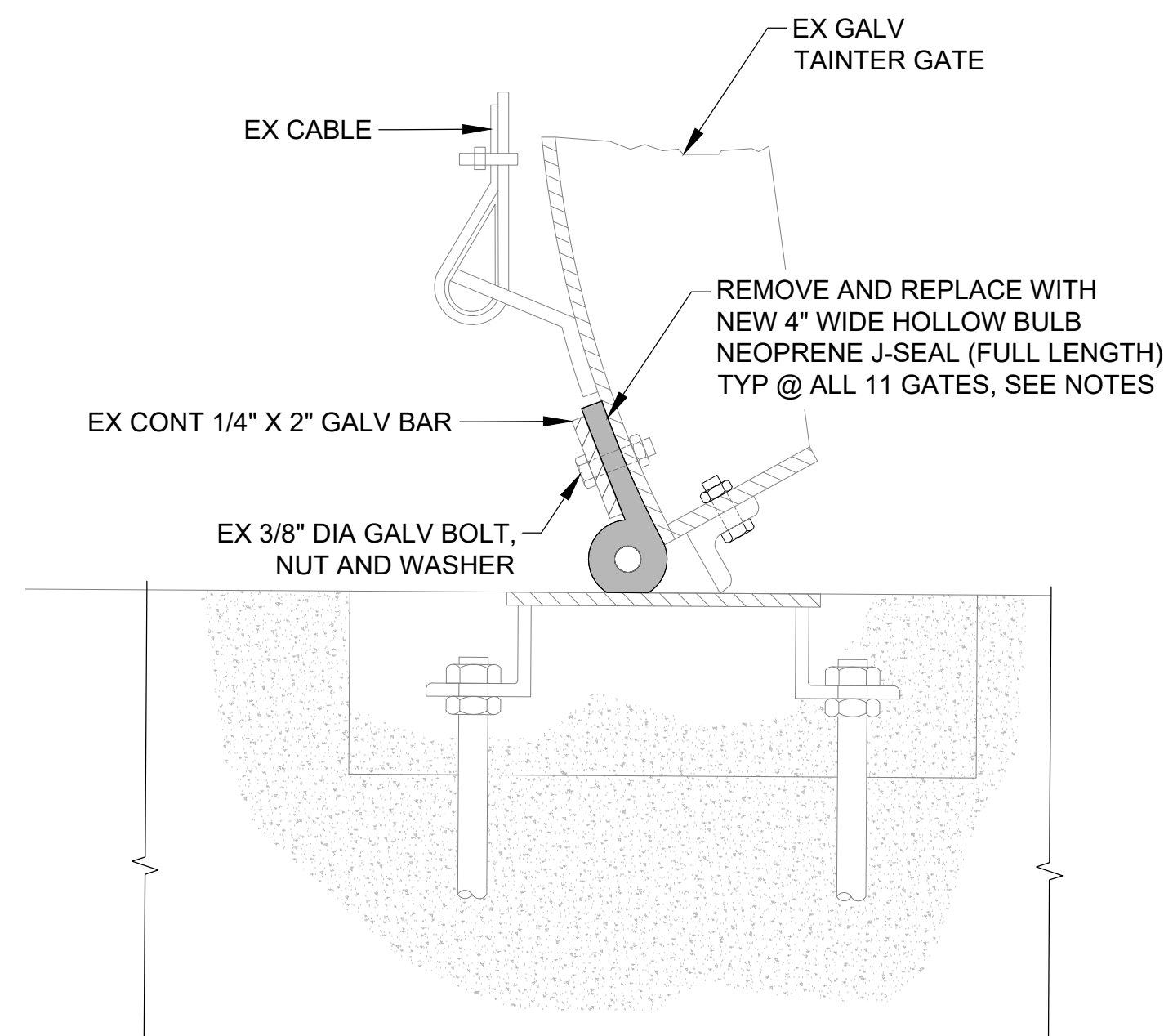
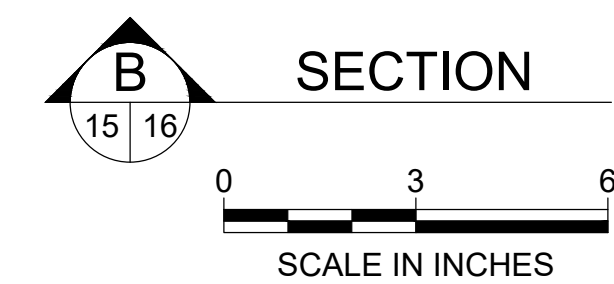
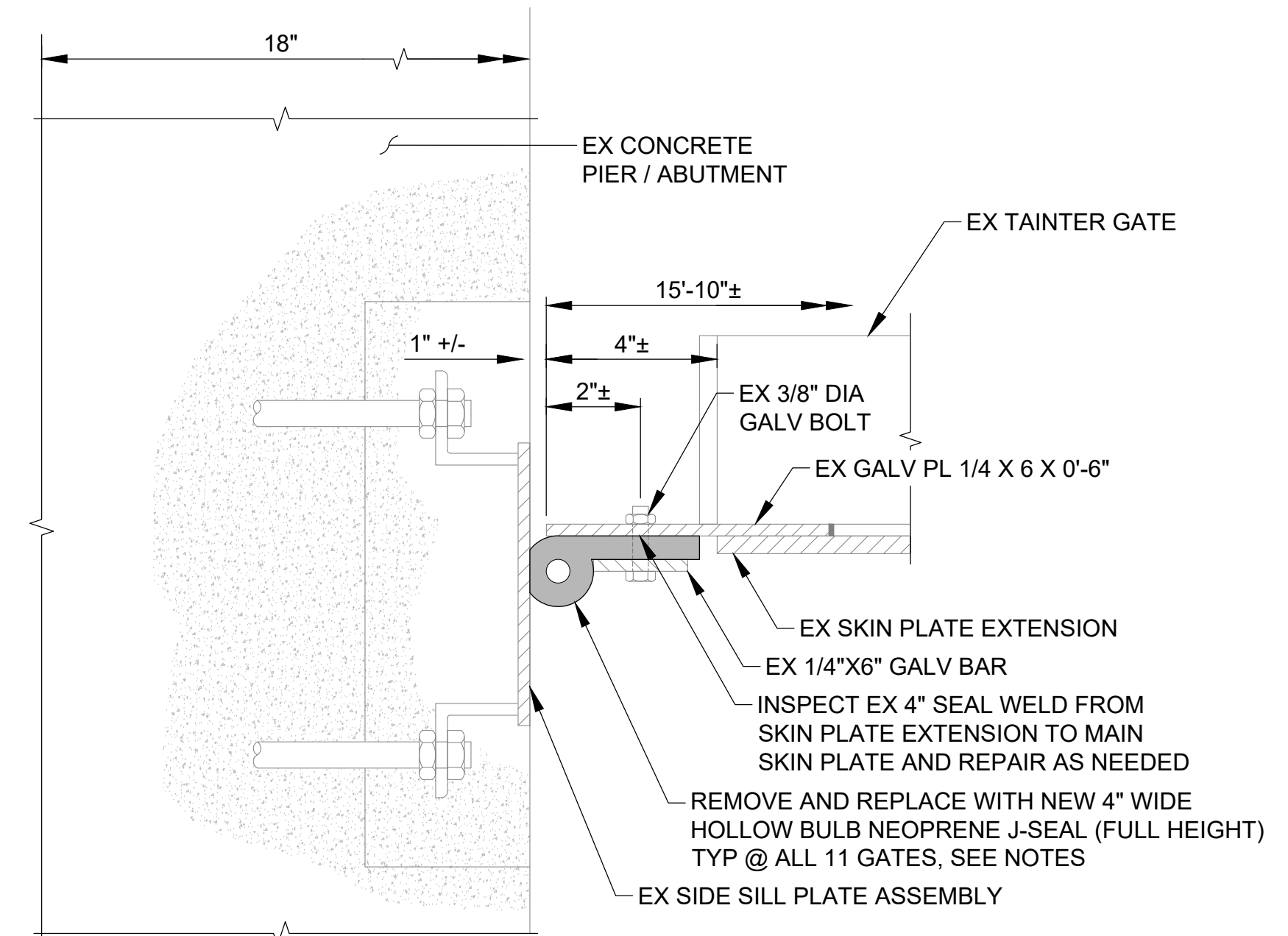
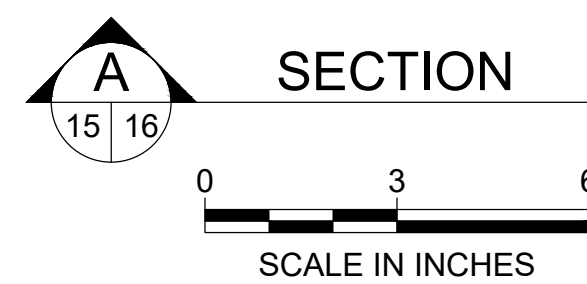
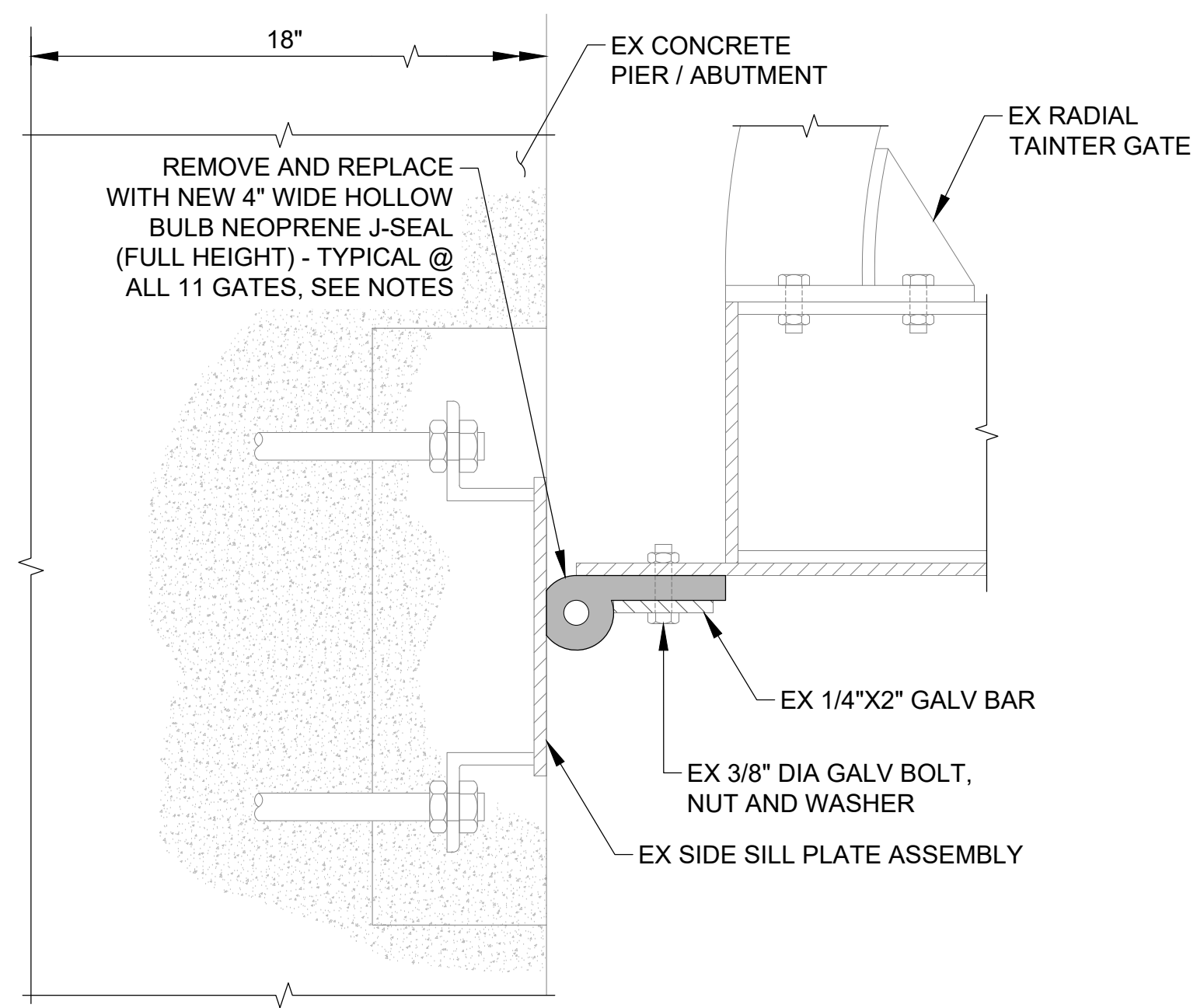
1. EXISTING SHEET PILE WALL IS SHOWN PER 1978 DESIGN DRAWINGS.
2. THE LIMITS OF ORIGINAL ARMOR STONE SHOWN IN THE TYPICAL EXISTING SECTION EXTENDS ACROSS THE SOUTHERN HALF OF THE DAM ALONG THE DOWNSTREAM EDGE. LIMITS IN THE SECTION ARE BASED ON 1978 DESIGN DRAWINGS AND SITE CONDITIONS OBSERVED IN THE FIELD.
3. DUE TO THE EXISTING STREAM BED MATERIALS, COMPACTED NATURE OF THE NATURAL SUBGRADE SOILS, AND DISPLACEMENT EFFECTS OF RIVER FLOW THE CONTRACTOR CAN ANTICIPATE ENCOUNTERING ARMOR STONE, COBBLES, BOULDERS, AND OTHER OBSTRUCTIONS IN THE RIVERBED AND BANKS OF THE PROPOSED CONSTRUCTION ZONE. THE COST TO REMOVE, DISPOSE OF, STORE, OR REINSTATE THE ARMOR STONE, COBBLES, BOULDERS, AND OTHER OBSTRUCTIONS TO FACILITATE CONSTRUCTION SHALL BE INCLUDED IN THE CONTRACTORS BID.
4. THE LIMITS OF DISPLACED ARMOR STONE SHOWN ARE APPROXIMATE. ACTUAL WIDTHS AND DEPTHS MAY VARY, CONTRACTOR SHALL VERIFY THE CONDITIONS IN THE FIELD.
5. DOWNSTREAM ARMOR STONE AND BEDDING STONE UNDER LAYER LIMITS ARE SHOWN PER ORIGINAL AS-BUILT DAM DESIGN DRAWINGS. ACTUAL LIMITS, DEPTHS AND EXTENTS UNKNOWN.
6. SLOPE OF ARMOR STONE SURFACE VARIES TO MEET EXISTING RIVER BED.
7. VIBRATING WIRE PIEZOMETER SHALL BE EQUIVALENT TO DURHAM GEO SLOPE INDICATOR PART NUMBER 52611625, LOW-PRESSURE VIBRATING WIRE PIEZOMETER (2SPS) WITH CABLING PART NUMBER 50613824, LENGTH DETERMINED BY CONTRACTOR.
8. VIBRATING WIRE PIEZOMETER SHALL BE LOCATED IN A BOREHOLE EMBEDDED BETWEEN 10 AND 15 FEET BELOW THE APRON AT CONTRACTOR DISCRETION, BUT ITS ELEVATION SHALL BE MEASURED TO BE ACCURATE TO WITHIN 2 INCHES.
9. CONTRACTOR TO PROVIDE AS-BUILT DRAWING OR MARKUP IDENTIFYING ELEVATION OF VIBRATING WIRE PIEZOMETER, CONDUIT RUNS, AND VIBRATING WIRE PIEZOMETER LABELING AT VIBRATING WIRE PIEZOMETER CONTROL PANEL.



ELECTRIC VIBRATING
WIRE PIEZOMETER

[illegible]





NOTES

1. REFER TO GENERAL NOTES SHEET AND SPECIFICATIONS FOR FABRICATION AND INSTALLATION REQUIREMENTS.
2. J-SEALS SHALL BE ACCURATELY FITTED AND DRILLED WITH SLOTTED HOLES FOR ADJUSTABILITY AND PROPER INSTALLATION TO PROVIDE A WATER-TIGHT SEAL AGAINST THE SILL PLATE ASSEMBLY.

2. J-SEALS SHALL BE ACCURATELY FITTED AND DRILLED WITH SLOTTED HOLES FOR ADJUSTABILITY AND PROPER INSTALLATION TO PROVIDE A WATER-TIGHT SEAL AGAINST THE SILL PLATE ASSEMBLY.



1601 5th Avenue
Suite 800
Seattle, Washington 98101

T +1 (425) 778 6243
W mottmac.com



IDAHO
DEPARTMENT OF WATER RESOURCES
322 Front Street Suite 648
P.O. Box 83720
Boise, Idaho 83702
P (208) 287-4800
F (208) 287-6700

0	3/23/23	TM	90% Draft Deliverable	JD	SK
Rev	Date	Drawn	Description	Ch'k'd	App'd

PRELIMINARY

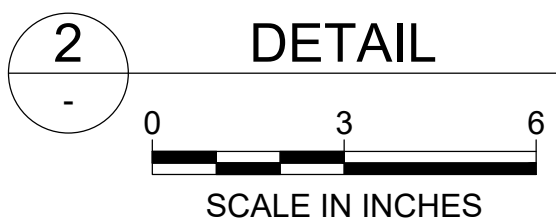
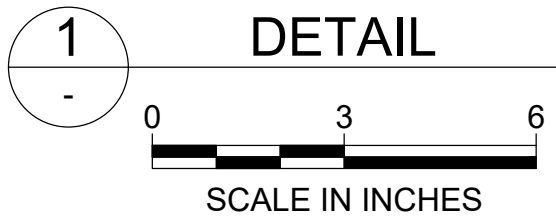
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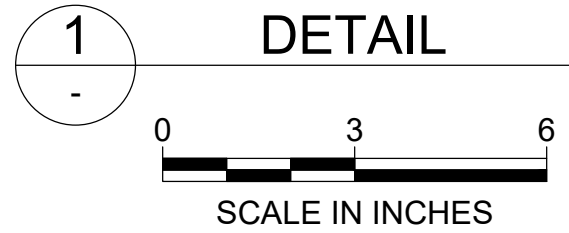
Designed	A. Hart		Eng check	P. Kobialka	
Drawn	T. Morrison		Coordination	J. Dawson	
Dwg check	J. Dawson		Approved	E. Sheesley	
Scale at ANSI D As Noted	Status		Rev	Security	
Drawing Number					

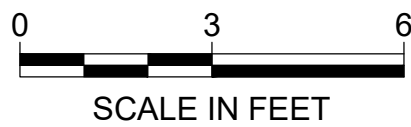
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	TAINTER GATE DETAILS

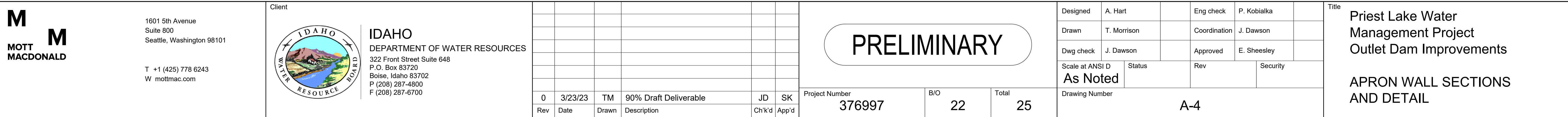


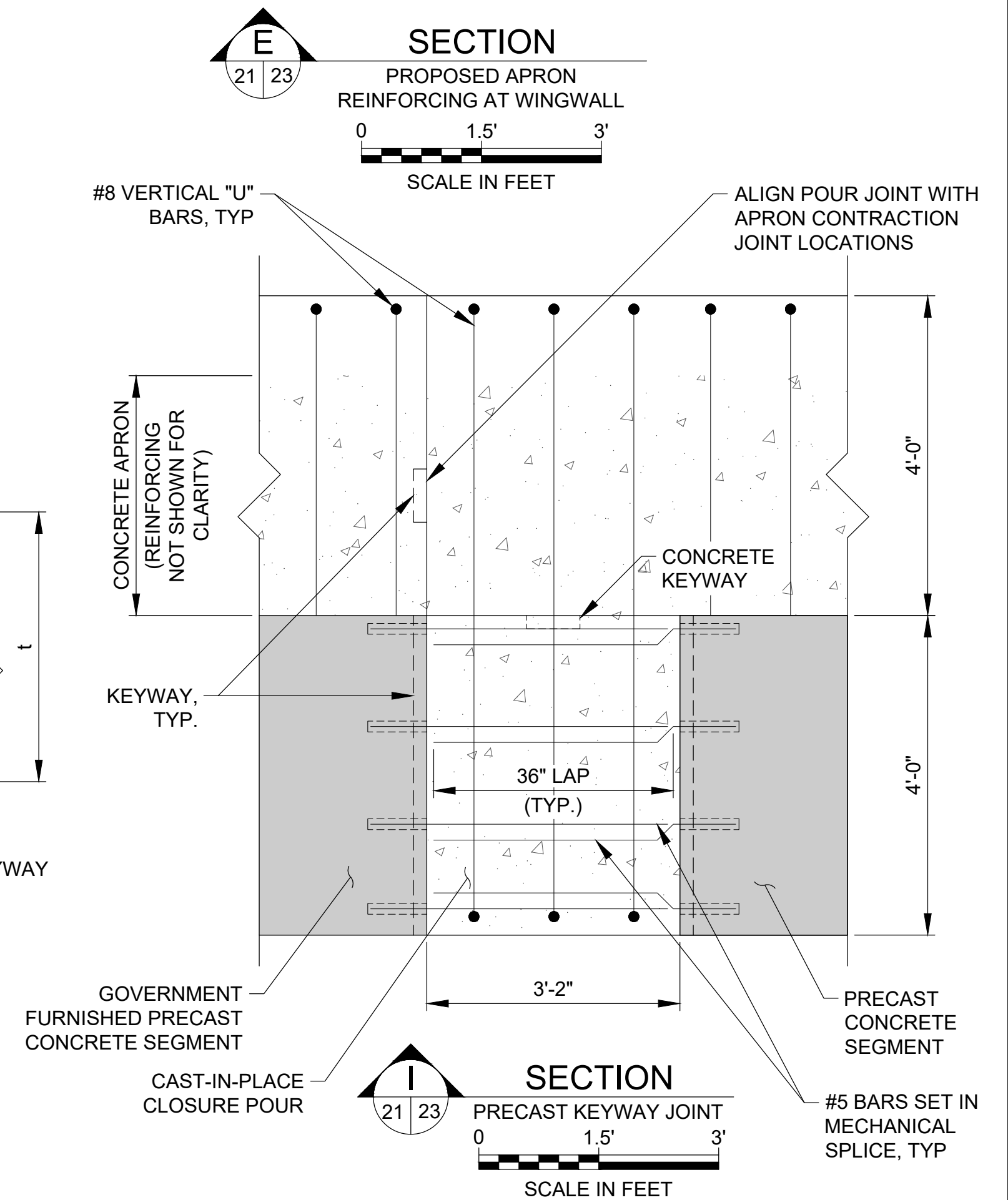
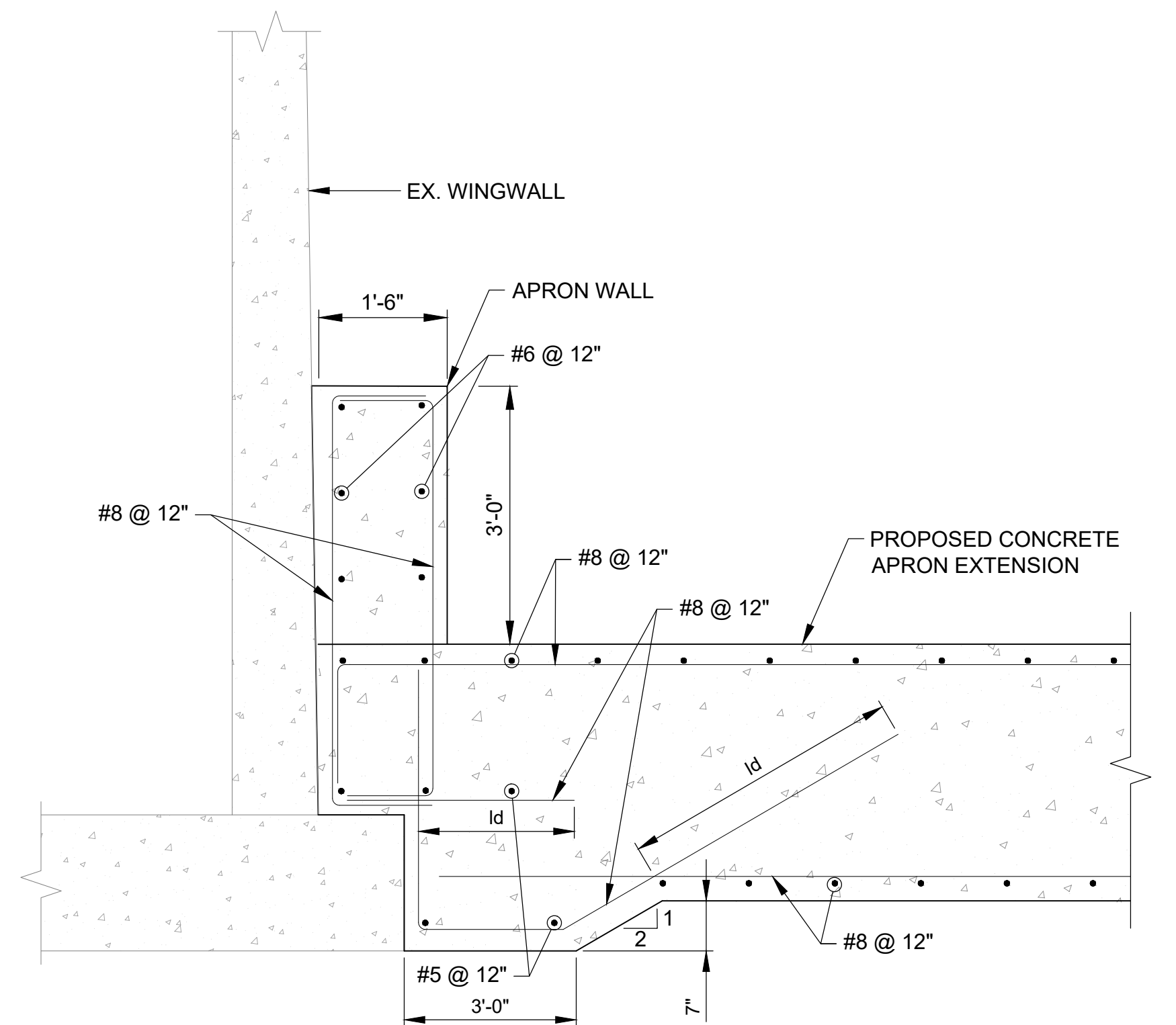
1. REMOVE AND REPLACE EXISTING LUBE LINE AT BOTH TRUNNION PINS ON ALL 11 GATES WITH A 1/4" SAE J525 ANNEALED STEEL SEAMLESS TUBING LUBE LINE RATED FOR A MINIMUM 5000 PSI PRESSURE.
2. CONTRACTOR SHALL SUPPLY OWNER WITH (2) LINCOLN 1882 20V POWERLUBER HANDHELD BATTERY OPERATED GREASE GUNS RATED FOR A MAXIMUM GREASE DELIVERY PRESSURE UP TO 10000PSI.
3. CONTRACTOR IS RESPONSIBLE FOR SUPPLYING ALL LUBE LINES, FITTINGS, AND BRACKETS TO HOLD LUBE LINE IN PLACE ON CONCRETE PIER / ABUTMENT.

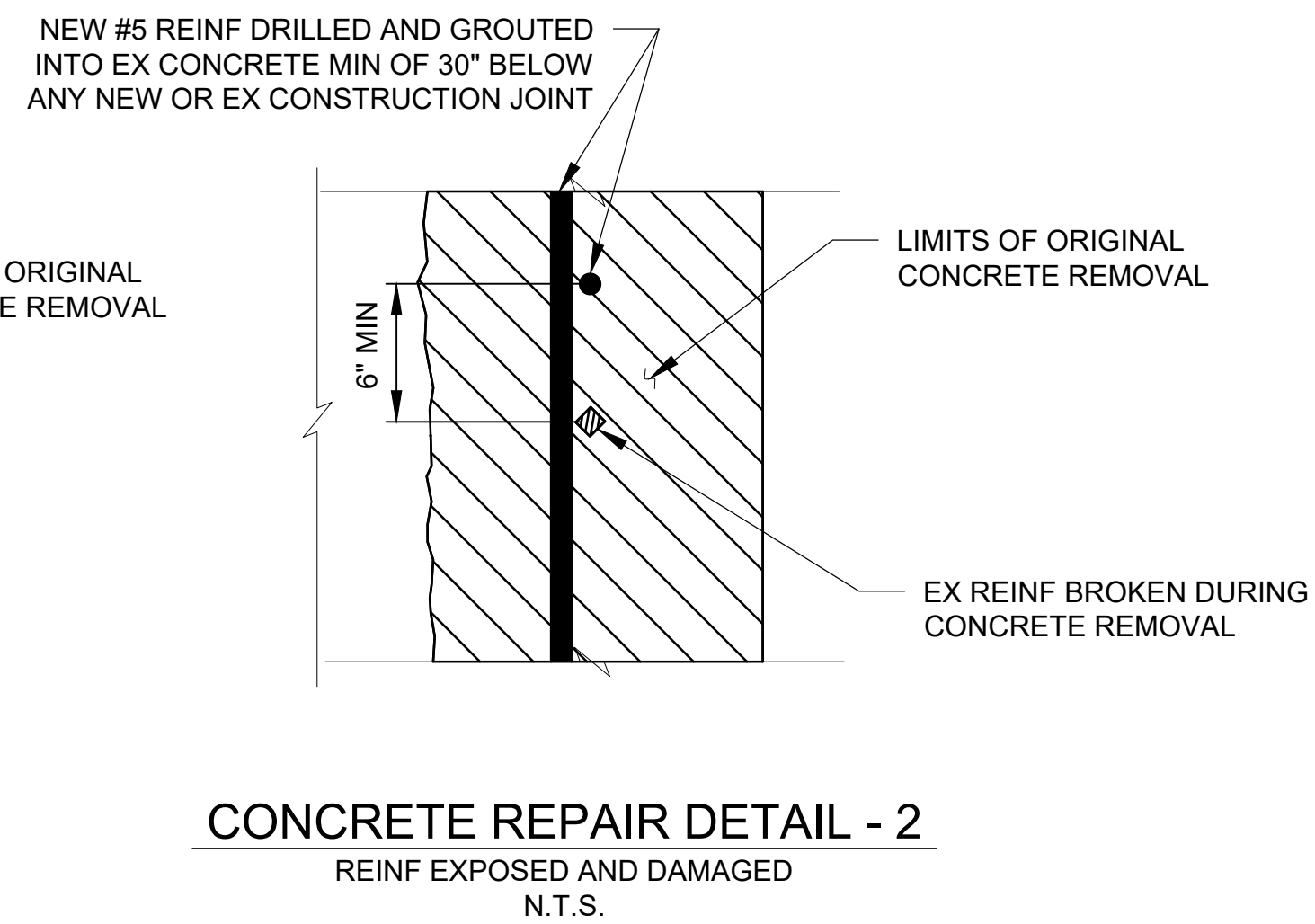
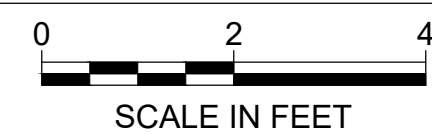
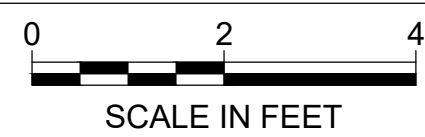


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1. REMOVAL OF STRUCTURAL CONCRETE SHALL BE A MINIMUM OF 4" OR TO SOUND CONCRETE, IF POOR CONDITION CONCRETE EXTENDS BEYOND THE 4" REMOVAL LIMIT, THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE BEFORE REMOVING ADDITIONAL CONCRETE TO REACH SOUND CONCRETE.
2. CONTRACTOR TO MAINTAIN AND PROTECT EXISTING REINFORCEMENT.
3. SAW CUT HORIZONTALLY THE EXISTING WALL AS DIMENSIONED ON THE EXISTING ELEVATION THIS SHEET. SAW CUT LINE SHALL BE CUT LEVEL AND PARALLEL WITH EXISTING PIER PROFILE.
4. REMOVE THE LOOSE AND UNSOUND CONCRETE ON THE PIER FACE WITHIN THE LIMITS IDENTIFIED IN ELEVATION.
5. MECHANICALLY PREPARE CONCRETE SURFACE TO ENSURE BONDING OF REPAIR MATERIAL.
6. PREPARE AND APPLY BONDING AGENT TO ROUGHENED CONCRETE SURFACE WITHIN LIMITS OF PARTIAL DEPTH REPAIR IDENTIFIED ON WALL ELEVATIONS IN ACCORDANCE WITH THE BONDING AGENTS MANUFACTURER RECOMMENDED SPECIFICATIONS.
7. FORM AND POUR REPAIR CONCRETE WITHIN THE LIMITS OF THE PARTIAL DEPTH REPAIR IDENTIFIED IN ELEVATION.

Client



IDAHO
DEPARTMENT OF WATER RESOURCES

322 Front Street Suite 648
P.O. Box 83720
Boise, Idaho 83702
P (208) 287-4800
F (208) 287-6700

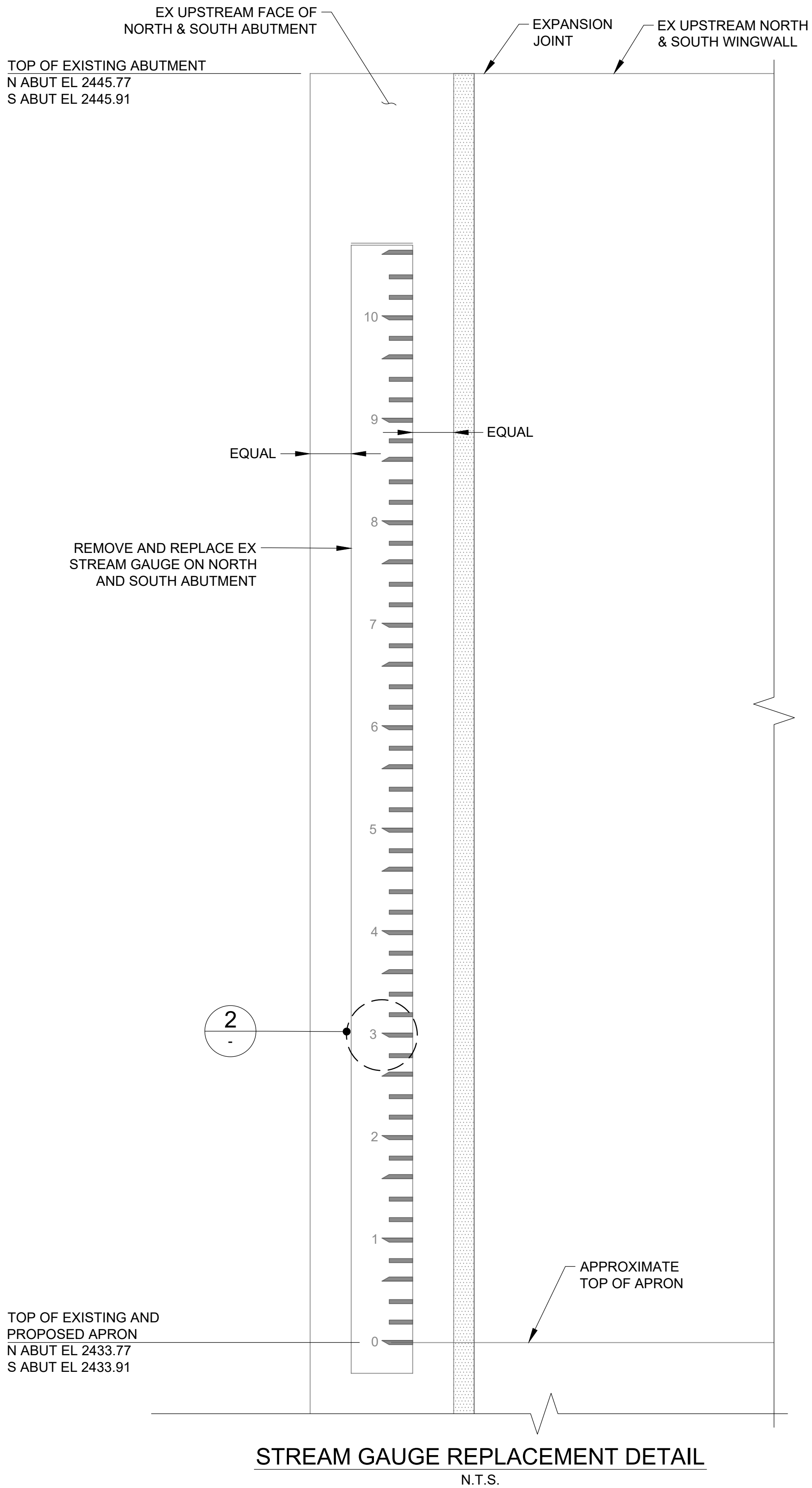
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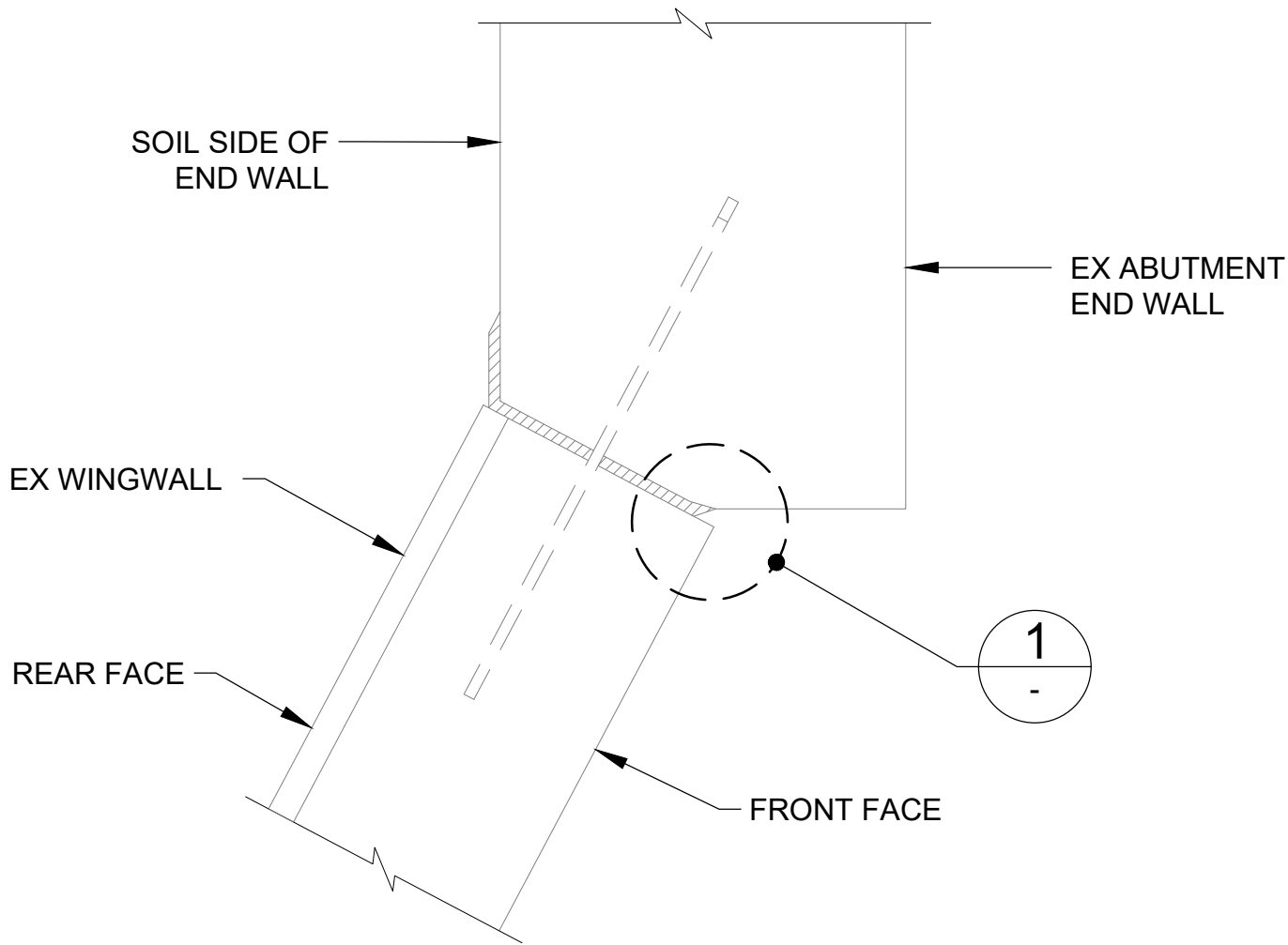
Project Number	B/O	Total
376997	24	25

Designed	A. Hart		Eng check	P. Kobialka	
Drawn	T. Morrison		Coordination	J. Dawson	
Dwg check	J. Dawson		Approved	E. Sheesley	
Scale at ANSI D		Status	Rev		Security
As Noted					
Drawing Number					
P-1					

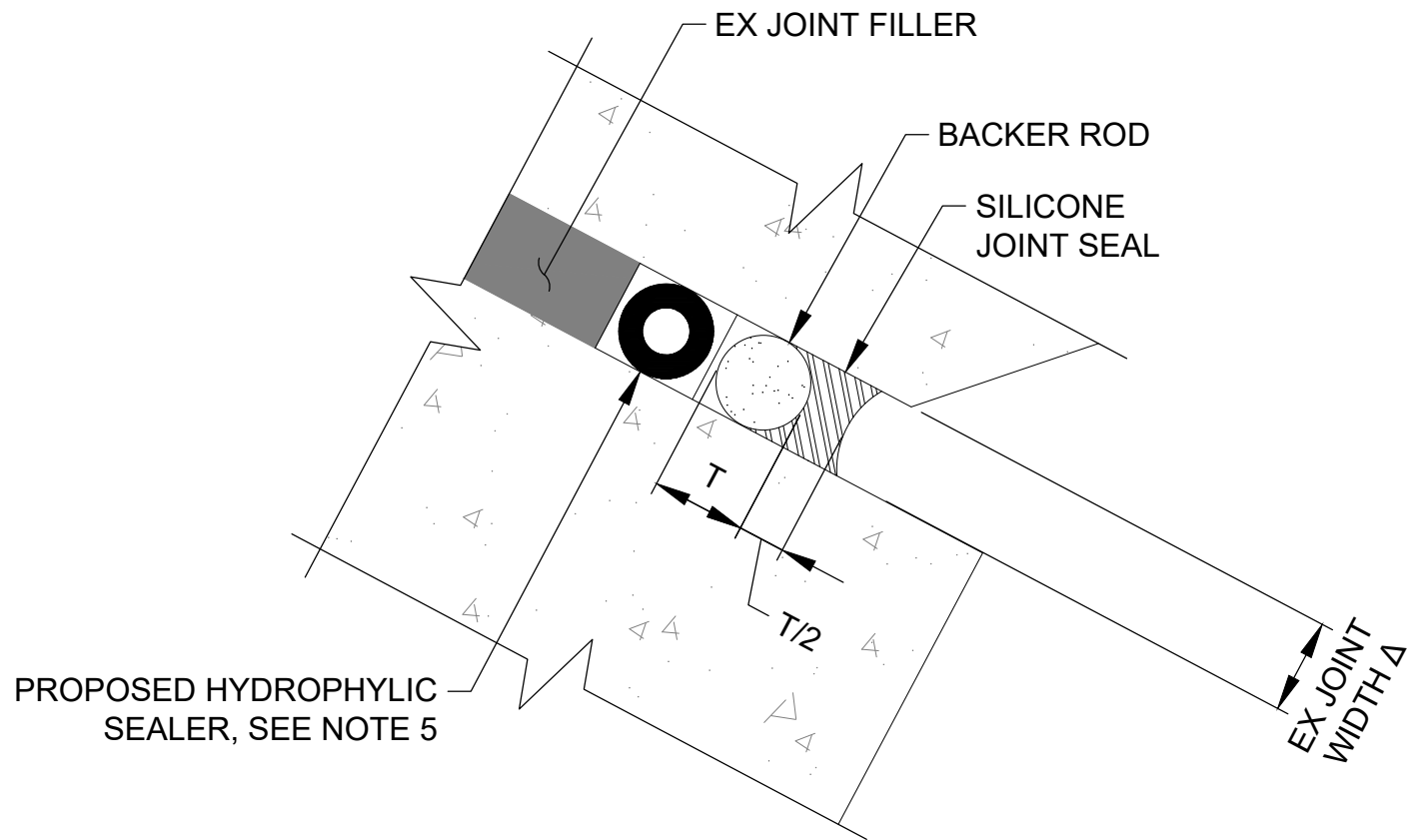
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	PIER 6 REPAIR DETAILS



STREAM GAUGE REPLACEMENT DETAIL
N.T.S.



EXPANSION JOINT REPAIR DETAIL
N.T.S.



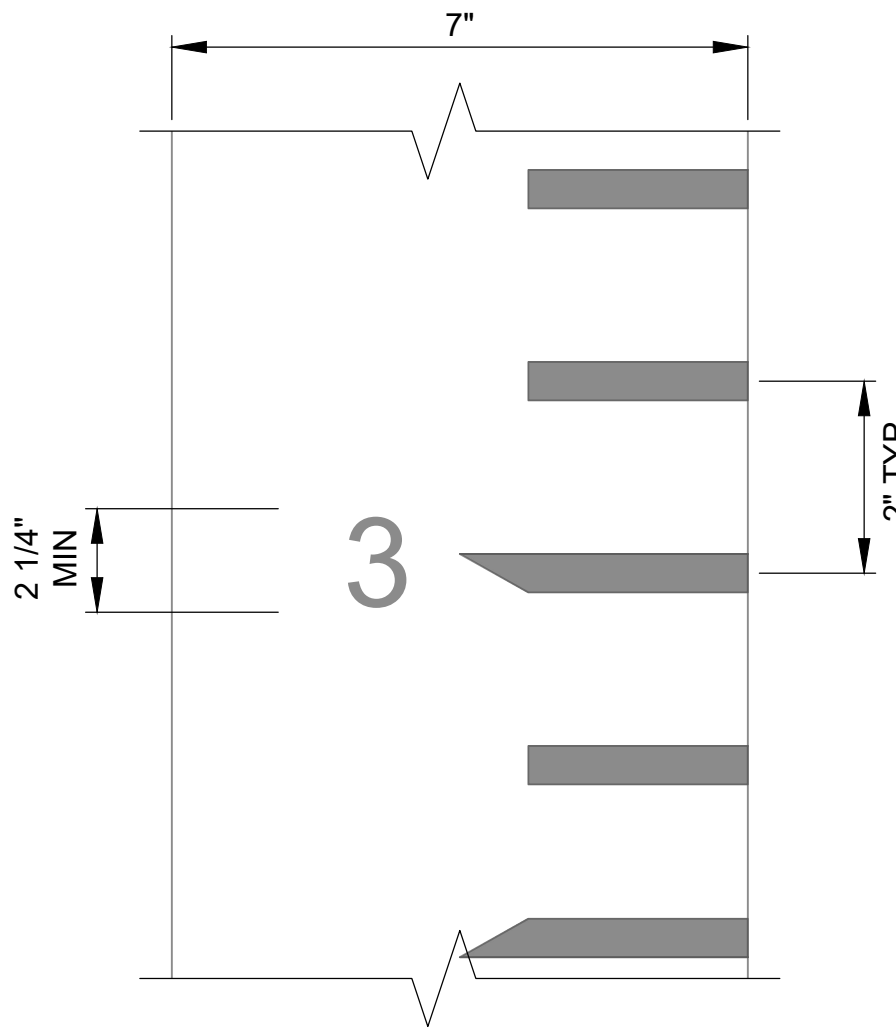
1 DETAIL
JOINT REPAIR
N.T.S.

EXPANSION JOINT REPAIR PROCEDURE (SOUTH ABUTMENT)

1. REMOVE EXISTING JOINT SEAL OR MASTIC TO A MINIMUM DEPTH OF 2".
2. INSTALL BACKER ROD AND JOINT SEAL AS PER MANUFACTURERS RECOMMENDATIONS.
3. EXTEND SEAL FROM THE BOTTOM OF THE FRONT FACE, OVER TOP OF THE WALL AND SIX INCHES DOWN THE REAR FACE OF THE WALL.
4. PERFORM JOINT SEALING ON BOTH THE DOWNSTREAM WINGWALL EXPANSION JOINT (SHOWN) AND THE UPSTREAM WINGWALL EXPANSION JOINT (NOT SHOWN), SEE SHEET A-1.
5. INSTALL PROPOSED HYDROPHYLIC SEALER. USE SIKA HYDROTITE OR APPROVED EQUAL AS PER MANUFACTURERS RECOMMENDATIONS.

STREAM GAUGE NOTES

1. STREAM GAUGE SHALL BE CONSTRUCTED OF A DURABLE FIBERGLASS COMPOSITE TO ENSURE IT WILL NOT BE DAMAGED DUE TO IMPACT, ROT, OR RUST.
2. CONTRACTOR SHALL ATTACH GAUGE TO UPSTREAM FACE WITH STAINLESS STEEL ANCHORS.
3. STREAM GAUGE SHALL BE COATED WITH A NON-GLARE COATING.



2 DETAIL
STREAM GAUGE
N.T.S.

M
MOTT
MACDONALD

1601 5th Avenue
Suite 800
Seattle, Washington 98101

T +1 (425) 778 6243
W mottmac.com



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DEPARTMENT OF WATER RESOURCES
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Boise, Idaho 83702
P (208) 287-4800
F (208) 287-6700

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Rev	Date	Drawn	Description	Ch'k'd	App'd						

PRELIMINARY

Project Number
376997

B/O
25

Total
25

Designed	A. Hart		Eng check	P. Kobialka	
Drawn	T. Morrison		Coordination	J. Dawson	
Dwg check	J. Dawson		Approved	E. Sheesley	
Scale at ANSI D	N.T.S.		Status	Rev	Security

Drawing Number
M-1

Title
**Priest Lake Water
Management Project
Outlet Dam Improvements**

MISCELLANEOUS DETAILS 1

Attachment E

PRIEST LAKE WATER MANAGEMENT PROJECT OUTLET DAM IMPROVEMENTS

PRELIMINARY TECHNICAL SPECIFICATIONS

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Division 02
Division 03
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Section 01 00 00 – General Requirements

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

- A. The work includes improvements at Priest Lake Outlet Dam as described below:
 - 1. Installation of new southern half of the concrete and armor rock scour apron extension.
 - 2. Repair welds at existing Tainter gate extension plates
 - 3. Repairing existing concrete and expansion joints.
 - 4. Repair of existing railing.
 - 5. Replace J-Seals.
 - 6. Installation of new vibrating piezometer.
 - 7. Installation of new stream gauges.
 - 8. Inspection and filling of potential voids under existing concrete apron.
 - 9. Lamb Creek Lane access road improvements

1.02 ACRONYMS

- A. CFS = Cubic feet per second
- B. DEQ = Department of Environmental Quality
- C. IDAPA = Idaho Administrative Procedures Act
- D. ITD = Idaho Transportation Department
- E. OHW = Ordinary High Water, as shown on the Contract Drawings
- F. USACE = United States Army Corps of Engineers
- G. USFS = United States Forest Service
- H. USFWS = United States Fish and Wildlife Service
 - 1. IDWR = Idaho Department of Water Resources
- I. IWRB = Idaho Water Resources Board

1.03 SITE CONDITIONS

- A. SITE INVESTIGATION AND REPRESENTATION
 - 1. The Contractor acknowledges that they are satisfied as to the nature and location of the work, the general and local conditions, particularly those bearing upon availability of transportation, access to the site, disposal, handling and storage of materials, availability of labor, water, electric power, roads, and uncertainties of weather, river stages, or similar physical conditions at the site, the conformation and conditions of the ground, the character of equipment and

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Section 01 00 00 – General Requirements

facilities needed preliminary to and during the prosecution of the work and all other matters which can in any way affect the work or the cost thereof under this Contract.

2. The Contractor further acknowledges that they are satisfied as to the character, quality, and quantity of surface and subsurface materials to be encountered from their inspection of the site and from reviewing any available records of exploratory work furnished by the Owner or included in these documents. Failure by the Contractor to acquaint themselves with the physical conditions of the site and all the available information will not relieve the Contractor from responsibility for properly estimating the difficulty or cost of successfully performing the work.
3. The Contractor warrants that as a result of their examination and investigation of all the aforesaid data that they can perform the work in a good and workmanlike manner and to the satisfaction of the Owner. The Owner assumes no responsibility for any representations made by and of its officers or agents during or prior to the execution of this Contract, unless (1) such representations are expressly stated in the Contract, and (2) the Contract expressly provides that the responsibility therefore is assumed by the Owner.

B. INFORMATION ON SITE CONDITIONS

1. Any information obtained by the Owner's Representative regarding site conditions, site access, subsurface information, groundwater and surface water elevations, existing construction of site facilities as applicable, and similar data will be available for inspection at the office of the Owner's Representative upon request. Such information is offered as supplementary information only. Neither the Owner's Representative nor the Owner assumes any responsibility for the completeness or interpretation of such supplementary information.

C. SUBSURFACE INVESTIGATION

1. Any information the Owner may have concerning subsurface conditions will be made available to the Contractor upon request.
2. The Contractor shall examine the site and may make arrangements with the Owner to conduct their own subsurface investigation, at their own cost considered incidental to the work.

D. UNDERGROUND UTILITIES

1. Known utilities and structures adjacent to or encountered in the work are shown on the Contract Drawings and referenced in the Appendices. The locations shown are taken from existing records and the best information available from existing utility plans;

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however, it is expected that there may be some discrepancies and omissions in the locations and quantities of utilities and structures shown. Those shown are for the convenience of the Contractor only, and no responsibility is assumed by either the Owner or the Owner's Representative for their accuracy or completeness.

E. CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTIES AND SERVICE

1. Where the Contractor's operations could cause damage or inconvenience to railway, telegraph, telephone, television, power, oil, gas, water, sewer, or irrigation systems, the operations shall be suspended until all arrangements necessary for the protection of these utilities and services have been made by the Contractor.
2. Notify all utility offices which are affected by the construction operation at least 48 hours in advance. Under no circumstances expose any utility without first obtaining permission from the appropriate agency. Once permission has been granted, locate, expose, and provide temporary support for all existing underground utilities.
3. The Contractor shall be solely and directly responsible to the operators of such properties for any damage, injury, expense, loss, inconvenience, delay, suits, actions, or claims of any character brought because of any injuries or damage which may result from the construction operations under this Contract.
4. Neither the Owner nor its officers or agents shall be responsible to the Contractor for damages as a result of the Contractor's failure to protect utilities encountered in the work.
5. In the event of interruption to domestic water, sewer, storm drain, or other utility services as a result of accidental breakage due to construction operations, promptly notify the proper authority. Cooperate with said authority in restoration of service as promptly as possible and bear all costs of repair. In no case shall interruption of any water or utility service be allowed to exist outside working hours unless prior approval is granted.
6. In the event the Contractor encounters water service lines that interfere with trenching, they may, by obtaining prior approval of the property owner, Utility Manager, or Fire Department as applicable, and the Owner's Representative, cut the service, dig through, and restore the service with similar and equal materials at the Contractor's expense.
7. The Contractor shall replace, at their own expense, any and all other existing utilities or structures removed or damaged during

DIVISION 1 – GENERAL REQUIREMENTS
Section 01 00 00 – General Requirements

construction, unless otherwise provided for in these Contract Documents or ordered by the Owner's Representative.

F. INTERFERING STRUCTURES

1. Take necessary precautions to prevent damage to existing structures whether on the surface, aboveground, or underground. An attempt has been made to show major structures on the Contract Drawings. While the information has been compiled from the best available sources, its completeness and accuracy cannot be guaranteed, and it is presented simply as a guide to avoid known possible difficulties.

G. FIELD RELOCATION

1. During the progress of construction, it is expected that minor relocations of the work may be necessary. Such relocations shall be made only by direction of the Owner's Representative. If existing structures are encountered which prevent the construction, and which are not properly shown on the Contract Drawings, notify the Owner's Representative before continuing with the construction in order that the Owner's Representative may make such field revisions as necessary to avoid conflict with the existing structures. If the Contractor shall fail to so notify the Owner's Representative when an existing structure is encountered, and shall proceed with the construction despite this interference, they shall do so at their own risk.

H. EASEMENTS

1. Where portions of the work are located on public or private property, easements and permits will be obtained by the Owner. Easements will provide for the use of property for construction purposes to the extent indicated on the easements. Copies of these easements and permits are available upon request to the Owner. It shall be the Contractor's responsibility to determine the adequacy of the easement obtained in every case and to abide by all requirements and provisions of the easement. The Contractor shall confine their construction operations to within the easement limits or street right-of-way limits or make special arrangements with the property owners or appropriate public agency for the additional area required. Any damage to property, either inside or outside the limits of the easements provided by the Owner, shall be the responsibility of the Contractor as specified herein. The Contractor shall remove, protect, and replace all fences or other items encountered on public or private property. Before final payment will be authorized by the Owner and Owner's Representative, the Contractor will be required to furnish the Owner, Owner's Representative, and Owner's Construction Manager with written releases from property owners or public

DIVISION 1 – GENERAL REQUIREMENTS

Section 01 00 00 – General Requirements

agencies where side agreements or special easements have been made by the Contractor or where the Contractor's operations, for any reason, have not been kept within the construction right-of-way obtained by the Owner.

2. It is anticipated that the required easements and permits will be obtained before construction is started. However, should the procurement of any easement or permit be delayed, the Contractor shall schedule and perform the work around these areas until such a time as the easement or permit has been secured.

I. LAND MONUMENTS

1. The Contractor shall notify the Owner's Representative of any existing Federal, State, City, County, and private land monuments encountered. Private monuments that are within 5 feet of the trench centerline shall be preserved or replaced by a licensed surveyor at the Owner's expense. When Government monuments are encountered, the Contractor shall notify the Owner's Representative at least 2 weeks in advance of the proposed construction in order that the Owner's Representative will have ample opportunity to notify the proper authority and reference these monuments for later replacement.

1.04 TIME FOR COMPLETION OF PROJECT

- A. Substantially complete project in accordance with the Contract Drawings and Specifications within the timeframe outlined herein. Final Completion of the project, in accordance with Contract Documents shall occur within 30 calendar days from substantial completion date.
- B. All in-water work shall be completed by March 15th, 2024. All other work shall be completed before the date set forth in the Contract Documents. The project shall be substantially completed by April 1st, 2024.
- C. No time extensions or extra compensation will be granted for delays due to inclement weather conditions or due to a delayed start.

1.05 PROJECT START DATE

- A. The Project Start Date shall be identified in the Notice to Proceed. No work is allowed within the project site limits or laydown and access area prior to Tuesday, September 15th, 2023. Work below OHW shall start on or around November 1st, 2023. No work below OHW is allowed prior to November 1st, 2023. Hauling and stockpiling of stone at the designated site(s) and inspection of existing stockpiled material outlined in Appendix C – Stockpiling Areas, may start before the Project Start Date.

DIVISION 1 – GENERAL REQUIREMENTS

Section 01 00 00 – General Requirements

1.06 HOURS OF WORK

- A. Except in the case of an emergency or unless otherwise approved by the Owner, the work hours shall be between 7 a.m. through 6 p.m. Monday through Saturday, excluding national holidays.
- B. If the Contractor desires to perform Work on holidays or outside the work hours stated above, the Contractor shall apply in writing to the Owner for permission to Work such days or times.

1.07 PRE-CONSTRUCTION CONFERENCE

- A. Following notification of award to Contractor, the date for an on-site pre-construction conference will be set at a minimum 45 days prior to project start date. Do not commence work prior to conference or until written clearance has been obtained from the Owner.
- B. Furnish Owner's Representative and Owner's Construction Manager with the following:
 - 1. Complete list of sub-contractors, including business address, telephone numbers, items of Work, and registration numbers. List is to be updated during contract life.
 - 2. Name of Contractor's superintendent who will be on job at all times.
 - 3. A progress schedule in accordance with these Technical Specifications.
 - 4. A detailed cost breakdown for lump sum bid items including equipment, labor, materials, and fees. Furnish a fair evaluation of actual cost of each items of Work listed. This will be used in processing Contractor's requests for partial payment and change orders. Submittal of breakdown does not affect the Contract terms.
 - 5. Construction Sequence Work Plan and other Work Plans as required by the Contract Specifications and Contract Drawings.

1.08 CONSTRUCTION SEQUENCING

- A. Phasing of the combined flow diversion, cofferdam & dewatering system, excavation, outlet dam improvements, and scour apron construction is critical to completing the project within the allotted work window. The Contractor shall submit a detailed Construction Sequence Work Plan as outlined in the Contract Drawings to the Owner's Representative and shall receive approval 45 days prior to start of construction. The approved Construction Sequence Work Plan shall be updated weekly during construction and submitted to the Owner's Representative and Owner's Construction Manager for review. See Contract Drawings and Specifications for additional requirements.

DIVISION 1 – GENERAL REQUIREMENTS

Section 01 00 00 – General Requirements

1.09 ENGINEERING REQUIREMENTS

- A. The Contractor shall review the enclosed data (Appendix E – Water Level & Flow Data), publicly available USGS data, and site conditions to develop a work plan that will provide protection of the active work area from inundation of water for the range of flows anticipated during Construction.
- B. Dewatering will be required to complete the Work. The Contractor is responsible for selection of their preferred river flow and water level conditions for the combined cofferdam, dewatering, and flow diversion system design, in accordance with Section 02 20 00 Cofferdams and Dewatering.

1.10 PROGRESS CLEANING

- A. Remove rubbish and debris from the project site limits daily. Storage of materials is not allowed on site unless specified by the Owner's Representative.
- B. Maintain work area in a neat and orderly condition at all times.
- C. All cleanup operations are incidental to the Contract and no extra compensation will be made.

1.11 PUBLIC SAFETY AND CONVENIENCE

- A. ACCESS BY FEDERAL, STATE, AND LOCAL GOVERNMENT OFFICIALS
 - 1. Authorized representatives of the Idaho Department of Health and Welfare, and other government officials shall at all times have safe access to the work wherever it is in preparation or progress, and the Contractor shall provide proper facilities for such access and inspection.
- B. PROTECTION OF PROPERTY
 - 1. Protect stored materials, cultivated trees and crops, and other items located adjacent to the proposed work. Notify property owners affected by the construction at least 48 hours in advance of the time construction begins. During construction operations, construct and maintain such facilities as may be required to provide access by all property owners to their property. No person shall be cut off from access to his residence or place of business for a period exceeding 8 hours, unless the Contractor has made special arrangements with the affected persons.
 - 2. Provide for access at all times for livestock through farm areas, and no portion of farmlands in which livestock are pastured shall be cut off from ready access by the farm animals.
- C. FIRE PREVENTION AND PROTECTION

DIVISION 1 – GENERAL REQUIREMENTS

Section 01 00 00 – General Requirements

1. The Contractor shall perform all work in a fire-safe manner. They shall supply and maintain on the site adequate fire-fighting equipment capable of extinguishing incipient fires. The Contractor shall comply with applicable Federal, local, and State fire-prevention regulations. Where these regulations do not apply, applicable parts of the National Fire Prevention Standard for Safeguarding Building Construction Operations, (NFPA No. 241) shall be followed.

D. ACCESS FOR POLICE, FIRE, AND POSTAL SERVICE

1. Notify the Fire department and Police Department before closing any street or portion thereof. No closing shall be made without the Owner's Representative's approval. Notify said departments when the streets are again passable for emergency vehicles. Do not block off emergency vehicle access to consecutive arterial crossings or dead-end streets, in excess of 300 linear feet, without special written permission from the Fire Department. Conduct operations with the least interference to fire equipment access, and at no time prevent such access.
2. The Contractor shall leave night emergency telephone number or numbers with the Police Department, so that contact may be made easily at all times in case of barricade and flare trouble or other emergencies.
3. Maintain postal service facilities in accordance with the requirements of the U. S. Post Office Department. Move mailboxes to temporary locations designated by the Post Office Department, and at the completion of the work in each area, replace them in their original location and in a condition satisfactory to the U. S. Post Office Department.

1.12 UNANTICIPATED DISCOVERY OF CULTURAL OR ARCHEOLOGICAL RESOURCES

- A. No cultural or archaeological resource sites are known to exist within project site limits. However, there always exist the potential for unanticipated discoveries during excavation work.
- B. Owner, Owner Representatives, Owner's Construction Manager, Contractors, and workers must be aware of clues that signify a potential discovery and what actions must be taken to protect discovery.
- C. Clues that may signal the presence of cultural or archaeological resources are:
 1. Artifacts: Artifacts may be found exposed in open trenches or back dirt piles. These may range from finished tools such as stone pestles, arrowheads or polished bone tools to small pieces of exotic stone such as chert, jasper or obsidian. Historic artifacts include: bottles,

DIVISION 1 – GENERAL REQUIREMENTS

Section 01 00 00 – General Requirements

cans, bricks, window glass, square nails or other objects in excess of 50 years age. Do not remove items.

2. Buried features/midden: During excavation, exposed trench walls may contain buried features such as campfire hearths or shell middens. In cross-section, hearths look like evidence shallow lenses (saucer shaped) of rock, charcoal and blackened sediment. Middens are buried prehistoric ground surfaces. These are usually thin lenses of dark greasy sediments running horizontally for many feet in different directions. Near shorelines, these middens are characterized by accumulations of broken and burned shellfish remains. Occasionally they may also contain artifacts and/or broken bone fragments.

- D. If resources of potential cultural or archeological resources are discovered the Contractor shall follow these steps:

1. The Contractor will immediately stop work in the vicinity of the find and notify the Owner's Representative.

1.13 AS-BUILT DRAWINGS

- A. Keep a clean set of full-sized design drawings at job site and kept updated to identify all changes.

1.14 PROJECT CONDITIONS SITE SAFETY

- A. The Contractor shall be solely responsible for job-site safety. Contractor shall adhere to requirements for safety established in state and federal regulations.
- B. Federal, state, and local laws, rules, and regulations related to construction, safety and health standards are essential and must be followed by the Contractor. The Contractor will conduct their work in a safe and prudent manner at all times. The Contractor is prohibited from allowing or requiring workers to work in conditions that are unsanitary, hazardous, or dangerous to their health or safety.
- C. Provide reasonable restroom facilities for personnel and adequate work time to use those facilities, including provision of portable facilities for moving operations.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

DIVISION 1 – GENERAL REQUIREMENTS

Section 01 11 00 – Summary of Work

PART 1 - GENERAL

1.01 SCOPE

- A. The work included in this Contract is defined in the Contract Drawings and within these specifications under the following Division Numbers:
 - 1. DIVISION 1 – GENERAL REQUIREMENTS
 - 2. DIVISION 2 – EXISTING CONDITIONS
 - 3. DIVISION 3 – CONCRETE
 - 4. DIVISION 5 – METALS
 - 5. DIVISION 31 – EARTHWORK
 - 6. DIVISION 35 – WATERWAY AND MARINE CONSTRUCTION
- B. The work under this contract is to provide, furnish and/or install all labor, materials and equipment, as may be required to complete the work, installed, tested, and ready for use, and as described in these documents.
- C. The work includes facility improvements at Priest Lake Outlet Dam as described below:
 - 1. Installation of new southern half of the concrete and armor rock scour apron extension.
 - 2. Repair welds at existing Tainter gate extension plates
 - 3. Repairing existing concrete and expansion joints.
 - 4. Repair of existing railing.
 - 5. Replace J-Seals.
 - 6. Installation of new vibrating piezometer.
 - 7. Installation of new stream gauges.
 - 8. Inspection and filling of potential voids under existing concrete apron.
 - 9. Lamb Creek Lane access road improvements

1.02 LOCATION

- A. This project is located at Priest Lake Outlet Dam on Priest River, near the south end of Priest Lake in Bonner County, Idaho 83856. The outlet dam is located south of the intersection of Idaho State Route 57 and Kokanee Park Drive.

1.03 ACCESS TO SITE

DIVISION 1 – GENERAL REQUIREMENTS

Section 01 11 00 – Summary of Work

- A. Access to site will be primarily from the north river bank, via Lamb Creek Lane and through the upland construction access easements, as shown on the Contract Drawings.

1.04 COORDINATION

- A. The Contractor shall coordinate its activity with the Owner's Representative, so interference with recreational activities will be minimized.
- B. The Contractor shall also coordinate its work with adjacent properties throughout the life of this contract at no additional expense to the Owner.

1.05 MATERIALS TESTING

- A. Necessary materials testing shall be performed by an independent testing laboratory and paid for in accordance with Section 01 40 00 - Quality Requirements. Access to the area necessary to perform the testing and/or to secure the material for testing, shall be provided by the Contractor.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

DIVISION 1 – GENERAL REQUIREMENTS
Section 01 20 00 – Measurement and Payment

PART 1 - GENERAL

1.1 MEASUREMENT METHOD – TRUCK MEASUREMENT

- A. Measurement for payment will be at the unit price as stipulated in the bid form for the items listed below. Payment shall be considered full compensation for furnishing all labor, materials, and equipment to complete the work as specified.
- B. Truck Measurement Method - Stone
 - 1. Measurement for imported materials delivered by trucks shall be measured in accordance with these procedures and requirements. Imported materials include the following:
 - a. Bedding Stone Type II
 - b. Armor Stone
 - c. Bedding Stone Type I
 - 2. Scales: All material delivered by vehicle shall be weighed on public scales or scales provided by the Contractor and approved by the Owner's Representative and/or Owner's Construction Manager. The scales shall be of sufficient capacity to permit weighing the transporting vehicle, both empty and full. Documentation of scale certification shall be provided to ensure accuracy of the scale being used.
 - 3. Each truck shall be weighed and bear a unique identification number. Each vehicle operator shall obtain a weigh or load ticket from the scale operator. The tickets shall, at a minimum contain the following information:
 - a. Date of haul;
 - b. Contract number;
 - c. Contract unit Bid item;
 - d. Unit of measurement;
 - e. Identification number of hauling vehicle; and
 - f. Weight delivered:
 - (1) Net weight in the case of batch and hopper scales
 - (2) Gross weight, tare and net weight in the case of platform scales (tare may be omitted if a tare beam is used).
 - (3) Approximate load out weight in the case of belt conveyor scales.
 - g. The vehicle operator shall deliver the ticket in legible condition to the material receiver at the material delivery point. The material delivery point is defined as the location where the material is incorporated into the permanent Work.
 - h. When requested by the Owner's Representative and/or Owner's Construction Manager, the Contractor's representative shall collect the tickets throughout the day and provide them to the designated receiver, not later than

DIVISION 1 – GENERAL REQUIREMENTS

Section 01 20 00 – Measurement and Payment

the end of shift, for reconciliation. Tickets for loads not verified as delivered will receive no pay.

- i. Stone Products: Types of material shall not be mixed in any given load.
- j. Over placement: In the event of over- or under-placement of material with respect to the lines and grades shown on the Contract Drawings, the following conversion for pay quantities shall be used:
 - (1) When the quantity of material is determined by weight and must be computed by the volume, the weight will be determined by calculating the in-place gross volume of material and multiplying that volume by the specific gravity of the material as measured in laboratory tests. The weight will then be reduced by 28 percent to account for voids in the gross volume for the Stone.

1.2 MEASUREMENT METHOD – VOLUME IN PLACE

Volume (excavation and fill) – Measured by the average-end-area method or by the finite element analysis method utilizing digital terrain modeling techniques, based on pre- and post- construction surveys and intermediate/progress surveys (as outlined in Technical Specification Section 01 71 23 Construction Surveying).

1.3 MEASUREMENT FOR PAYMENT:

- A. Measurement for payment will be at the unit price as stipulated in the bid form for the items listed below. Payment shall be considered full compensation for furnishing all labor, materials, and equipment to complete the work as specified.
- B. The bid items are for work as shown in the Contract Drawings.
 - 1. Mobilization/Demobilization:
 - a. Measurement: Lump Sum.
 - b. Description: Work under this item shall include mobilization and demobilization of construction equipment and costs of preparatory work and operations performed by the Contractor that are not defined as a part of a payment item.
 - c. Payment:
 - 1) 40% after completion of 5% of the total contract amount of other bid items have been earned.
 - 2) 80% after completion of 20% of the total contract amount of other bid items have been earned.

DIVISION 1 – GENERAL REQUIREMENTS
Section 01 20 00 – Measurement and Payment

- 3) 100% after completion of all work on the project has been completed, including cleanup and acceptance of the project by the Owner's Representative.
2. Environmental Protection, Site Prep, & Site Restoration:
 - a. Measurement: No unit of measurement shall apply to the lump sum price for "Environmental Protection, Site Prep, & Site Restoration".
 - b. Measurement: Lump Sum (LS).
 - c. Description: Work under this item shall include all materials, supplies, equipment, and labor required for fabricating, constructing, installing, and maintaining and repairing environmental protection measures as needed for temporary erosion and sediment control (TESC), traffic control, site access and security, water quality protection and compliance with permit conditions, and spill prevention as described in 01 57 13 – Temporary Erosion and Sediment Control, 01 35 43 – Environmental Controls, and 01 50 00 Temporary Facilities and Controls of these Technical Specifications and as shown in the Contract Drawings. Work elements for this item include, if required, but are not limited to:
 - 1) Water Quality Monitoring and Control Plan
 - 2) Water Quality Control
 - 3) Water Quality Monitoring
 - 4) Spill Prevention, Control and Countermeasure Plan
 - 5) TESC Plan and Compliance
 - 6) BMPs (silt fencing, construction fencing, debris boom, silt curtain, etc.) as needed for compliance with permits
 - 7) Traffic control
 - 8) Snow management
 - 9) Dam operation
 - 10) Noise and air pollution controls
 - d. Payment: Lump Sum (LS).
3. Temporary Access Road/Structure and River Crossing
 - a. Measurement: Lump Sum (LS).
 - b. Description: Work under this item shall include all materials, supplies, equipment, and labor required for designing, constructing, maintaining, and protecting temporary access

DIVISION 1 – GENERAL REQUIREMENTS
Section 01 20 00 – Measurement and Payment

roads and providing access to the outlet dam and apron as defined in Technical Specification Section 01 50 00 Temporary Facilities and Controls and as shown on the Contract Drawings.

- c. Payment: Lump Sum (LS).
- 4. Construction Surveying:
 - a. Measurement: Lump Sum (LS).
 - b. Description: Work under this item shall include all materials, supplies, equipment, and labor required for terrestrial and hydrographic surveying work required to construct the project components as defined in Technical Specification Section 01 71 23 – Construction Surveying. The construction survey work includes establishing control and performing staking, electronic templates, pre-construction survey, pre- and post-excavation surveys, intermediate/progress surveys, and post-construction survey, as described in these Technical Specifications and as shown in the Contract Drawings.
 - c. Payment: Lump Sum (LS).
- 5. Combined Cofferdams and Dewatering System Fabricate, Install, and Maintain
 - a. Measurement: Lump Sum (LS).
 - b. Description: Work under this item shall include all materials, supplies, equipment, and labor required to complete, maintain, and remove all cofferdam, stream diversion, and dewatering activities, as described in Technical Specification Section 02 20 00 – Cofferdams and Dewatering and as shown on the Contract Drawings. Work also includes development and refinement of a Construction Phasing & Dewatering plan to complete the work.
 - c. Payment: Lump Sum (LS).
- 6. Combined Cofferdams and Dewatering System Engineering and Design
 - a. Measurement: Lump Sum (LS).
 - b. Description: Work under this item shall include all materials, supplies, equipment, and labor required to engineer and design the combined cofferdam, stream diversion, and dewatering system, as described in Technical Specification Section 02 20 00 – Cofferdams and Dewatering and as shown on the Contract Drawings. This includes retaining a Idaho licensed professional engineer that is in responsible charge of

DIVISION 1 – GENERAL REQUIREMENTS
Section 01 20 00 – Measurement and Payment

the design and inspects the installed system for the duration of the project.

- c. Payment: Lump Sum (LS).

7. Excavation & Disposal - Streambed

- a. Measurement: Per cubic yard (CY); measurement will be calculated on an in-situ basis for cubic yards removed within the work area presented on the Plans using pre-construction and intermediate/progress surveys in accordance with Section 01 71 23 Construction Surveying. The quantity of material disposed of upland will be confirmed by truck measurement.

- b. Description: Work under this item shall include all materials, supplies, equipment, and labor required to complete the excavation and disposal of existing streambed material and riprap, in accordance with the Contract Documents. This item includes removing 1,200 CY of material from the stream channel and transporting the material to the Contractor-provided upland disposal site, in accordance with Technical Specification Section 31 00 00 Excavation and Fill and indicated in the Contract Drawings. The total excavated volume shall be determined by pre- and post-excavations surveying of in-place excavated areas. Payment for the work includes all work incidental to excavation and upland disposal of excavated material as described in these Technical Specifications and as shown in the Contract Drawings. Work also includes development and refinement of a work plan to complete the excavation work. All excavation work conducted outside the lines and grades shown in the Contract Drawings will not be paid.

- c. Payment: Per cubic yard (CY).

8. Concrete – Apron Voids

- a. Measurement: Per cubic yard (CY).

- b. Description: Work under this item shall include all materials, supplies, equipment, and labor required to place 10 CY of lean concrete underneath portions of the existing apron to fill existing scour holes or undermining resulting from excavation operations as described in these Technical Specifications and as indicated in the Contract Drawings.

- c. Payment: Per cubic yard (CY).

9. Reinforced Concrete – Apron Extension

DIVISION 1 – GENERAL REQUIREMENTS
Section 01 20 00 – Measurement and Payment

- a. Measurement: Per cubic yard (CY).
 - b. Work under this item shall include all materials, supplies, equipment, and labor required to construct 198 CY of the reinforced concrete apron extension, associated joints, and connections to the existing dam as described in Technical Specification Section 03 30 00 Cast-in-place Concrete of these and as indicated in the Contract Drawings.
 - c. Payment: Per cubic yard (CY).
10. Concrete Repair – Pier 6 Spalled Areas
- a. Measurement: Per cubic foot (CF).
 - b. Description: Work under this item shall include all materials, supplies, equipment, and labor required for saw cutting/chipping; capture and disposal of all deteriorated concrete debris, abrasive grit, water from repair activities. Included shall be all labor, equipment, and materials required to prepare and install the 36 CF repair materials as described in Technical Specification Section 03 73 00 Concrete Repair and as indicated in the Contract Drawings.
 - c. Payment: Per cubic foot (CF).
11. Existing Concrete Apron Extension Concrete Testing
- a. Measurement: Lump Sum (LS).
 - b. Description: Work under this item shall include all materials, supplies, equipment, and labor required for collecting and testing concrete core samples from the existing concrete apron extension as described in Technical Specification Section 03 30 00 Cast-in-place Concrete and as indicated in the Contract Drawings. This item also includes repairing the cored holes.
 - c. Payment: Lump Sum (LS).
12. Miscellaneous Steel – Repair Welds at Gate Extension
- a. Measurement: Per bay (BAY).
 - b. Description: Work under this item shall include all materials, supplies, equipment, and labor required to repair existing welds at the vertical skin plate extension in all 11 bays. Work shall also include field welding and repair of galvanized coatings as described in Technical Specification Section 05 12 00 Structural Steel Framing and as indicated in the Contract Drawings.
 - c. Payment: Per bay (BAY).

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Section 01 20 00 – Measurement and Payment

- 13. Replace J-Seals
 - a. Measurement: Per bay (BAY).
 - b. Description: Work under this item shall include all materials, supplies, equipment, and labor required for removal and disposal of existing J-Seals and fabricating, installing, and installation of new J-Seals in all 11 bays as described in these Technical Specifications and as indicated in the Contract Drawings.
 - c. Payment: Per bay (BAY).
- 14. Repair Expansion Joints – S Abutment Wing Wall
 - a. Measurement: Measurement for “Repair Expansion Joints – S Abutment Wing Walls” will be per linear foot (LF).
 - b. Description: Work under this item shall include all materials, supplies, equipment, and labor required for removal and disposal of existing joint seal and installation of new joint seal with backer rod and hydrophilic seal for 50 LF as described in these Technical Specifications and as indicated in the Contract Drawings.
 - c. Payment: “Repair Expansion Joints –S Abutment Wing Walls” will be per linear foot (LF).
- 15. Railing – Repair Damaged Section
 - a. Measurement: Per linear foot (LF).
 - b. Description: Work under this item shall include all materials, supplies, equipment, and labor required for removing 8 LF of damaged section of railing. Work shall also include all materials, supplies, equipment, and labor required to field measure, fabricate, install, and coat 8 LF of new railing, along with repairing the coating of existing railing as described in Technical Specification Section 05 12 00 Structural Steel Framing and as indicated in the Contract Drawings.
 - c. Payment: Per linear foot (LF).
- 16. Replace Grease Fittings
 - a. Measurement: Per bay (BAY).
 - b. Description: Work under this item shall include all materials, supplies, equipment, and labor required for the removal of existing grease lines, fabrication, and installation of new grease lines in all 11 bays as described in these Technical Specifications and as indicated in the Contract Drawings.
 - c. Payment: Per bay (BAY).

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Section 01 20 00 – Measurement and Payment

17. Install New Gauge on North Abutment and South Abutment
 - a. Measurement: Each (EA).
 - b. Description: Work under this item shall include all materials, supplies, equipment, and labor required for the removal of the existing gauge, fabrication, and installation of 2 new gauges as described in these Technical Specifications and as indicated in the Contract Drawings.
 - c. Payment: Each (EA).
18. Vibrating Wire Piezometer Array
 - a. Measurement: Lump Sum (LS).
 - b. Description: Work under this item shall include all materials, supplies, equipment, and labor required for fabrication, installation, and testing the vibrating wire piezometer and associated equipment as described in Technical Specification Section 31 09 13 Geotechnical Instrumentation and Monitoring and as indicated in the Contract Drawings.
 - c. Payment: Lump Sum (LS).
19. Armor Stone
 - a. Measurement: Per ton (TON).; measured based on Truck Measurement Method described in Paragraph 1.01 above.
 - b. Description: Work under this item shall include all testing, materials, supplies, equipment, and labor required for supplying, transporting, stockpiling, and installing 650 tons of Armor Stone as described in Technical Specification Section 35 31 23 – Armor Stone and as indicated in the Contract Drawings
 - c. Payment: Per ton (TON).
20. Bedding Stone Type I
 - a. Measurement: Per ton (TON).; measured based on Truck Measurement Method described in Paragraph 1.01 above.
 - b. Description: Work under this item shall include all materials, supplies, equipment, and labor required for supplying, transporting, stockpiling, and installing 330 tons of Bedding Stone Type I as described in Technical Specification Section 35 31 23 Armor Stone and as indicated in the Contract Drawings.
 - c. Payment: Per ton (TON).
21. Owner Furnished Armor Stone

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- a. Measurement: Per ton (TON).; measured based on Truck Measurement Method described in Paragraph 1.01 above.
 - b. Description: Work under this item shall include all materials, supplies, equipment, and labor required for transporting, stockpiling, and installing 350 tons of Armor Stone ,furnished by the Owner, as described in Technical Specification Section 35 31 23 – Armor Stone and as indicated in the Contract Drawings
 - c. Payment: Per ton (TON).
- 22. Owner Furnished Bedding Stone Type II
 - a. Measurement: Per ton (TON); measured based on Truck Measurement Method described in Paragraph 1.01 above.
 - b. Description: Work under this item shall include all supplies, equipment, and labor required for transporting, stockpiling, and installing 450 tons of Bedding Stone Type II, furnished by the Owner, As described in Technical Specification Section 35 31 23 Armor Stone and as indicated in the Contract Drawings.
 - c. Payment: Per ton (TON).
- 23. Owner Furnished Bedding Stone Type I
 - a. Measurement: Per ton (TON).; measured based on Truck Measurement Method described in Paragraph 1.01 above.
 - b. Work under this item shall include all supplies, equipment, and labor required for transporting, stockpiling, and installing 70 tons of Bedding Stone Type I, furnished by the Owner, as described in Technical Specification Section 35 31 23 – Armor Stone and as indicated in the Contract Drawings
 - c. Payment: Per ton (TON).
- 24. Owner Furnished Precast Concrete Keyway
 - a. Measurement: Each (EA).; measured based on Truck Measurement Method described in Paragraph 1.01 above.
 - b. Work under this item shall include all supplies, equipment, and labor required for transporting, stockpiling, and installing of 8 Preacst Concrete Keyways, furnished by the Owner, as described in Technical Specification Section 03 41 00 – Precast Structural Concrete and as indicated in the Contract Drawings
 - c. Payment: Each (EA)
- 25. Geotextile Fabric:

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- a. Measurement: Per square yard (SY).
 - b. Description: Work under this item shall include the materials, supplies, equipment, and labor required to fabricate and install 310 SY of geotextile fabric as described in Technical Specification Section 35 31 23 – Armor Stone and as indicated in the Contract Drawings. Measurement for payment of Geotextile Fabric will be conducted for the material placed within the lines and grades shown on the Contract Drawings. Measurement for payment for Geotextile Fabric shall include the neat lines shown on the plans without overlaps at seams and joints.
 - c. Payment: Per square yard (SY).
26. Approach Redevelopment - Top Course
- a. Measurement: Per ton (TON).
 - b. Description: Work under this item shall include the materials, supplies, equipment, and labor required to install 200 TONS of the crushed surfacing top course for the approach redevelopment as described and indicated in the Contract Drawings.
 - c. Payment: Per ton (TON).
27. Minor Changes:
- a. Measurement: No unit of measurement shall apply to the lump sum price for “Minor Changes.”
 - b. For the purpose of providing a common Proposal for all Bidders, an amount for “Minor Changes” has been entered as part of the total bid by the Contractor. This item includes payments, credits, or changes amounting to \$10,000 or less for equitable adjustments for differing site conditions. At the discretion of the Owner, all or part of this estimated amount may be used in lieu of a formal change order. All work and payment under this bid item must be authorized by the Owner.
 - c. Payment for “Minor Changes” will be only for the charges and amounts approved by the Owner. If no changes are authorized under this bid item, final payment for this bid item will be \$0 (zero). If the parties are able to agree, the price will be determined using unit prices or other agreed upon prices. If the parties cannot agree, the price will be determined by the Owner’s Representative using unit prices; or other means to establish costs.

END OF SECTION

DIVISION 1 - GENERAL REQUIREMENTS

Section 01 31 19 – Project Meetings

PART 1 - GENERAL

1.01 PRE-CONSTRUCTION MEETING

A. NOTIFICATION

1. Following the award, the Owner's Representative will confirm the date and time of a pre-construction meeting with the selected bidder.

B. LOCATION

1. The pre-construction meeting will be held at the project site.

C. ATTENDANCE

1. The following are requested to attend:
 - a. IWRB Representatives:
 - (1) Owner's Representative/Project Engineer – Mott MacDonald
 - (2) Contract Administrator
 - (3) Owner's Construction Manager
 - b. Contractor's Representatives:
 - (1) Project Manager (Superintendent)
 - (2) Contract Administrator
 - (3) Major Subcontractors
 - (4) Major Suppliers
 - c. Community Representative

1.02 PROGRESS MEETINGS

- A. The Owner's Representative will schedule and administer weekly progress meetings throughout progress of the work.
- B. The Owner's Representative will arrange meetings, prepare standard agenda with copies for participants, preside at meetings, record minutes and distribute copies within ten working days to the Contractor, meeting participants, and others affected by decisions made. Progress meetings may take place in-person or via teleconference, at the Owner's Representative's discretion.
- C. The Contractor is responsible for providing a location with teleconference capabilities and connectivity, as described in Section 01 50 00 – Temporary Facilities and Controls.
- D. Attendance is required for the Contractor's job superintendent, and major subcontractors, Owner's Construction Manager, Owner, and Owner's Representative as appropriate to the agenda topics for each meeting.

DIVISION 1 - GENERAL REQUIREMENTS

Section 01 31 19 – Project Meetings

E. Standard Agenda

1. Safety moment.
2. Review minutes of previous meeting.
3. Review of work progress.
4. Field observations, problems, and decisions.
5. Identification of problems that impede planned progress.
6. Maintenance of progress schedule.
7. Corrective measures to regain projected schedules.
8. Planned progress during succeeding work period.
9. Coordination of projected progress.
10. Maintenance of quality and work standards.
11. Effect of proposed changes on progress schedule and coordination.
12. Demonstration that the project record drawings are up-to-date.
13. Other business relating to the work.

END OF SECTION

DIVISION 1 – GENERAL REQUIREMENTS

Section 01 33 00 – Submittals

PART 1 – GENERAL

1.01 SUMMARY

- A. Section includes administrative and procedural requirements for submittals, including shop drawings, product data, samples, and other submittals.

1.02 RELATED SECTIONS:

- A. All Sections of these Technical Specifications are related to this Section. Required submittals are identified in each of the individual Technical Specification sections.

1.03 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Owner's Representative receipt of submittal. No extension of the Contract time will be authorized because of failure to transmit submittals enough in advance of the work to permit processing, including resubmittals.
- B. Initial Review: Allow ten (10) working days for initial review of each submittal, unless noted otherwise in other Technical Specifications. Allow additional time if coordination with subsequent submittals is required. The Owner's Representative will advise Contractor when a submittal being processed must be delayed for coordination. The Owner's Representative will determine if submittals are acceptable and inform the Contractor whether the submittal is accepted or if modifications and resubmittal are required.
- C. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
- D. Resubmittal Review: Allow five (5) working days for review of each resubmittal.
- E. Submittals: Place a permanent label or title block on each submittal item for identification. The Owner's Representative will be tracking and logging the status of each submittal and resubmittal.
- F. Indicate name of firm or entity that prepared each submittal on label or title block.
- G. Include the following information for processing and recording action taken:
 - 1. Project name.
 - 2. Date.
 - 3. Name of construction manager.
 - 4. Name of Contractor.

DIVISION 1 – GENERAL REQUIREMENTS

Section 01 33 00 – Submittals

5. Name of Subcontractor.
 6. Name of supplier.
 7. Name of manufacturer.
 8. Submittal number or other unique identifier, including revision identifier.
 9. Number and title of appropriate Technical Specification section.
 10. Contract Drawing number and detail references, as appropriate.
 11. Location(s) where product is to be installed, as appropriate.
 12. Other necessary identification.
- H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
- I. Note date and content of previous submittal.
- J. Note date and content of revision in label or title block and clearly indicate extent of revision.
- K. Resubmit submittals until they are marked with approval notation from Owner's Representative.
- L. Distribution: Furnish copies of final submittals to manufacturers, Subcontractors, suppliers, fabricators, installers, and others as necessary for performance of construction activities. Show distribution on transmittal forms. The Contractor is responsible for furnishing copies to agencies from which Contractor has secured permits.
- M. Use for Construction: Retain complete copies of submittals on project site. Use only final submittals that are marked with approval notation from Owner's Representative.
- N. All text shall be legible with a font size 8 points or larger when printed on 8.5x11-inch paper.

PART 2 – PRODUCTS

2.01 SUBMITTAL PROCEDURES

- A. General submittal procedure requirements: Prepare and submit submittals required by individual Technical Specifications to the Owner's Representative. Types of submittals are indicated in individual Technical Specification sections
- B. Product data: Collect information into a single submittal for each element of construction and type of product or equipment.
- C. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as shop drawings, not as product data.

DIVISION 1 – GENERAL REQUIREMENTS

Section 01 33 00 – Submittals

- D. Mark each copy of each submittal to show which products and options are applicable.
- E. Include the following information, as applicable:
 - 1. Manufacturer's catalog cuts.
 - 2. Manufacturer's product specifications.
 - 3. Standard color charts.
 - 4. Statement of compliance with specified referenced standards.
 - 5. Testing by recognized testing agency.
 - 6. Application of testing agency labels and seals.
 - 7. Notation of coordination requirements.
 - 8. Availability and delivery time information.
 - 9. Submit product data before or concurrent with samples.
- F. Shop Drawings: Prepare project-specific information, drawn accurately to scale. Do not base shop drawings on reproductions of the Contract Drawings or standard printed data.
- G. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - 1. Identification of products.
 - 2. Schedules.
 - 3. Compliance with specified standards.
 - 4. Notation of coordination requirements.
 - 5. Notation of dimensions established by field measurement.
 - 6. Relationship and attachment to adjoining construction clearly indicated.
 - 7. Seal and signature of professional engineer if required.
- H. Sheet Size (when hard copies required): Except for templates, patterns, and similar full-size drawings, submit shop drawings on sheets at least 8-1/2 by 11 inches, but no larger than 22 by 34 inches.
- I. Samples: Submit samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
- J. Transmit samples that contain multiple, related components such as accessories together in one submittal package.

DIVISION 1 – GENERAL REQUIREMENTS

Section 01 33 00 – Submittals

- K. Identification: Attach label on unexposed side of samples that includes the following:
 - 1. Generic description of sample.
 - 2. Product name and name of manufacturer.
 - 3. Sample source.
 - 4. Number and title of applicable Technical Specification section.
 - 5. Technical Specification paragraph number and generic name of each item.
- L. Disposition: Maintain sets of approved samples at project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
- M. Samples that may be incorporated into the work are indicated in individual Technical Specification sections. Such samples must be in an undamaged condition at time of use.
- N. Samples not incorporated into the work, or otherwise not designated as Owner's property, are the property of the Contractor.
- O. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available. Submit material sample for items such as aggregates, soil, and mulch.
- P. Contractor's Construction Schedule: Comply with requirements specified in the Specific Requirements and Technical Specification Section 01 31 19 – Project Meetings.
- Q. Test and inspection reports and schedule of tests and inspections submittals.
- R. Pre-work Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- S. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- T. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Include a detailed description of the differing conditions, together with recommendations for correcting the differing conditions. All

DIVISION 1 – GENERAL REQUIREMENTS

Section 01 33 00 – Submittals

Change Order requests must be submitted in accordance with the Contract Documents.

- U. Closeout Submittals: Project Record Drawings, and maintenance material submittals.
- V. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- W. Manufacturer, product, and material certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer, its products, and/or its materials comply with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- X. Material test reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents. Submit material test reports to the Owner's Representative for review and approval.
- Y. Product test reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency. Submit product test reports to the Owner's Representative for review and approval.

2.02 COMPLIANCE

- A. In the absence of an approved submittal that meets the requirements of this section, the Contractor shall furnish the exact materials specified or materials selected by the Owner's Representative based on the Contract Drawings.

2.03 WORKING DRAWINGS

- A. The Owner's Representative will not accept Working Drawings that prohibit the Owner's Representative from making sepias or copies for its own use.
- B. Quality: Working Drawings shall be prepared accurately to scale sufficiently large to indicate all pertinent features of the products and the method of fabrication, connection, erection, or assembly with respect to the work.
- C. All Drawings submitted to the Owner's Representative for this approval shall be drawn on sheets in 11 X 17-inch format or sheets that are multiples of 8-1/2 X 11 inches. Upon the Owner's Representative's

DIVISION 1 – GENERAL REQUIREMENTS

Section 01 33 00 – Submittals

specific request, the Contractor shall furnish copies of any drawing on sheets having the dimensions 22 X 34 inches long in overall dimensions. All text shall be legible with a font size 8 points or larger when printed on 11x17-inch paper.

D. Type of Prints Required:

1. Whenever possible, the Contractor shall transmit all submittals in Adobe portable document format (PDF).
2. If PDF format is not feasible, the Contractor shall submit six prints or copies of all Shop Drawings or supplemental Working Drawings in accordance with the General Conditions.

E. Distribution: The Owner's Representative and Owner's Construction Manager will review any Drawings provided by the Contractor, mark with appropriate notations, prepare the required number of prints for its use, and return marked copies to the Contractor. The Contractor may then order, at the Contractor's expense, as many additional copies as required for Contractor's work.

2.04 PRODUCT DATA

- A. The Contractor shall submit product data in PDF format.
- B. Catalog cuts or brochures shall show the type, size, ratings, style, color, manufacturer, and catalog number of each item and be complete enough to provide for positive and rapid identification in the field. General catalogs or partial lists will not be accepted.

2.05 SAMPLES

- A. The sample submitted shall be the exact or precise article proposed to be furnished.
- B. Samples, color chips, finish styles, etc., shall be submitted in sufficient number as to provide the Owner's Representative with alternate choices.

2.06 SUBSTITUTIONS

- A. The Contract is based on the materials, equipment, and methods described in the Contract Documents.
- B. The Owner's Representative will consider proposals for substitutions of materials, equipment, and methods only when such proposals are accompanied by full and complete technical data and all other information required by the Owner's Representative to evaluate the proposed substitution.
- C. Do not substitute materials, equipment, or methods unless such substitution has been specifically approved in writing for this work by the Owner's Representative.

DIVISION 1 – GENERAL REQUIREMENTS

Section 01 33 00 – Submittals

- D. Requests for substitutions may be made after award. Such requests shall be accompanied by all technical data and costs, and delivery information. When, in the opinion of the Owner's Representative, the product is equal, or better, in all respects to the product specified, it will be approved subject to Contract requirements and the Contractor's assumption of all responsibility thereof.
- E. After written approval, this submission shall become a part of the Contract, and may not be deviated from except upon written approval of the Owner's Representative and Owner's Construction Manager.
- F. Catalog and product data for equipment approved by the Owner's Representative does not in any case supersede the Contract Documents. The approval by the Owner's Representative shall not relieve the Contractor from responsibility for deviations from the Contract Drawings, unless Contractor has in writing called the Owner's Representative attention to such deviations at the time of the submission, nor shall it relieve Contractor from responsibility for errors of any sort in the items submitted. The Contractor shall check the work described by the product data with the Contract Documents for deviations and errors.
- G. It shall be the responsibility of the Contractor to ensure that items to be furnished fit the space available. Contractor shall make necessary field measurements to ascertain space requirements, including those for connections and shall order such sizes and shapes of equipment that the final installation shall suit the true intent and meaning of the Contract Drawings and Specifications.
- H. Where equipment requiring different arrangement of connections from those shown as approved is used, it shall be the responsibility of the Contractor to install the equipment to operate properly, and in harmony with the intent on the Plans, and to make all changes in the work required by the different arrangement of connections together with any cost of redesign necessitated thereby, all at Contractor's expense.
- I. Where the phrase "or approved alternate" or "or equal" occurs in the Contract Documents, do not assume that material, equipment, or methods will be approved by the Owner's Representative unless the item has specifically been approved for this Work by the Owner's Representative.

PART 3 – EXECUTION

3.01 CONTRACTOR'S REVIEW

- A. Submittals: Review each submittal and check for coordination with other work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with submittal stamp before submitting to Owner's Representative and Owner's Construction Manager.

DIVISION 1 – GENERAL REQUIREMENTS

Section 01 33 00 – Submittals

- B. Submittal Stamp: Contractor shall stamp the cover page of each submittal with a uniform, approval stamp. Include project name and location, submittal number, Technical Specification section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
- C. All working drawings, brochures, and product data shall be submitted in Adobe Portable Document Format (PDF) generated by a PDF writer or scanned to PDF format.
- D. Samples shall be submitted using electronic means following a system selected by the Owner's Representative and Owner's Construction Manager and discussed at the pre-construction conference.

3.02 OWNER'S ACTION

- A. The Owner's Representative and Owner's Construction Manager will review each submittal, make marks to indicate corrections or revisions required, and return it. The Owner's Representative will forward each submittal to the Contractor.
- B. Partial submittals prepared for a portion of the work will be reviewed when use of partial submittals has received prior approval from Owner's Representative.
- C. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- D. Submittals not required by the Contract Documents may be returned by the Owner's Representative without action.
- E. Submittal Response: The Owner's Representative will note the submittal status when responding to a submittal as follows:
 - 1. Under Review.
 - 2. Approved: If the review indicates that the submittal appears to be in conformance with the Contract Documents, the submittal will be marked "APPROVED". The Contractor may begin implementing the work method or incorporating the material or equipment covered by the submittal.
 - 3. Approved As Noted: If the review indicates that the submittal is insufficient or that limited corrections are required, the submittal will be marked "APPROVED AS NOTED". The Contractor may begin implementing the work method or incorporating the material or equipment covered by the submittal, in accordance with the noted corrections. Where submittal information will be incorporated in operation and maintenance plan, a corrected copy shall be

DIVISION 1 – GENERAL REQUIREMENTS

Section 01 33 00 – Submittals

provided within 30 days, otherwise no further action will be required.

4. Resubmit: If the review reveals that the submittal is substantially insufficient or contains incorrect data to an extent that requires revision and re-review by the Owner's Representative prior to proceeding with the associated work, the submittal will be marked "RESUBMIT" and returned to the Contractor. This indicates that the Contractor should not proceed with the relevant portion of work, at-risk or otherwise, until a revised submittal has been submitted, reviewed, and accepted by the Owner's Representative as either "APPROVED", or "APPROVED AS NOTED."
5. Rejected. If the review reveals a proposed product which does not meet the specifications, the submittal will be marked "REJECTED" and returned to the Contractor. This indicates that the Contractor should not proceed with the relevant portion of work.
6. N/A: If the review reveals that the submittal is not required by the Contract Documents, at the Owner's Representative's discretion it may be returned by the Owner's Representative without action marked "N/A" This does not constitute review of the submittal, and is only communicating that Owner's Representative's review of this submittal is not required by the Contract Documents. It is the Contractor's responsibility to follow up with the Owner's Representative if the Contractor needs approval of information in a submittal that was marked "N/A."

END OF SECTION

DIVISION 1 – GENERAL REQUIREMENTS
Section 01 35 43 – Environmental Controls

PART 1 – GENERAL

1.01 DESCRIPTION

- A. The work includes the requirements to maintain environmental controls by the Contractor in accordance with the specifications and the Owner provided permits. The work also includes compliance with all controls or ordinances with respect to safety, noise, dust, fire and police action, civil disobedience, security, or traffic.
1. IDWR Stream Channel Protection Specialist shall be contacted no less than 3 business days before construction begins by:
- a. Email: northerninfo@idwr.idaho.gov, or
- b. Phone: (208) 762-2800
- Failure to do so may result in annulment of IDWR Permit No. S97-20058.
2. All work below the OHW must occur from November 1st 2023 to March 15th 2024.
- B. Lubricants composed of biodegradable base oils such as vegetable oils, synthetic esters, and polyalkylene glycols are recommended for use in equipment operated in or near water.
- C. This work item shall include the planning, installing, inspecting, maintaining, and removing Best Management Practices (BMPs) to prevent pollution of air, land, and water, and control, respond to, and dispose of existing structures during the contract.
- D. The Contractor shall perform the following:
1. Install, maintain, and remove all BMPs during the life of the contract.
2. Perform other work shown on the Contract Drawings or as directed by Owner's Representative.
3. Educate all Contractor and all Subcontractor staff in environmental compliance issues at weekly meetings.
- E. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other Federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply.
- F. The Contractor is wholly responsible for meeting water quality standards during the duration of the work.

1.02 RELATED SECTIONS

- A. Technical Specification Section 01 50 00 – Temporary Facilities and Controls

DIVISION 1 – GENERAL REQUIREMENTS
Section 01 35 43 – Environmental Controls

- B. Technical Specification Section 01 57 13 – Temporary Erosion and Sediment Controls
- C. Appendix A – Permit Documents

1.03 APPLICABLE PUBLICATIONS

- A. The following permits, rules, requirements, and regulations provided in Appendix A – Permit Documents specified may apply to this work:
 - 1. IDWR Stream Alteration Permit S97-20058 Extension
 - 2. IDWR Certificate of Approval
 - 3. USACE Permit No. NWP-2019-00370
 - 4. DEQ Section 401 Water Quality Certification
 - 5. IDWR Stream Alteration Permit S97-20058

1.04 SITE MAINTENANCE:

- A. The Contractor shall keep the work site and Contractor's facilities clean and free from rubbish and debris. Materials and equipment shall be removed from the site when they are no longer necessary. Upon completion of the work and before final acceptance, the work site shall be cleared of equipment, unused materials, and rubbish to present a clean and neat appearance in conformance with the present condition of the site.
- B. CLEAN-UP
Refer to specific site and permitting requirements in Appendix A – Permit Documents.

1.05 AIR POLLUTION CONTROL:

- A. The Contractor shall not discharge smoke, dust, and other contaminants into the atmosphere that violate the regulations of any legally constituted authority. Internal combustion engines shall not be allowed to idle for prolonged periods of time. The Contractor shall maintain construction vehicles and equipment in good repair. Exhaust emissions that are determined to be excessive by the Owner's Representative shall be repaired or replaced at no cost to the Owner.
- B. The Contractor shall minimize dust nuisance by cleaning, sweeping, vacuum sweeping, sprinkling with water, or other means. The use of water, in amounts which result in mud on public streets, is not acceptable as a substitute for sweeping or other methods. Equipment for this operation shall be on the job site or available at all times.
- C. Visible dust generated from any Contractor activity shall not be allowed.
- D. The Contractor shall sprinkle water as necessary to prevent visible dust at all times during earthwork operations.

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1.06 NOISE CONTROL:

- A. Refer to Specific Requirements in Appendix A – Permit Documents.
- B. Construction involving noisy operations, including starting and warming up of equipment shall be in compliance with local noise ordinances. Noisy operations shall be scheduled to minimize their duration. Construction involving noisy operations shall be limited to work hours stated in Technical Specification 01 10 00 – General Requirements.
- C. The Contractor shall comply with all local controls and noise level rules, regulations and ordinances which apply to any work performed pursuant to the Contract.
- D. Each internal combustion engine, used for any purpose on the job or related to the job, shall be enclosed and be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without said muffler and enclosure.
- E. Noise levels shall be in accordance with Idaho Code. Equipment that cannot meet these levels shall be quieted by use of improved exhaust mufflers, portable acoustical screens, or other means. Equipment not modified to meet these requirements shall be removed from the project.

1.07 WATER CONTROL:

- A. The Contractor shall conform to the regulations and requirements of legally authorized surface water management agencies.
- B. The Contractor shall be responsible for keeping upland (above OHW) excavations for the structures, trenches, and other areas free from water as required to permit continuous progress of, or to prevent damage to, its own work or the work of others. The Contractor's operations shall be conducted in such a manner as to prevent sediment or other contaminants from reaching the existing sewers, storm drains, creeks, or streams. Temporary erosion control and settling ponds shall be provided in the work area as required to trap runoff until the turbidity has settled and the water can be diverted into drainage courses.
- C. The Contractor shall cover exposed excavated areas and spoil piles when runoff from rain is or would be likely to cause turbid waters to enter local waterways. The Contractor shall suspend work in the rain if such work cannot be performed without causing turbid runoff. If turbid water is discovered entering storm drainage structures, the Owner's Representative may suspend the work immediately. All costs associated with suspension of the work shall be the responsibility of the Contractor. Work shall remain suspended until turbid runoff has been eliminated.
- D. To avoid solids or turbid runoff from entering local waterways and storm drain systems, the Contractor shall cover, secure, and/or berm excavated areas and spoil piles and employ other methods as necessary such as

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hay bales around storm drains or around construction sites, use of cut and cover construction method, or use of sedimentation basins.

1.08 WATER QUALITY MEASURES:

- A. Erosion control measures including silt fences, filter fabric, sedimentation ponds, placement of hay bales along the peripheries of construction sites, temporary detention ponds, and terraced slopes shall be employed as appropriate and shall be in place prior to any clearing or grading activity.
- B. All site runoff shall be diverted into temporary erosion control facilities until solids settle before routing to Priest River or Outlet Bay.
- C. The Contractor shall utilize industry standard erosion and sedimentation control Best Management Practices (BMPs) such as catch basin protective inserts, check dams, silt fences, sediment ponds, holding tanks, and drainage swales to prevent turbid runoff during the duration of the work.
- D. No "track-out" of soils or other materials shall be allowed. The Contractor shall employ the use of built up construction entrances, wheel washes, and other means to prevent contamination of roads, streets, and other traveled surfaces in the vicinity of the project site. Should "track-out" occur, it shall be removed immediately.

1.09 WATER QUALITY CONTROL REQUIREMENTS:

All work shall be performed in a manner that does not adversely impact water quality or cause damage to critical habitat located outside the Project Site areas. The Contractor is prohibited from allowing equipment, boats, barges, or associated machinery to create petroleum product sheen on the water or otherwise create a release of petroleum or petroleum products due to petroleum products handling, use or storage. The Contractor shall have absorbent boom on-site and ready for placement to contain sheens in the event a spill occurs. The Owner's Construction Manager and Owner's Representative must be immediately notified if a material spill occurs or oil sheen is observed during any part of construction.

1.10 WATER QUALITY MONITORING AND CONTROL PLAN

The Contractor shall prepare and submit a Water Quality Monitoring and Control Plan prior to the start of construction for all work located below the ordinary high water mark (OHW). The Water Quality Control Plan shall include methods and procedures of demolition, and excavation and fill placement, that will be protective of lake and river water quality, and a description of contingency measures that will be implemented in the event water quality compliance criteria is exceeded during the performance of such activities.

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1.11 WATER QUALITY MONITORING AND REPORTING CONDITIONS:

- A. During and immediately after project construction, the Contractor shall visually monitor for turbidity discharges at the point of compliance in accordance with DEQ's Section 401 Water Quality Certification in Appendix A – Permit Documents. The Contractor shall meet water quality criteria as defined in the Section 401 Water Quality Certification and applicable local, state, and federal standards. The Contractor shall have in place BMPs to prevent water quality exceedances and contingency measures to implement should water quality violations occur.
- B. Turbidity monitoring work shall be conducted by a technician that is either an employee of Contractor or an independent company experienced in conducting water quality compliance monitoring work. The proposed technician shall have a minimum 5 years of documented experience with water quality and turbidity monitoring work. Technician shall have demonstrated proficiency in using the water quality monitoring equipment.
- C. Monitoring Locations – The Contractor shall coordinate with Idaho DEQ to establish a background location (up-current) and point of compliance or mixing zone (down-current) location in accordance with DEQ's Section 401 Water Quality Certification (provided in Appendix A – Permit Documents) for turbidity monitoring.
- D. Turbidity Monitoring Compliance – Turbidity monitoring must be conducted in accordance with DEQ's Section 401 Water Quality Certification in Appendix A – Permit Documents.
 - 1. Turbidity shall not exceed background turbidity by more than 50 nephelometric turbidity units (NTU) instantaneously or more than 25 NTU for more than 10 consecutive days. Idaho DEQ requires that turbidity monitoring occur when project activities result in a discharge that causes a visible sediment plume.
 - 2. A technician meeting the qualifications outlined in paragraph B above shall measure turbidity at the background location and point of compliance at the frequency indicated in the table below and record the date, time, location, and turbidity measurements in the daily log.
 - 3. Turbidity measurements cannot be taken during a cessation of activity.
- E. Reporting – Copies of daily logs for turbidity monitoring must be made available to Idaho DEQ and other local, state, and federal regulatory agencies upon request. The log must include:
 - 1. Background NTUs, point of compliance NTUs, comparison of the points in NTUs, and location (latitude and longitude), time, and date for each reading.

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2. A narrative discussing all exceedances, controls applied and their effectiveness, subsequent monitoring, work stoppage, and any other actions taken. Documentation of exceedances shall include:
 - a. A description of the nature and cause of the exceedance.
 - b. The period of non-compliance including exact dates, duration and times and/or the anticipated time when the Applicant will return to compliance.
 - c. The steps taken, or to be taken, to reduce eliminate, and prevent the recurrence of the non-compliance.
 3. Any exceedance of the turbidity standard must be reported to the appropriate DEQ regional office (Coeur d’Alene) within 24 hours.
- F. If water quality exceedances are observed outside of the point of compliance, work shall cease immediately and the Contractor shall assess the cause of the water quality problem and take appropriate measures to correct the problem and/or prevent further water quality turbidity exceedances.
- G. If the results of the monitoring show that the water quality standards or project performance standards are not being met, additional monitoring and mitigation may be required.
- H. Any changes to the monitoring requirements must be approved in writing by DEQ.

1.12 OIL SPILL PREVENTION AND CONTROL

- A. The Contractor shall prepare a project specific spill prevention, control and countermeasures (SPCC) plan to be used for the duration of the project. The plan shall be submitted to the Owner’s Representative prior to the commencement of any on-site construction activities. The Contractor shall maintain a copy of the plan at the Work site, including any necessary updates as the Work progresses. Adequate materials and procedures to respond to unanticipated weather conditions or accidental releases of materials (sediment, petroleum, hydrocarbons, etc.) shall be available on-site. The SPCC Plan also will ensure the proper management of oil, gasoline and solvents used in the operation and maintenance of construction equipment, that machinery remains free of external petroleum-based prior to entering the work area and during the work, and necessary repairs occur prior to returning the equipment to operation in the work area.
- B. An emergency spill containment kit shall be located on-site with a pollution prevention plan detailing fueling procedures, materials storage and equipment storage.
- C. Fueling areas shall be distinctly identified and established upland of OHW.

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- D. If hazardous materials are encountered during construction, the Contractor shall do everything possible to control and contain the material until appropriate measures can be taken. Hazardous material, as referred to within this Specification, is defined in 40 CFR Part 261 Subpart A 261.3 “Definition of hazardous waste”. Specific information required in the SPCC Plan is outlined in the Submittals section of the Technical Specification.
- E. The Contractor shall be responsible for prevention, containment, and cleanup of spilling of oil, fuel and other petroleum products used in the Contractor's operations. All such prevention, containment and cleanup costs shall be borne by the Contractor and shall be conducted in accordance with IDAPA 58.01.02.800-58.01.02.852.
- F. The Contractor is advised that discharge of oil from equipment or facilities into state waters or onto adjacent land is not permitted under state water quality regulations.
- G. The Contractor shall, at a minimum, take the following measures regarding oil spill prevention, containment, and cleanup:
 - 1. Fuel hoses, lubrication equipment, hydraulically operated equipment, oil drums, and other equipment and facilities shall be inspected regularly for drips, leaks, or signs of damage, and shall be maintained and stored properly to prevent spills. Proper security shall be maintained to discourage vandalism.
 - 2. All land-based oil and products storage tanks shall be diked or located so as to prevent spills from escaping to the water. Diking and subsoils shall be lined with impervious material to prevent oil from seeping through the ground and dikes.
 - 3. The Contractor shall not store oil or fuel on the river bank, or equipment that is not required for the daily construction activities. The Contractor shall specify where oil and fuels will be stored in the SPCC Plan. A metal pan or other impervious material with sides a minimum of four (4) inches high shall be placed under the equipment on the beach or adjacent area during refueling. The pan shall have a capacity equal to the capacity of the fuel cans used and catch any spills or leaks during the refueling activity. Fuel caught in the pan shall be contained and either transported off-site or used in the equipment. Under no condition shall the material be discharged on the Project Site. If the Contractor's fuel cells exceed the thresholds set forth in 40 CFR 112, the Contractor shall provide a spill plan and containment equipment accordingly.
 - 4. Special measures shall be taken to prevent bilge pumpage or effluent, chemicals, fuels, oils, greases, bituminous materials, waste washing, herbicides and insecticides, and concrete drainage from entering the water.

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5. All visible floating oils shall be immediately contained with booms, dikes, or other appropriate means and removed from the water prior to discharge into state waters. All visible oils on land shall be immediately contained using dikes, straw bales, or other appropriate means and removed using sand, ground clay, sawdust, or other absorbent material, which shall be properly disposed of by the Contractor. Waste materials shall be temporarily stored in drums or other leakproof containers after cleanup and during transport to disposal. Waste materials shall be disposed off property at an approved site, submit approved sites to the Owner.
 6. In the event of any oil or product discharges into public waters, or onto land with a potential for entry into public waters, the Contractor shall immediately notify the Owner's Representative and the following agencies at their listed 24-hour response numbers:
 - a. DEQ, Coeur d'Alene Regional Office (normal working hours): (208) 769-1422
 - b. Idaho State Communications Center (after hours): 1-360-407-6300
 - c. EPA/NRC: 1-800-424-8802
- H. Maintain on the job at each site the following materials (as a minimum):
1. Oil-Absorbent Booms: 8 each, 20 feet long.
 2. Oil-absorbent pads or bulk material, adequate for coverage of 200 square feet of surface area.
 3. Hay bales: 10
 4. Plastic sheeting
 5. Oil drywall, gloves and plastic bags.
- 1.13 CONTAMINATED/HAZARDOUS SOILS AND GROUNDWATER
- A. Contractor's Responsibility
1. The Contractor shall monitor soils, groundwater and waste materials by instructing workers in observing and reporting questionable materials and odors, such as refuse, oily sheen or color on soils or water, and oily or chemical odors. If hazardous or contaminated materials are encountered, the Contractor shall stop all work in that area and notify the Owner's Representative and Owner's Construction Manager immediately.
 2. The Contractor shall be responsible for all matters related to work safety and for detection of contaminated soils and groundwater encountered during the construction as they relate to worker safety. The Contractor shall ensure the protection of the safety and health

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of construction workers and other authorized persons at the work site from exposure to potential toxic materials.

B. Notification and Suspension

1. In the event the Contractor detects the presence of suspicious materials, the Contractor shall immediately notify the Owner, Owner's Representative, and Owner's Construction Manager. Following such notification by the Contractor, Owner shall in turn notify the various governmental and regulatory agencies concerned with the presence of potentially dangerous materials. Depending upon the type of problem identified, Owner may suspend the work in the vicinity of the material discovery.
2. Following completion of any further testing necessary to determine the nature of the materials involved, the Owner, Owner's Representative, and Owner's Construction Manager will determine how the material shall be handled and disposed of.

1.14 ADMINISTRATIVE REQUIREMENTS

- A. Failure to install, maintain, and/or remove BMPs shown on the Contract Drawings and specified herein, or by order of Owner's Representative; or failure to comply, implement and maintain any provisions and requirements of this Technical Specification; or failure to conduct project operations in accordance with these Technical Specifications and Contract Drawings will result in the suspension of the Contractor's operations by Owner's Representative in accordance with the General Requirements.
- B. Any damages, fines, levies, or judgments incurred as a result of Contractor, Subcontractor, or supplier negligence in complying with the requirements of this Technical Specification will be charged to the Contractor.
- C. The Contractor shall be solely responsible for any schedule impacts from damages, fines, levies, judgments, or stop work orders incurred as a result of Contractor, subcontractor, or supplier negligence in complying with the requirements of this Technical Specification. The project schedule will not be changed to accommodate the time lost.

1.15 APPLICABLE REGULATIONS

- A. Comply with applicable federal, state and local laws and regulations concerning environmental pollution control and abatement, and specific requirements elsewhere in these Specifications and Contract Drawings to prevent and provide for control of environmental pollution.
- B. The Contractor is responsible for the appropriate preventative water quality protection systems to ensure compliance with Appendix A – Permit Documents and in accordance with ITD Standard Specification Section 212 – Erosion and Sediment Control. Water pollution control measures

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shall be utilized throughout the duration of the work in accordance with BMPs described in DEQ's *Catalog of Stormwater Best Management Practices for Idaho Cities and Counties*. Other resources may also be used for selecting appropriate BMPs.

1.16 ENVIRONMENTAL PROTECTIONS

A. Protection of Land Resources:

1. Give special attention to the effect of Contractor's operations upon surroundings. Take special care to maintain natural surroundings undamaged and conduct Work in compliance with following requirements:
 - a. When work is completed, remove storage and all other Contractor buildings and facilities, and sites restored to a neat and presentable condition appropriate to surrounding landscape, unless otherwise specified. Remove debris resulting from Contractor's operation.
 - b. Store petroleum products, industrial chemicals and similar toxic or volatile materials in durable containers, approved by the authority having jurisdiction, located in areas where accidental spillage will not enter water. Store substantial quantities of materials in an area surrounded by containment dikes of sufficient capacity to contain an aggregate capacity of tanks.

B. Protection and Restoration of Property:

1. Preserve public property, prevention of damage to natural environment, etc., insofar as they may be endangered by Work.
2. When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect or misconduct in execution of Work, or in consequence of non-execution of Work, the Contractor shall, restore, or have restored at Contractor's expense, such property to a condition similar and equal to that existing before such damage or injury was done. The Contractor shall do so by repairing, rebuilding, or otherwise restoring any damaged public or private property to pre-project condition or make good the damage or injury in some other manner acceptable to the Owner's Representative.

C. Protection of Water Resources:

1. Perform Work not to create conditions injurious to fish or to their habitat, or which would make water unsuitable for private, municipal, or industrial use.

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2. Take special measures to prevent chemicals, fuels, oils, grease, bituminous materials, waste washings, herbicides, insecticides, lime, wet concrete, cement, silt or organic or other deleterious material from entering waterways.
3. Dispose at an offsite location, wastes, effluents, trash, garbage, oil, grease, chemicals, cement, bitumen, etc., petroleum, and chemical products or wastes containing such products, in a lawful manner conforming to applicable local, state and federal laws. Furnish the Owner, Owner's Representative, and Owner's Construction Manager with documentation showing compliance with this requirement.
4. Conform to applicable local, state and federal laws for disposal of effluents. Dispose of waters used to wash down equipment in a manner to prevent their entry into a waterway. If waste material is dumped in unauthorized areas, remove material and restore area to condition of adjacent, undisturbed area. If necessary, excavate contaminated ground and disposed of as directed by the Owner's Representative and replace with suitable compacted fill material with surface restored to original condition.

1.17 SUBMITTALS

- A. The Contractor shall prepare and submit a Work Plan to the Owner, Owner's Representative, and Owner's Construction Manager for review and approval. For submission specifics including time frame requirements, see Section 01 33 00 – Submittals. The following items shall be submitted:
 1. Water Quality Monitoring and Control Plan: The Contractor shall submit to the Owner, Owner's Representative, and Owner's Construction Manager a detailed Water Quality Monitoring and Control Plan for approval that is consistent with the project specification requirements presented herein and in paragraph WATER QUALITY MONITORING AND CONTROL PLAN of this Specification. At a minimum the plan shall include the following information:
 - a. Project Schedule: A schedule reflecting the expected timing and duration of the major activities associated with in-water construction. These shall include but are not limited to mobilization, demolition operations, anticipated schedule for performing in-water work, surveys, method of flow diversion and project access throughout construction period and demobilization.
 - b. Best Management Practices: The Contractor shall also include in the Water Quality Control Plan a description of BMPs that will be implemented during in-water lake and

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shoreline construction activities to satisfy permit requirements and meet the Owner's project goals.

- 1) BMP is to include a site-specific SPCC that provides a site plan and narrative describing demolition debris and spill containment plan; and measures to reduce/recycle hazardous and non-hazardous wastes.
 - 2) The spill containment control plan, per Section 1.12.A of this Specification.
 - 3) Hazardous materials storage plan with narrative describing methods of storage, security, and containment methods.
 - 4) BMPs that will be used to protect water quality must be approved by DEQ prior to commencement of the work.
2. Spill Prevention, Control and Countermeasures Plan: Develop a written description of their SPCC plan per section 1.12.A of this Specification. The SPCC plan shall additionally include the following information:
- a. Site Information: Identify general site information useful in construction planning, recognizing potential sources of spills, and identifying personnel responsible for managing and implementing the plan.
 - b. Project Site Description: Identify staging, storage, maintenance, and refueling areas and their relationship to drainage pathways, waterways, and other sensitive areas, specifically address:
 - 1) The Contractor's equipment maintenance, refueling, and cleaning activities.
 - 2) The Contractor's on-site storage areas for hazardous materials.
 - c. Spill Prevention and Containment: For each of the locations identified in (b.) above, specifically address:
 - 1) Spill prevention and containment measures to be used at each location.
 - 2) The method of collecting and treating, or disposing of runoff from each location.
 - 3) The method of diverting project runoff from each location.

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- d. Spill Response: Outline spill response procedures including assessment of the hazard, securing spill response and personal protective equipment, containing and eliminating the spill source, mitigation, removal and disposal of the material.
- e. Standby, On-Site, Material and Equipment: The plan shall identify the equipment and materials the Contractor will maintain on site to carry out the preventive and responsive measures for the items listed.
- f. Reporting: The plan shall list all federal, state and local agency telephone numbers the Contractor must notify in the event of a spill.
- g. Program Management: Identify site security measures, inspection procedures and personnel training procedures as they relate to spill prevention, containment, response, management and cleanup.
- h. Preexisting Contamination: If preexisting contamination in the project area is described elsewhere in the Plans or Specifications, the SPCC plan shall indicate measures the Contractor will take to conduct Work without allowing release or further spreading of the materials.
- i. Work Below the Ordinary High Water Line: Identify equipment that will be used below the ordinary high water line. Outline daily inspection and cleanup procedures that ensure equipment is free of all external petroleum-based products. Identify refueling procedures for equipment that cannot be moved from below the ordinary high water line.
- j. Attachments: Site plan showing the locations identified in (1. B. and 1. C.) noted previously.
- k. Spill and Incident Report Forms, if any, that the Contractor will be using.

PART 2 – MATERIALS

2.01 GENERAL

Contractor shall not perform any demolishing activities after Contract Award until all BMP's are installed to the satisfaction of the Owner's Representative.

PART 3 – EXECUTIONS

3.01 WATER QUALITY CONTROL

- A. The Contractor is responsible for allowing Water Quality monitoring on their construction site and for achieving Water Quality criteria throughout

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all in-water or near water construction activities as defined in the Section 401 Water Quality Permit, and applicable local, state and federal standards. The Contractor shall have in place a Water Quality Monitoring and Control Plan (see Part 1 of this specification) listing Best Management Practices (BMPs) that will be utilized during in-water lake and shoreline construction to prevent adverse effects to water quality. The Water Quality Monitoring and Control Plan will include contingency measures that may be implemented should they become necessary.

- B. Violations of any water quality requirement listed in Appendix A - Permit Documents may result in work stoppage by regulators. There shall be no additional compensation or time for shutdown, standby time, or delay associated with non-compliance.
- C. The Contractor is responsible for taking the appropriate preventative erosion control measures and water quality protection systems to ensure compliance with the project regulatory permits and approvals and in accordance with ITD Standard Specification Section 212 Erosion and Sediment Control and Technical Specification Section 01 57 13 – Temporary Erosion and Sediment Control.
- D. All work shall be conducted in accordance with the Owner provided permit conditions in Appendix A – Permit Documents. The Contractor is responsible for complying with all permit conditions when performing the work.
- E. Materials for containment and cleanup shall be available on-site during all phases of the project.
- F. Temporary Erosion and Stormwater Control (TESC) measures shall be utilized throughout the duration of the work in accordance with BMPs described in DEQ's *Catalog of Stormwater Best Management Practices for Idaho Cities and Counties*. Other resources may also be used for selecting appropriate BMPs. Provide a TESC Plan in accordance with Technical Specification Section 01 57 13 – Temporary Erosion and Sediment Control.
- G. All construction debris shall be properly disposed of on land so that it cannot enter a waterway or cause water quality degradation to state waters.
- H. Wash water containing oils, grease, or other hazardous materials resulting from wash down of equipment or working areas shall be contained for proper disposal, and shall not be discharged into state waters.
- I. No wood, metal, or concrete preservatives, paints, sealers, glues, epoxies, chemicals, or other substances harmful or toxic to fish shall be applied to the new construction once it has been placed within or over the OHW of Priest River or Outlet Bay.

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- J. Clean Fill Criteria: The Contractor shall ensure that fill placed for the proposed project does not contain toxic materials in amounts exceeding the applicable environmental requirements.
 - 1. If at any time, as a result of project activities, fish are observed in distress, a fish kill occurs, or water quality problems develop (including equipment leaks or spills), immediate notification shall be made to USFWS, USACE, and the following:
 - a. National Response Center: 800-424-8802
 - b. DEQ Coeur d'Alene Regional Office: 208-769-1422.

3.02 EQUIPMENT

- A. Vehicle staging, cleaning, maintenance, refueling, and fuel storage shall be located in accordance with DEQ requirements.
- B. When heavy equipment is used, the equipment selected shall have the least adverse effects on the ground, e.g., minimally sized, low ground pressure.
- C. Equipment used shall be free of external petroleum-based products while working around the water. Accumulation of soils or debris shall be removed from the drive mechanisms (wheels, tires, tracks, etc.) and the undercarriage of equipment prior to its working below the ordinary high water line. Equipment shall be checked daily for leaks and any necessary repairs shall be completed prior to commencing work activities near the water.
- D. Equipment used for this project operating with hydraulic fluid shall use only those fluids certified as non-toxic to aquatic organisms. Vegetable-based hydraulic fluid should be used on equipment operating in or directly adjacent to the channel if this fluid is available.
- E. All stationary power equipment such as generators, cranes, or stationary drilling equipment, operated within 150 feet of any waterbody shall be diapered to prevent leaks unless suitable containment is provided to prevent potential spills for entering the water.

3.03 BMP – SILT FENCING

- A. Silt fencing shall be installed along the river bank and Outlet Bay shoreline as shown on the Contract Drawings, to prevent turbid runoff from the upland work areas from entering the river system. Silt fencing should be installed downslope of any construction access work areas above OHW. Erosion and sediment control measures shall be installed according to the manufacturer's specifications, during construction, and must be maintained until construction is completed and the disturbed ground is stable.

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- B. The Contractor shall remove sediment from the upslope side of silt fences when accumulation has reached the effective height of the barrier.

3.04 BMP – SILT CURTAIN

- A. During the construction and use of temporary access roads below OHW, the Contractor shall deploy a floating silt curtain to isolate suspended sediments and turbidity to the work area in order to meet the water quality protection permit requirements, as shown on the Contract Drawings. The intent of the silt curtain is to reduce suspended sediments from dispersing out from the work area beyond the mixing zone boundary.
- B. Contractor shall monitor the silt curtain during installation, operation, maintenance and removal to avoid injury or mortality to local fish life in accordance with Appendix A – Permit Documents.

3.05 EMERGENCY SPILL RESPONSE NOTIFICATION

- A. Under state law, DEQ must be notified when any amount of regulated waste or hazardous material that poses an imminent threat to life, health, or the environment is released to the air, land, or water, or whenever oil is spilled on land or to waters of the state. The spiller is always responsible for reporting a spill. Failure to report a spill in a timely manner may result in enforcement actions. The Contractor should consult with DEQ's response team before attempting any type of response or cleanup and also notify the Owner's Representative.
- B. If oil or hazardous materials are spilled to state waters, the spiller must notify both federal and state spill response agencies. The federal agencies contact is the NRC at 1-800-424-8802. Call 911 if immediate assistance is required to control, contain, or clean up the spill. If no assistance is needed in cleaning up the spill, contact the appropriate DEQ regional office during normal working hours or Idaho State Communications Center after normal working hours (1-800-632-8000). The agency will then determine its response actions. Also notify Owner's Representative. Collect, remove, and dispose of the spilled material in a manner approved by DEQ.
 - 1. DEQ Coeur d'Alene Regional Office: 208-769-1422

3.06 BMP REMOVAL

All temporary BMPs and debris boom shall be removed upon completion of the work, or as directed by the Owner's Representative.

END OF SECTION

DIVISION 1 – GENERAL REQUIREMENTS

Section 01 40 00 – Quality Requirements

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality assurance and quality control requirements for individual construction activities are provided in the relevant specification sections. Requirements in those sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality assurance and control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality assurance and control services required by the Owner or authorities having jurisdiction are not limited by provisions of this section.
 - 4. Specific test and inspection requirements are not specified in this section.

1.02 RELATED SECTIONS

All Technical Specification sections relate to this section.

1.03 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by the Owner's Representative.
- C. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.
- D. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- E. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

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Section 01 40 00 – Quality Requirements

- F. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five (5) previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.04 QUALITY CONTROL

- A. Contractor Responsibilities: Tests and inspections are the Contractor's responsibility. Perform additional quality control activities required to verify that the work complies with requirements, whether specified or not.
1. Unless otherwise indicated, provide quality control services specified and those required by authorities having jurisdiction. Perform quality control services required of Contractor by authorities having jurisdiction, whether specified or not.
 2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality control services.
 - a. The Contractor shall not employ same entity engaged by the Owner, unless agreed to in writing by the Owner's Representative.
 3. Notify owners construction manager at least one business day (8 a.m. to 5 p.m.) or twenty-four (24) hours, whichever is greater in advance of time when work that requires testing or inspecting will be performed. Where quality control services are indicated as the Contractor's responsibility, submit a certified written report, in duplicate, of each quality control service.
 4. Testing and inspecting requested by the Contractor and not required by the Contract Documents are the Contractor's responsibility.
 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- B. Retesting/Reinspecting: Regardless of whether original tests or inspections were the Contractor's responsibility, the Contractor shall provide quality control services, including retesting and reinspecting, for construction that replaced work which failed to comply with the Contract Documents.
- C. Testing Agency Responsibilities: Cooperate with the Owner and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify the Owner's Representative, Owner's Construction Manager, and Contractor promptly of irregularities or deficiencies observed in the work during performance of its services.
 2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.

DIVISION 1 – GENERAL REQUIREMENTS

Section 01 40 00 – Quality Requirements

3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality control service through the Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the work.
 6. Do not perform any duties of the Contractor.
- D. Coordination: Coordinate sequence of activities to accommodate required quality assurance and quality control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.
 2. Notify Owner's Representative and Owner's Construction Manager at least one business day (8 a.m. to 5 p.m.) or twenty-four (24) hours, whichever is greater, in advance of time when work that requires Owner's Representative and Owner's Construction Manager's presence will be performed.

1.05 CONFLICTING REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Owner's Representative for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Owner's Representative for a decision before proceeding.

1.06 QUANTITY SHEETS/WEIGHT TICKETS

- A. For bulk items, supply quantity sheets (load receipts) to account for each load delivered to the jobsite. Deliver quantity sheets to Owner's Construction Manager (hired by the Owner) on job at delivery time. If the Inspector is not on the job, deliver quantity sheets on a daily basis to place designated by the Owner's Representative.

DIVISION 1 – GENERAL REQUIREMENTS

Section 01 40 00 – Quality Requirements

- B. No payment shall be made for materials delivered for which quantity tickets have not been turned into Inspector or delivered to designated place at end of working day. Backdated tickets are not acceptable as a basis for payment, except at Owner's Representative's discretion.
- C. If bid item for material to be delivered to jobsite is stated in TONS, only weight slips from approved scale are acceptable for payment purposes, unless approved in advance by the Owner's Representative.
- D. No payment for materials will be made until proper accounting has been made. Final quantity records are approved by the Owner's Representative, with payment at the Owner's Representative's discretion.

1.07 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports to the Owner's Representative, as specified in other Sections. Include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, and telephone number of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.
 - 7. Identification of product and Specification Section.
 - 8. Complete test or inspection data.
 - 9. Test and inspection results and an interpretation of test results.
 - 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 - 12. Name and signature of laboratory inspector.
 - 13. Recommendations on retesting and re-inspecting.
- B. Manufacturer's Field Reports: Prepare written information documenting tests and inspections specified in other Sections and submit to the Owner's Representative. Include the following:
 - 1. Name, address, and telephone number of the representative making report.
 - 2. Statement on condition of substrates and their acceptability for installation of product.

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Section 01 40 00 – Quality Requirements

3. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 4. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 5. Other required items indicated in individual Specification Sections.
- C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.08 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.
- F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
 1. Requirements of Authorities Having Jurisdiction shall supersede requirements for specialists.

DIVISION 1 – GENERAL REQUIREMENTS

Section 01 40 00 – Quality Requirements

- G. Testing Agency Qualifications: Testing agency shall be a Nationally Recognized Testing Laboratory (NRTL), an accredited laboratory through National Voluntary Laboratory Accreditation Program (NVLAP), or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329 and with additional qualifications specified in individual sections; and, where required by authorities having jurisdiction, that is acceptable to authorities. NRTL and NVLAP are further defined below.
1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. Manufacturer's Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

1.09 SUBMITTALS

- A. Contractor's Quality Control Plan
1. Quality Control Plan, General: Submit quality control plan within twenty-one (21) working days of Contract Award. Submit in format acceptable to the Owner, Owner's Representative, and Owner's Construction Manager. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality assurance and quality control responsibilities. Shall be coordinated with the Contractor's progress schedule.
 2. Testing and Inspection: In quality control plan, include a comprehensive schedule of work requiring testing or inspection, schedule for conducting the testing or inspection, and similar quality control services. This including the following:
 - a. Contractor-performed tests and inspections including Subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
 3. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality control services required by the Contract Documents as a component of Contractor's quality control plan. Coordinate and submit concurrently with the Contractor's construction schedule. Update as the work progresses.
 4. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work the Owner's Representative has indicated as nonconforming or

DIVISION 1 – GENERAL REQUIREMENTS

Section 01 40 00 – Quality Requirements

defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of permits and building code requirements.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
 - 1. Date test or inspection was conducted.
 - 2. Description of the Work tested or inspected.
 - 3. Date test or inspection results were transmitted to Owner's Representative and Owner's Construction Manager.
 - 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain Log at Project Site. Post changes and revisions as they occur. Provide access to test and inspection log for the Owner's Construction Manager and Owner's Representative's reference during normal working hours.

3.02 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
- B. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
- C. Protect construction exposed by or for quality-control service activities.
- D. Repair and protection are the Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

DIVISION 1 – GENERAL REQUIREMENTS
Section 01 41 00 – Regulatory Requirements

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This Section relates to the applicable regulatory requirements.

1.02 PERMITS, CODES AND REGULATIONS

- A. The following permits have been applied for (or are on file) and incorporated into the contract:
1. IDWR Stream Alteration Permit S97-20058 Extension
 2. IDWR Certificate of Approval
 3. USACE Permit No. NWP-2019-00370
 4. DEQ Section 401 Water Quality Certification
 5. IDWR Stream Alteration Permit S97-20058
- B. Conform with the requirements of listed permits or other applicable permits, codes, and regulations as may govern Work.
- C. Obtain and pay fees for licenses, permits, inspections, and approvals required by laws, ordinances, and rules of appropriate governing or approving agencies necessary for proper completion of Work (other than those listed under item 1.1A. above and Special Inspections called for by the International Building Code).
- D. Conform with current applicable codes, regulations and standards, which is the minimum standard of quality for material and workmanship. Provide labor, materials, and equipment necessary for compliance with code requirements or interpretations, although not specifically detailed in the Contract Drawings or specifications. Be familiar with applicable codes and standards prior to bidding.
- E. Process through the Owner's Representative, requests to extend, modify, revise, or renew any of the permits (listed in 1.02A above). Furnish requests in writing and include a narrative description and adequate Drawings to clearly describe and depict proposed action. Do not contact regulatory agency with requests for permit extensions, modifications, revisions, or renewals without the prior written consent of the Owner's Representative.

1.03 VARIATIONS WITH CODES, REGULATIONS AND STANDARDS

- A. Nothing in the Contract Drawings and Specifications permits Work not conforming to codes, permits or regulations. Promptly submit written notice to the Owner's Representative of observed variations or discrepancies between the Contract documents and governing codes and regulations.
- B. Appropriate modifications to the Contract documents will be made by Change Order to incorporate changes to Work resulting from code and/or

DIVISION 1 – GENERAL REQUIREMENTS
Section 01 41 00 – Regulatory Requirements

regulatory requirements. The Contractor assumes responsibility for Work contrary to such requirements if Work proceeds without notice.

- C. Contractor is not relieved from complying with requirements of Contract documents which may exceed, but not conflict with requirements of governing codes.

1.04 COORDINATION WITH REGULATORY AGENCIES

- A. Coordinate Work with appropriate governing or regulating authorities and agencies.
- B. Provide advance notification to proper officials of Project schedule and schedule revisions throughout Project duration, in order to allow proper scheduling of inspection visits at proper stages of Work completion.
- C. Regulation coordination is in addition to inspections conducted by the Owner's Representative. Notify the Owner's Representative and Owner's Construction Manager of scheduled inspections involving outside regulating officials, to allow Owner's Representative and Owner's Construction Manager to be present for inspections.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

DIVISION 1 – GENERAL REQUIREMENTS
Section 01 50 00 — Temporary Facilities and Controls

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This Section covers temporary facilities and miscellaneous site controls needed to complete the work, including the following:
 - 1. Construction facilities;
 - 2. Use of project site limits;
 - 3. Owner access to project site limits;
 - 4. Construction aids;
 - 5. Snow Management;
 - 6. Traffic and pedestrian control;
 - 7. Temporary construction entrances;
 - 8. Temporary access road/structure;
 - 9. Construction access easements use and protection.
 - a. Lamb Creek Lane

1.02 RELATED SECTIONS

- A. Technical Specification Section 01 31 19 – Project Meetings
- B. Technical Specification Section 01 35 43 – Environmental Controls
- C. Appendix C – Stockpiling Areas

1.03 DEFINITIONS

- A. Temporary Construction Entrances are locations along Lamb Creek Lane that will be temporarily modified by the Contractor to support the ingress/egress of equipment, machinery, and materials between Outlet Dam and Highway 57. All temporary use and modifications of Temporary Construction Entrances must be in accordance with the Construction Access Easements provided in Appendix C – Stockpiling Areas.
- B. A Temporary Construction Access Agreement is in place to outline the terms and conditions related to the temporary use of private property along Lamb Creek Lane.
- C. Existing Utilities refers to utilities servicing the Lamb Creek Estates Development, including but not limited to: sewer main line and laterals, water main line and laterals, and underground powerlines. The Existing Utilities must be protected during construction in accordance with the Temporary Construction Access Agreement. The location of Existing Utilities is provided in Appendix D – Existing Utility Drawings.
- D. Temporary Access Road/Structure is access across the stream channel to the dewatered work area, designed by the Contractor.

DIVISION 1 – GENERAL REQUIREMENTS
Section 01 50 00 — Temporary Facilities and Controls

1.04 SUBMITTALS

- A. The following Submittals shall be in accordance to Section 01 33 00 – Submittals:
1. Site Plan: Show any proposed temporary facilities, existing utilities, sanitary accommodations, and parking areas for construction personnel. Site Plan shall be submitted to the Owner's Representative after notice of Contract Award to obtain the Owner's Representative's review and acceptance prior to initiation of construction.
 2. Vehicle Traffic Control Plan
 3. Pedestrian Traffic Control Plan
 4. Construction Access Easement Work Plan
 - a. Existing Utility Location Survey Results
 - b. Easement use area work description
 - c. Pre-construction Condition Survey
 - d. Post-construction Condition Survey
 - e. Utility Protection Plan
 5. Temporary Access Road/Structure Design

PART 2 – PRODUCTS

2.01 UTILITIES

- A. It shall be the Contractor's responsibility to provide adequate facilities for Contractor's operation, including:
1. Water: Drinking water for employees shall be provided in sanitary containers and maintained fresh each day.
 2. Construction Electricity: The Contractor shall make all arrangements for the furnishing of electric power for construction purposes. The power meter shall be registered in the name of the Contractor and all charges for installation and electric energy shall be borne by the Contractor.
 3. Toilet Room Facilities: The Contractor shall install and maintain necessary temporary sanitary toilet facilities during the term of this contract. Toilet facilities for employees shall be maintained in a sanitary condition. Toilets shall be of a chemical type; remove at completion of work and disinfect the premises.
 4. Teleconference Capabilities: There is no/limited cell service at the project site. The Contractor is responsible for providing a location

DIVISION 1 – GENERAL REQUIREMENTS
Section 01 50 00 — Temporary Facilities and Controls

with teleconference capabilities and connectivity to enable weekly progress meetings or other meetings conducted remotely.

2.02 USE AND OCCUPANCY

- A. The Contractor will not be allowed space for the storage of materials under this Contract. Employee parking will be agreed upon with the Owner.
- B. No camping or overnight stay at the project site is permitted.

2.03 SECURITY

- A. The project site limits shall be closed to the public at all times.
- B. The Contractor shall abide by special request of security personnel, and local police and fire departments.

2.04 FENCES & ENCLOSURES

- A. Safety Fencing: Contractor shall furnish and install temporary safety fencing around the temporary construction entrances as indicated on the Contract Drawings.
- B. Access Gate: Install a temporary chain-link fence and access gate to prevent public access at the temporary construction entrances during construction, as shown on the Contract Drawings.
- C. Temporary fence installation shall be coordinated with the Owner's Representative and Owner's Construction Manager.

PART 3 – EXECUTION

3.01 GENERAL INSTALLATION

- A. Locate facilities where they will serve the project adequately and result in minimum interference with performance of the work. Relocate and modify facilities as required by progress of the work.
- B. Temporary stockpiling and staging is permitted within the designated laydown area shown on the Contract Drawings. The Contractor may coordinate with and seek approval from the Owner's Representative for use of an offsite laydown area within the proximity of the project site limits.
- C. Temporary use of permanent roads: Contractor shall construct and maintain temporary roads adequate for construction operations. Extend temporary roads within construction limits indicated, as necessary for construction operations.
 - 1. Coordinate elevations of temporary roads with permanent roads.

DIVISION 1 – GENERAL REQUIREMENTS

Section 01 50 00 — Temporary Facilities and Controls

2. Recondition temporary construction entrance base after temporary use, including removing contaminated material, regrading, compacting, and testing.
- D. Parking: Parking needed for construction personnel shall be approved by the Owner's Representative. In all cases, the Contractor shall confine parking to areas acceptable to the Owner's Representative.

3.02 USE OF PROJECT SITE

- A. See section 1.05 Hours of Work in 01 10 00 - General Requirements for work hour, work stoppage, and site restrictions.
- B. Use of Sites: Limit use of project site to the limits of construction indicated on the Contract Drawings. Do not disturb portions of the site beyond areas in which the work is indicated. The Contractor shall keep access roads clear and available to the Owner and emergency vehicles at all times. Do not use access roads for parking or storage of materials. Schedule and coordinate deliveries to minimize space and time requirements for storage of materials and equipment within or adjacent to the project site limits.
- C. General
 1. Do not proceed with work on adjoining properties unless directed by the Owner or Owner's Representative.
 2. Do not clear outside of the project site limits.
 3. Do not close or obstruct roads or other facilities used by occupants of adjacent properties without written permission from the Owner's Representative and authorities having jurisdiction.
- D. The Contractor will not have exclusive or unrestricted use of the project site limits for its operations. The Contractor shall recognize and take into account during its planning and execution of the work that the Owner's Representative, or Owner, may require access to and use of certain areas or spaces during certain periods.
- E. The Contractor shall perform all work within the project site limits defined in the Contract Documents. If other areas are required for construction, the Contractor shall secure any necessary agreement or construction easement documentation with the private landowners at no additional expense to the Owner. The actual selected location shall be coordinated with and approved by the Owner.
- F. The Owner assumes no responsibility for the condition or maintenance of any road or structure thereon that may be used by the Contractor in performing the work under the Contract Documents or in traveling to and from the project site. The Contractor is responsible for constructing, maintaining, and removing any additional temporary construction entrance and/or access that they deem necessary to access the project site limits.

DIVISION 1 – GENERAL REQUIREMENTS
Section 01 50 00 — Temporary Facilities and Controls

No payment will be made to the Contractor by the Owner for any work done in improving, repairing, or maintaining any road or structure thereon for use in the performance of the work under the Contract Documents.

- G. The Contractor shall be responsible for restoring the Contractor use areas, temporary construction entrances, project site, and other impacted areas to their original condition.

3.03 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. The Contractor shall comply with applicable laws, ordinances, rules, regulations and orders pertaining to personnel, construction machinery and equipment, hoists, cranes, staging, materials handling facilities, tools, appliances and other construction aids. The Contractor shall provide first aid facilities where required.
- B. Protection of Existing Facilities, Residential Properties, and Utilities: Protect existing facilities, properties, utilities, and vegetation, and other improvements within the project site limits and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
- C. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- D. Tree and Plant Protection: Comply with any state, county, or local Homeowners Association (HOA) requirements.
- E. Site Security Fencing and Gates: The Contractor shall install temporary site security fencing and gates as indicated on the Contract Drawings, prior to beginning construction, to prevent people and animals from entering the construction zone. Locations shall include public rights-of-way and easements. The Contractor shall provide construction safety signage on the fencing and/or gates. The Contractor shall facilitate access to adjacent properties as shown on the Contract Drawings.

3.04 SNOW MANAGEMENT

- A. Public snow removal occurs along Highway 57. The Contractor is responsible for snow removal and maintenance along Lamb Creek Lane to provide access to the project site for the duration of the project, until the project is complete as defined in Section 01 70 00 – Project Closeout.
- B. The Contractor shall conduct all snow management work in accordance with the requirements within Section 01 57 13 – Temporary Erosion and Sediment Control.

DIVISION 1 – GENERAL REQUIREMENTS
Section 01 50 00 — Temporary Facilities and Controls

3.05 TRAFFIC CONTROL PLAN

- A. Traffic Controls: The Contractor shall be responsible for preparation of Traffic Control Plan(s) to conduct the Work. All required and necessary traffic control including signage, barriers, flagging, markings, and other devices shall be in accordance with ITD standard plans.
 - 1. Protect existing site improvements to remain including curbs, gravel pavements, and existing utilities.
 - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
 - 3. Provide temporary, directional signs for construction personnel and visitors.
 - 4. Traffic Control shall be provided during all work hours at the locations indicated on the Contract Drawings.
 - 5. Additional flaggers/spotters may be needed at other times during various stages of construction and shall be specified in the Contractor's Traffic Control Plan and as required and approved by the Owner's Representative.

3.06 CONTRACTOR OBTAINED PERMITS

- A. The Contractor shall be responsible for obtaining public right-of-way (ROW) use permits and all other permits necessary for construction including hauling and transport of construction materials, equipment and waste material to and from the project site, and any other permits necessary to accomplish the work.

3.07 ACCESS TO PROJECT SITE AND WORK

- A. The Owner will secure temporary construction access agreements for Lamb Creek Lane
- B. In addition to those provided, if required, the Contractor is responsible for coordinating and obtaining all necessary agreements and easements for access to the project site limits and Contractor vessel moorage at no additional expense to the Owner. Access for construction equipment and adjacent work areas are the responsibility of the Contractor.
 - 1. The Contractor will assume all responsibility of restoration of the surface of all access roads (haul routes) used by the Contractor, if damaged.
 - 2. In the event the Contractor does not have labor or material immediately available to make necessary repairs, the Contractor shall so inform the Owner. The Owner will make the necessary repairs and the cost of such repairs shall be paid by the Contractor.

DIVISION 1 – GENERAL REQUIREMENTS
Section 01 50 00 — Temporary Facilities and Controls

3. The Contractor is responsible for identifying and documenting any damage that is pre-existing or caused by others. Restoration of gravel roads (haul routes) shall be done in accordance with the requirements herein.

3.08 CONSTRUCTION ACCESS EASEMENT

- A. The Contractor shall protect from damage all existing structures, equipment, improvements, utilities, and vegetation within or near the project site limits, and on adjacent property of a third party, the locations of which are identified within the Contract Drawings. The Contractor shall repair any damage, including that to the property of a third party, resulting from failure to comply with the requirements of the Contract Documents or failure to exercise reasonable care in performing the Work. If the Contractor fails or refuses to repair the damage promptly, the Owner may have the necessary work performed and charge the cost to the Contractor.
- B. All Work shall be accomplished so as to cause the least amount of disturbance and damage to easements, private properties, and existing utilities.
- C. The Contractor shall submit an easement use area work description in the Construction Access Easement Work Plan that describes all labor, materials, tools, equipment, supervision and protection necessary for use of the construction access easement.
- D. All existing infrastructure and private property shall be protected during the duration of construction and shall be replaced if damaged at no additional cost to the Owner and to the satisfaction of the Owner.
 1. Existing Utility Locate Survey: The Contractor shall submit electronic survey results from the existing utility locate.
 2. Pre-construction Condition Survey: The Contractor shall submit photos and a video recording of an initial walkthrough of the Construction Access Easement prior to construction. See Section 01 71 23 – Construction Surveying.
 3. Post Condition Survey: The Contractor shall walk the site with the Owner's Representative and Owner's Construction Manager and submit photos of the Construction Access Easement after construction. See Section 01 71 23 – Construction Surveying.
- E. The Contractor shall not proceed with any portion of the Work in areas where ROW, easements, or rights-of-entry have not been acquired until the Owner certifies to the Contractor that the ROW or easement is available or that the right-of-entry had been received.
- F. Utility protection is required as outlined in the Contract Drawings.

DIVISION 1 – GENERAL REQUIREMENTS

Section 01 50 00 — Temporary Facilities and Controls

- G. Each property owner shall be given 48 hours' notice prior to entry by the Contactor. This includes entry onto easements and private property.

3.09 TEMPORARY ACCESS ROAD/STRUCTURE

- A. Construct a temporary road/structure for construction access to dewatered work areas, as needed and design by the Contractor.
- B. Submit a set of plans and design calculations, signed and sealed by a professional engineer licensed in the state of Idaho, to the Owner's Representative for review.
- C. Any temporary fill for abutments or other support of the temporary access road/structure shall be constructed of clean, washed angular rock, and protected from scour.
- D. The temporary access road structure shall be compatible with the cofferdam system and shall be designed to handle high flows that could be anticipated during the construction period. See Specification Section 02 20 00 – Cofferdams & Dewatering.
- E. The temporary access road/structure or cofferdam shall not significantly alter conditions upstream or downstream by causing flooding, turbidity, or other problems.
- F. Completely remove all temporary structures from the stream channel at the conclusion of construction and restore the disturbed areas to a natural appearance.
- G. Refer to permits in the Appendix for additional requirements.

3.10 OPERATION OF DAM DURING CONSTRUCTION

Contractor is responsible for operation of the dam during construction in consultation with the Owner.

END OF SECTION

DIVISION 1 – GENERAL REQUIREMENTS
SECTION 01 57 13 – Temporary Erosion and Sediment Control

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This section covers work necessary for stabilization of soil to prevent erosion during and after construction and land disturbing activities. The work shall include the furnishing of all labor, materials, tools, and equipment to perform the work and services necessary as herein specified and as indicated on the Contract Drawings. This shall include installation, maintenance, and final removal of all temporary soil erosion and sediment control measures.
- B. The minimum areas requiring soil erosion and sediment control measures are indicated on the Contract Drawings. The Owner's Representative reserves the right to modify the use, location, and quantities of soil erosion and sediment control measures based on activities of the Contractor and as the Owner's Representative and Owner's Construction Manager considers to be to the best interest of the Owner.
- C. The Temporary Erosion and Sediment Control (TESC) facilities described in this section and shown on the Contract Drawings are the minimum requirements anticipated for site conditions expected during the construction period. As work progresses, it is the Contractor's responsibility to inspect the temporary erosion and sediment controls and make repairs and improvements as necessary.
- D. In order to comply with the requirements of this Technical Specification, the Contractor shall develop and submit a Contractor's TESC Plan.

1.02 RELATED SECTIONS

- A. Technical Specification Section 01 35 43 – Environmental Controls
- B. Technical Specification Section 02 20 00 – Cofferdams and Dewatering
- C. Technical Specification Section 31 00 00 – Excavation and Fill

1.03 APPLICABLE PUBLICATIONS

- A. The following permits, rules, requirements, and regulations specified may apply to this work:
 - 1. Concurrence Letter from NOAA's National Marine Fisheries Service (WCR-2016-4573)
 - 2. UASCE Permit No. NWS-2016-26
 - 3. Concurrence Letter from U.S. Fish and Wildlife Service
 - 4. Disposal Authorization Memo issued by the USACE (CENWS-OD-TS-NR)
 - 5. Hydraulic Project Approval (HPA)

DIVISION 1 – GENERAL REQUIREMENTS
SECTION 01 57 13 – Temporary Erosion and Sediment Control

- 6. Determination of Non-Significance (DNS)
- 7. Shoreline Substantial Development Permit Exemption and Critical Areas Review (SEPA)
- B. Any conflicts between these Technical Specifications and the project permits will be brought to the attention of the Owner's Representative. Nothing whatsoever shall be deemed to authorize violation of the project permits.

1.04 GENERAL

- A. See Conditions of the Contract and Division 1, General Requirements, which contain information and requirements that apply to the Work specified herein and are mandatory for this project.
- B. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other Federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply.
- C. Soil erosion stabilization and sedimentation control consist of the following elements:
 - 1. Maintenance of existing permanent or temporary storm drainage piping and channel systems, as necessary.
 - 2. Construction of new permanent and temporary storm drainage piping and channel systems, as necessary.
 - 3. Install, maintain, and remove all erosion prevention, containment, and countermeasures BMPs during the life of the contract.
- D. Failure to install, maintain, and/or remove BMPs shown on the Contract Drawings and specified herein, or by order of the Owner's Representative or Owner's Construction Manager; or failure to comply, implement and maintain any provisions and requirements of this Technical Specification; or failure to conduct project operations in accordance with these Technical Specifications and Contract Drawings will result in the suspension of the Contractor's operations by Owner's Representative in accordance with General Requirements.
- E. Any damages, fines, levies, or judgments incurred as a result of Contractor, Subcontractor, or supplier negligence in complying with the requirements of this Technical Specification will be charged to the Contractor.
- F. The Contractor shall be solely responsible for any schedule impacts from damages, fines, levies, judgments, or stop work orders incurred as a result of Contractor, Subcontractor, or supplier negligence in complying with the requirements of this Technical Specification. The project schedule will not be changed to accommodate the time lost.

DIVISION 1 – GENERAL REQUIREMENTS

SECTION 01 57 13 – Temporary Erosion and Sediment Control

- G. The areas set aside for the Contractor's use during the Project may be temporarily developed to provide satisfactory working and administrative areas for the Contractor's exclusive use. Preparation of these areas shall be in accordance with other requirements contained within these Specifications and shall be done in a manner to control all sediment transport away from the area.
- H. The Contractor is wholly responsible for meeting water quality standards during excavation and excavation material rehandling and disposal. No discharge of water shall be allowed that increases the turbidity above permit levels, volume, velocity, or peak flow rate of the receiving water relative to ambient background conditions.
- I. The Owner's Representative or Owner's Construction Manager may require additional temporary measures if it appears that pollution or erosion may result from weather, the nature of the materials, or progress of the work.
- J. In the event that TESC measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled, or are ordered by Owner's Representative or Owner's Construction Manager, such work shall be performed by the Contractor at their own expense.
- K. The Contractor shall maintain all elements of the Soil Erosion Stabilization and Sedimentation Control systems and facilities to be constructed during this Project for the duration of the Contractor's activities on this Project. Site inspections shall be conducted at least once every calendar week and within 24 hours of any discharge from the site. The inspection frequency for temporarily stabilized, inactive site may be reduced to once a month every calendar year.
- L. The Contractor's inspector shall summarize the results of each inspection in an inspection report or checklist and be entered into, or attach to, the site logbook. The logbook should be available for review by the Owner or Idaho DEQ.
- M. All sedimentation facilities shall be cleaned of collected sediment after every storm or as determined from the weekly inspections. Cleaning shall be done in a manner that will not direct the sediment into the storm drain piping system. Removed sediment shall be disposed of offsite.
- N. Replacement or repair of failed or overloaded silt fences, check dams, or other temporary erosion control devices shall be accomplished by the Contractor within 2 days after receiving written notice from the Owner's Representative or Owner's Construction Manager.
- O. If the Contractor has not complied with any of the above maintenance efforts to the satisfaction of the Owner's Representative or Owner's

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Construction Manager within 2 working days after receiving written notification from the Owner's Representative or Owner's Construction Manager, the Owner shall have the prerogative of engaging others to perform any needed maintenance or cleanup, including removal of accumulated sediment at constructed erosion control facilities, and deduct from the Contractor's monthly partial payment the costs for such efforts.

1.05 CONTRACTOR EROSION AND SEDIMENT CONTROL PERSONNEL

- A. The Contractor shall designate a sufficient number of qualified employees to be responsible representatives in charge of erosion and sedimentation control so that one representative is on-site at all times when any work activity is taking place. These employees' responsibility will be the oversight of all water and air quality issues. The Contractor shall designate one employee as the Temporary Erosion and Sediment Control Lead (TESCL) who shall be responsible for ensuring compliance with all requirements of this Technical Specification. Prior to the construction, the TESCL shall have for the life of the Contract, a TESCL certification card from a course approved by the Department of Environmental Quality.
- B. The TESCL shall have authority to act on behalf of the Contractor. Duties and responsibilities of the TESCL shall include:
 - 1. Preparing and submitting a TESC Plan for approval.
 - 2. Maintaining a permit file on site at all times that includes the TESC Plan and any associated permits and drawings, as applicable.
 - 3. Directing BMP installation, inspection, maintenance, modification, and removal.
 - 4. Being available 24 hours per day, 7 days per week either in person or by telephone.
 - 5. Updating all TESC drawings with changes made in the field
 - 6. Keeping daily logs.
 - 7. Identifying the points where stormwater runoff, if any, potentially leaves the site, is collected in a surface water conveyance system (i.e., road ditch or storm sewer), and enters receiving waters of the State.
 - 8. If water sheet-flows from the site, identifying the point at which it becomes concentrated in a collection system.
 - 9. Inspecting TESC Plan requirements including BMPs as required to ensure that they are adequate and functioning properly.
 - 10. Facilitating, participating in, and taking corrective actions resulting from inspections performed by outside agencies and Owner's Representative.

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1.06 SCHEDULE

- A. The TESC Plan schedule shall include:
1. Schedules for accomplishment of temporary and permanent erosion and sediment control work, as applicable for offloading, dewatering, transloading, transporting, placement, and grading of dredged material
 2. Proposed method of erosion and dust control on haul roads and a plan for disposal of waste materials.
 3. Estimated removal date of all temporary BMPs.
 4. Estimated date of final site stabilization.
 5. Overall project schedule and weekly “look ahead” schedules.
 6. Erosion control work activities consistent with the TESC Plan shall be included in the Contractor’s Construction Schedule.

1.07 SUBMITTALS

- A. Submittals shall be made in accordance with Section 01 33 00 - Submittals.
- B. Temporary Erosion and Sediment Control Plan: Within seven (7) calendar days after the Contract Award, the Contractor shall submit the Contractor TESC Plan. Failure to approve all or part of any such Plan shall not make the Owner liable to the Contractor for any work delays. The TESC Plan shall, at a minimum, include written descriptions addressing the following:
1. Site description
 2. BMP installation & maintenance
 3. Contractor erosion and sediment control personnel
 4. Construction phasing & schedule
 5. Site inspection & monitoring
 6. Reporting & record keeping
 7. BMP removal
 8. Emergency response
 9. Drainage systems
 10. Haul routes
 11. Construction dewatering

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- C. Shop Drawings
 - 1. Location of the above items; additional dredging and excavation areas, natural and constructed drainage systems within the work area and staging areas.
 - 2. Locations of BMPs during each phase of construction and each location of work activities.
- D. TESCL Qualifications
 - 1. The TESC Plan shall include the resume, name, telephone number, fax number, email address, and street address of the designated TESCL.
- E. In addition, the Contractor shall provide the following specific information:
 - 1. Certificates of inspection of seed by state or federal authorities and copies of delivery invoices or other proof of quantities of fertilizer.
 - 2. Manufacturer's certificate of compliance attesting that the geotextile meets the requirements of these Specifications.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Contractor shall not clear, grub, grade, or perform any earth disturbing activities, dredged material, or dispose dredged material after Contract Award until all BMP's outlined in the Owner's Representative and Owner's Construction Manager approved TESC Plan are installed to the satisfaction of the Owner's Representative and Owner's Construction Manager.
- B. Contractor shall have materials on hand, in quantities sufficient to cover all bare soil exposed to rainfall and surface water runoff, divert all flows, contain all sediments, and prevent turbid discharges from the site during all stages of construction in accordance with permit requirements. These materials include, but are not limited to, the following:
 - 1. Reinforced plastic sheeting (minimum 6 mil thickness) so that all areas that are exposed at any given time to rainfall and site water runoff can be covered.
 - 2. Straw.
 - 3. Drain pipe
 - 4. Sand bags. Sufficient quantity shall be provided to hold all installed reinforced plastic in place and to prevent wind blowing under the plastic sheeting or water draining under the plastic sheeting
 - 5. Filter fabric

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6. Hay bales
7. Floating debris boom
8. Silt/turbidity curtain
9. Silt fence

PART 3 – EXECUTION

3.01 GENERAL

- A. The TESC Plan shall include installation instructions and details for each BMP used during the life of the project and shall include a description of the maintenance and inspection procedures to be used for the life of the project.
- B. BMPs shall be maintained for the life of the project or until removed by order of the Owner's Representative. BMPs shall be maintained during all suspensions of work and all non-work periods. BMPs shall be maintained and repaired as needed to assure continued performance of their intended function and in accordance with the approved TESC Plan. Sediments removed during BMP maintenance shall be placed away from natural and construction stormwater conveyances and permanently stabilized.
- C. At a minimum, the Contractor shall perform the following for all TESC BMPs:
 1. Inspect daily and immediately after any measurable rain event (0.5 inches or greater).
 2. Deficiencies identified during the inspection shall be corrected within 24 hours or as directed by the Owner's Representative and Owner's Construction Manager.
 3. Inspect for runoff leaving the site during storms and checking for turbid water.
 4. Inspect for dust during dry periods.
 5. Note repairs or improvements needed, if any, and implement improvements.
 6. Implement additional BMPs, if needed, to address site-specific erosion control.
 7. Inspect streets and surrounding the site for dirt tracking.
 8. Ensure no ponding of water due to formation of snow or ice dams during time periods of snowmelt or rain after snow events.
 9. Report all discharges immediately to the Owner's Representative and Owner's Construction Manager.

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- D. Reports summarizing the scope of inspections, the personnel conducting the inspections, the dates of the inspections, major observations relating to the implementation of the TESC Plan, and actions taken as a result of these inspections shall be prepared and retained as a part of the TESC Plan.
- E. All inspection reports shall be kept on-site during the life of the project and be available for review upon request of the Owner's Representative and Owner's Construction Manager.

3.02 TURBIDITY CURTAIN & DEBRIS BOOM

- A. Refer to Section 01 35 43 - Environmental Controls for information on required turbidity curtains and debris booms.

3.03 CONSTRUCTION DEWATERING

- A. The TESC Plan shall address how the Contractor will to manage clean and polluted water during the life of the project, including any water resulting from dewatering or concrete handling operations.
 - 1. The Contractor shall dispose of offsite, haul, or pump and treat all water that does not meet Idaho DEQ Section 401 Water Quality Certification requirements. This includes water from any source that drains into project boundaries and becomes contaminated with sediment, chemicals, petroleum or other pollutants. Sources include but are not limited to: rainfall, surface water, roof drainage, groundwater, broken pipelines, irrigation and Contractor activities.
 - 2. The Owner's Representative and Owner's Construction Manager shall be notified before any disposal, hauling, pumping, or treatment of water occurs. Notification shall include location of disposal and methods of treatment.
 - 3. Groundwater shall be discharged as directed by the Owner's Representative.
 - 4. Water shall not be pumped or allowed to drain into ditches, gutters, drainage conveyances, or catch basins.
 - 5. Construction runoff may be pumped:
 - a. Into temporary holding tanks.
 - b. Into water trucks for disposal off-site at a Contractor's selected location.

END OF SECTION

DIVISION 1 - GENERAL REQUIREMENTS

Section 01 70 00 - Project Closeout

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Section includes administrative and procedural requirements for Project Closeout, including, but not limited to, the following:
 - 1. Completion procedures.
 - 2. Warranties.
 - 3. Final cleaning.
 - 4. Repair of the work.
 - 5. Project Record Drawings.

1.02 RELATED SECTIONS

- A. The provisions and intent of the Contract, including the General Conditions, Supplementary Conditions, and other sections of the General Requirements apply to this work as if specified in this section. Work related to this section is described throughout the specifications.
- B. Prior to requesting final inspection, the Contractor shall assure itself that the project is complete in all aspects.

PART 2 – PRODUCTS

2.01 WARRANTY

- A. The Contractor warrants the labor, materials and equipment delivered under the contract to be free from defects in design, material, or workmanship, and against damage caused prior to final inspection. Unless otherwise specified, this warranty extends for a period of one (1) year from the date of Substantial Completion.
- B. The Contractor shall promptly repair or replace all defective or damaged items delivered under the contract. The Contractor may elect to have any replaced item returned to Contractor's plant at Contractor's expense.
- C. In the event of equipment failure, during such time or in such a location those immediate repairs are mandatory, the Contractor shall respond promptly, irrespective of time. If the Contractor is not available, the Owner will effect repairs. The Contractor shall then reimburse the Owner for parts and labor necessary to correct deficiencies as defined within the warranty clause and time.

PART 3 – EXECUTION

3.01 FINAL DOCUMENTS

- A. As-Built Drawings: After the completion of the work and before requesting substantial completion, the record drawings shall be completed and given to the Owner and Owner's Representative.

DIVISION 1 - GENERAL REQUIREMENTS

Section 01 70 00 - Project Closeout

3.02 CLEAN-UP

- A. Final clean-up and clean-up during the course of the work is defined in the paragraphs below:
1. At all times, and as may specifically be requested by the Owner, Owner's Construction Manager, or Owner's Representative, the Contractor shall clean up and remove all refuse resulting from the Work in order that the Project site remains free from an accumulation of construction debris. Upon failure to do so within 24 hours after request by the Owner's Representative, the Owner may do such clean up, and the cost thereof shall be charged to the Contractor and deducted from the Contract Sum.
 2. Upon completion of the Work and before final inspection, the Contractor shall clean the entire Work premises occupied or used in connection with the Work of all rubbish, surplus and discarded materials, false work, temporary structures, equipment, and debris. The entire Work premises shall be left in a clean, neat, and presentable condition. The Contractor shall not remove warning, regulatory, or guide signs prior to Final Completion except as requested by the Owner's Representative.
- B. Those paragraphs are supplemented to provide the following:
1. General: Prior to completion of the work, remove from the job site all tools, surplus materials, equipment, scrap, debris, and waste.
 2. Site: Unless otherwise specifically directed by the Owner's Representative or Owner's Construction Manager, sweep all paved areas on the site and all public sidewalks directly adjacent to the site. Completely remove all resultant debris.
 3. Timing: Schedule final cleaning as approved by the Owner's Representative and Owner's Construction Manager to enable the Owner to occupy a completely clean project.

END OF SECTION

DIVISION 1 – GENERAL REQUIREMENTS
Section 01 71 23 – Construction Surveying

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section outlines construction surveying work required to construct the components of the project in accordance with the Contract Drawings and Technical Specifications subject to the terms and conditions of the Contract.
- B. The Contractor's work will include furnishing all materials, labor, and equipment necessary to perform construction staking and layout, establishing temporary benchmarks from primary control, pre-construction surveying, existing utility line locate surveying, progress/intermediate surveying for quality control, establishing on-site water level gages, construction staking and layout surveying for development of progress payments, and post-construction surveying.
- C. Work covered by this Section includes, but is not limited, to the following elements of construction surveying work:
 - 1. Temporary Construction Easement Locations and Entrances
 - 2. Earthwork

1.2 RELATED SECTIONS

- A. Section 01 33 00 - Submittals
- B. Section 01 70 00 – Project Closeout
- C. Section 31 00 00 – Excavation and Fill
- D. Section 35 31 23 - Armor Stone

1.3 APPLICABLE PUBLICATIONS

- A. USACE EM-1110-1-1005 – Topographic Surveying.
- B. USACE EM-1110-2-1003 – Hydrographic Surveying.

1.4 DEFINITIONS

- A. Terrestrial Surveys: Survey work conducted for any project work elements located above Ordinary High Water (OHW) and/or located below OHW where existing depths and environmental conditions (waves, currents, etc.) allow for the safe use of standard topographic survey equipment equipped as specified herein.
- B. Hydrographic Surveys: Survey work conducted via boat equipped with positioning equipment as specified herein and utilizing single-beam transducer sounding techniques for measuring elevations in areas where water depths do not allow for the use of standard topographic survey equipment.
- C. Hybrid Surveys: Any non-standard topographic and/or hydrographic survey work utilizing Unmanned Surface Vessels (USVs), Unmanned Aerial

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Section 01 71 23 – Construction Surveying

Vehicles (UAVs), or other hybrid/alternative equipment. The use of hybrid or alternative survey equipment by the Contractor or Contractor's survey team must be approved in writing by the Owner's Representative prior to use. Accuracy of hybrid or alternative surveys shall meet or exceed the accuracy requirements listed herein for terrestrial and/or hydrographic surveys.

- D. DGPS: Differential Global Positioning System (DGPS)
- E. RTK-GPS: Real Time Kinematic (RTK) Global Positioning Systems

1.5 GENERAL CONSTRUCTION SURVEYING

- A. Survey responsibility and sequence of survey work: The Contractor is responsible for all surveys necessary for controlling the work, including setting temporary benchmarks, staking and layout, intermediate/progress surveys, pre/post construction surveys. Construction survey assignments and activities are listed below. Survey tasks must be performed by an independent licensed surveyor, working as a sub-contractor for the Contractor, where indicated:
 - 1. Establish primary survey control (Must be performed by a Contractor hired Independent Licensed Surveyor)
 - 2. Existing utility locate survey (Contractor)
 - 3. Establish water level gauge(s) (Contractor)
 - 4. Pre-construction survey (Must be performed by a Contractor hired Independent Licensed Surveyor)
 - 5. Pre-Excavation survey (Must be performed by a Contractor hired Independent Licensed Surveyor)
 - 6. Intermediate/progress surveys for quality control (Contractor)
 - 7. Post-Excavation Survey (Must be performed by a Contractor hired Independent Licensed Surveyor)
 - 8. Final intermediate progress survey to confirm that design elevations have been achieved at all locations (Contractor hired Independent Licensed Surveyor)
 - 9. Post-construction survey (Must be performed by a Contractor hired Independent Licensed Surveyor)
- B. Construction surveying requirements
 - 1. The surveys performed during construction including pre-construction survey, intermediate/progress surveys, construction staking, electronic template development and post construction surveys shall be done at no additional expense to the Owner.

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Section 01 71 23 – Construction Surveying

2. The Contractor shall layout, install, and maintain construction stakes and marks needed to establish the lines, grades, slopes and cross-sections as necessary for completion of the work. Construction staking using wood lathing in above water areas and plastic pipe or other similar durable material shall be used in inundated areas to ensure waves and currents do not dislodge the staking during the construction period. The Contractor shall establish quality control for all work performed and all products supplied to assure compliance with the Technical Specifications. All construction surveys shall be conducted with electronic DGPS/RTK surveying equipment and shall achieve the survey accuracies stated herein.
3. The Contractor shall use electronic work templates in combination with installed on-board construction electronics equipment. Electronic templates shall utilize TIN or equivalent 3-dimensional surface models developed from the Contract Drawings and updated with pre-construction, progress/intermediate, and post-construction survey data throughout the duration of construction.
4. All surveys conducted within the project site limits shall use equipment equipped with electronic DGPS/RTK positioning capabilities and shall achieve the survey accuracies stated herein.
5. The Contractor shall perform all survey work to layout and set any construction stakes and marks which are needed to establish the lines, grade, slopes, and cross-sections. A baseline offset from the work area shall be established, utilizing benchmarks and monuments provided on the Contract Drawings, at a location that shall not be disturbed by construction activities and located close to the work so that it provides alignment and location reference. In addition, the Contractor shall perform intermediate/progress surveys during construction to ensure that the bedding stone and armor stone are being constructed to the lines and grades shown on the Contract Drawings within the tolerance specified. The Owner's Representative shall approve the field-staking and electronic templates for all work areas prior to the start of excavation or fill activities.
6. The electronic surveying method must be approved, in writing, by the Owner's Representative, prior to beginning placement of products on the Project.
7. Establish intermediate elevation benchmarks as needed to check work throughout the project.
8. The Owner's Representative may spot-check the Contractor's surveying. These spot-checks will not change the requirements for normal checking by the Contractor.

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9. Surveys shall be of sufficient frequency and accuracy during construction so that the Owner's Representative can determine that the construction is within the tolerances of the Technical Specifications and Contract Drawings.
 10. The Contractor shall be responsible for processing all survey data and providing the Owner and the Owner's Representative with electronic files containing topographic and/or bathymetry data (ASCII x-y-z format) for each survey.
 11. The Contractor shall make consideration for providing sufficient notification time of any intermediate/progress survey work for the Owner's Representative to review, observe and check all progress survey results throughout the duration of the work. The Owner's Representative and Owner's Construction Manager shall be allowed the time and access to check and approve the work prior to Contractor backfilling or covering the survey work area.
 12. The Contractor shall be responsible for setting, maintaining and resetting all alignment stakes, slope stakes, offsets to structures, and grades as necessary for the construction of all work shown in the Contract Drawings. Calculations, surveying, and measuring required for setting and maintaining the necessary lines and grades shall be the Contractor's responsibility.
 13. The location of each cross-section surveyed shall be referenced to the stationing shown on the Contract Drawings. The Contractor shall plot the cross-sections and profiles on a scale agreeable to the Owner's Representative and submit to the Owner's Representative for approval.
- C. Datums and Units: All surveys performed for this work shall be referenced to the following survey datums.
1. Horizontal Datum: Idaho State Plane West Zone, North American Datum 1983(91), (NAD83(91)), U.S. Feet.
 2. Vertical Datum: Lake Datum, referenced to USGS Gage 12393000. Datum of USGS Gage is 2,434.64 feet above NGVD88, U.S. Feet.
- D. Surveying tolerances
1. Terrestrial surveys shall be conducted utilizing surveying procedures, equipment, and methodology that meet or exceed accuracy tolerances of ± 0.05 feet in vertical and ± 0.1 feet in horizontal unless specified otherwise.
- Hydrographic survey work (if required) shall be conducted in accordance with USACE standards for Class 1 Hydrographic Survey for Navigation and Dredging support surveys in accordance with EM 1110-2-1003, Hydrographic Surveying. Vessels used for

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Section 01 71 23 – Construction Surveying

hydrographic surveying works shall be equipped with survey grade single-beam depth transponders. Accuracy for measured depths/elevations shall be ± 0.3 feet, and accuracy of horizontal position shall be ± 3 feet at the 95 percent confidence interval.

Hybrid survey technologies shall meet or exceed the vertical and horizontal accuracy tolerances specified herein for terrestrial surveys.

2. Intermediate/Progress Surveying: Terrestrial and Hydrographic survey work for intermediate/progress surveys shall be conducted using electronic DGPS/RTK positioning equipment and survey grade single-beam depth sounders (Hydrographic Surveys) in accordance with the requirements herein. Other electronic survey equipment may be proposed for use by Contractor in lieu of that specified but shall be approved by Owner's Representative prior to start of construction. Accuracy for measured elevations and/or water depths for intermediate/progress surveys shall be in accordance with the Terrestrial and Hydrographic Survey requirements herein.

E. Survey equipment

1. General: The Contractor shall employ a suitable method to locate and control equipment, structure excavation work, and the placement of fill that may include: DGPS, RTK-GPS, and/or an Owner's Representative approved equivalent. Observation data will be recorded in standard surveying field book format or by other methods as approved by the Owner's Representative. Automated position determinations will be accomplished by standard trilateration procedures whereby lengths to two or more shore-based points are electronically measured by either time delay or phase comparison techniques.
2. Hydrographic Survey: Hydrographic surveys shall be conducted by the Contractor using DGPS and/or RTK-GPS positioning equipment and shall use single-beam transducer sounding techniques for measuring depths. Hydrographic surveying shall be conducted with appropriate correction for water levels at the time of the survey. The proposed survey equipment shall be capable of providing the necessary measurement accuracy and provide exportable data in electronic format.
3. Survey Data Point Collection: Elevation and horizontal data points shall be taken at intervals as required herein, with additional points taken as necessary to adequately locate critical site features including edges, intersections, limits, and changes in slope of excavation, fill, cofferdam placement, stone structures, concrete placement, and other items project components to be constructed as shown on the Contract Drawings.

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Section 01 71 23 – Construction Surveying

1.6 CONSTRUCTION SURVEYING & STAKING

- A. Survey for Layout of Work: An accurate method of horizontal control shall be established by the Contractor before construction begins. The Owner's Representative will review and approve the proposed method and maintenance of the horizontal control system. If, at any time, the method fails to provide accurate location for the construction, the Owner's Representative may require the Contractor to suspend its operations until the survey control is reestablished. The Contractor shall lay out its work from the site control monuments shown on the Contract Drawings and shall be responsible for all measurements taken from these points. The Contractor shall furnish at its own expense all stakes, electronic templates, platforms, equipment, buoys, range markers, transponder stations and labor as may be required to lay out the work from the work points shown on the Contract Drawings. If staked points are destroyed by the Contractor or disturbed through the Contractor's negligence prior to authorized removal, they shall be resurveyed and/or replaced by the Contractor at the Contractor's own expense.
- B. Use of electronic work templates for on-equipment positioning systems during construction to locate and delineate excavation and stone placement area limits and elevations for the work are allowable but require detailed description in the survey plan. Provide equipment positioning plan and electronic templates from Hypak, Dredgepack, AutoCAD, or other comparable 3D software if onboard equipment positioning systems are utilized in lieu of field staking. Equipment positioning systems shall be field checked for accuracy utilizing survey grade instruments for horizontal and vertical. Intermediate surveys will also include equipment positioning system electronic bucket marks within the work area prisms as part of the interim survey submittals.
- C. Contractor is responsible for conducting all construction staking and survey work required for construction.
- D. To facilitate the establishment of lines and elevations, the Contractor hired Independent Licensed Surveyor will provide the Contractor with primary survey control information consisting of descriptions of two primary control points used for the horizontal and vertical control, and descriptions of two control points will be described by reference to the coordinate system and elevation datum utilized by the project.
- E. The Contractor is responsible for verifying primary control information furnished by the Independent Licensed Surveyor prior to performing construction marking work. The Contractor shall notify the Owner's Representative promptly in writing of any discrepancies discovered.
- F. When staking structure or other alignment and stationing, the Contractor shall perform independent checks from different secondary control to

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ensure that the points staked are within the specified survey accuracy tolerances.

- G. The Contractor shall calculate coordinates for the alignment. The Contractor shall submit these coordinates for Owner's Representative for review and approval in accordance with Technical Specification Section 01 33 00 – Submittals.
- H. The use of Global Positioning System (GPS) positioning equipment on construction machinery is contingent upon the use of electronic construction templates, which shall be submitted by the Contractor and approved by the Owner's Representative prior to the start of Construction.
- I. Contract work to be performed using contractor-provided stakes shall not begin until the stakes are approved by the Owner's Representative. Such approval shall not relieve the Contractor of responsibility for the accuracy of the stakes.
- J. In addition to the development of electronic templates, the location of all work elements indicated on the Contract Drawings shall be field staked or marked and approved by the Owner's Representative prior to the start of construction.
- K. Establish the centerlines of all alignments, by placing hubs, stakes, or marks on centerline or on offsets to centerline at all curve points (PCs, PTs, and PIs) and at points on the alignments spaced no further than 50 feet.
- L. Establish clearing limits, placing stakes at all angle points and at intermediate points not more than 50 feet apart. The clearing and grubbing limits shall be 5 feet beyond the toe of a fill and 10 feet beyond the top of a cut unless otherwise shown in the Contract Drawings.
- M. Establish grading limits, placing slope stakes at centerline increments not more than 25 feet apart. Establish offset reference to all slope stakes.
- N. Establish the horizontal and vertical location of all drainage features, placing offset stakes to all drainage structures and to pipes at a horizontal interval not greater than 25 feet, as applicable.
- O. For all other types of construction included in this project, provide staking and layout as necessary to adequately locate, construct, and check the specific construction activity.

1.7 PRE-CONSTRUCTION SURVEYING

- A. A pre-construction survey shall be conducted at least 45 days prior to the start of construction. The Contractor shall provide the pre-construction survey to the Owner's Representative and the Owner's Construction Manager at least 30 days prior to the start of construction for review.
- B. To perform a pre-construction survey prior to dewatering the work area, the Contractor shall coordinate with the Owner's representative to allow for

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enough time to schedule with Idaho Department of Water Resources North Region operations staff to facilitate the survey works.

- C. The pre-construction survey shall include the following:
 - 1. Pre-construction surveys shall meet the requirements outlined in paragraph 1.05 “General Construction Surveying” of this Section.
 - 2. Terrestrial, hydrographic and/or hybrid/alternative survey data collection within the work areas indicated on the Contract Drawings and Specifications. Survey areas include areas within and outside of the project site limits.
 - 3. Design Template Overlay: The Contractor shall develop drawings with overlays of design cross-section templates (from Contract Drawings) on cross-sections developed using pre-construction survey data.

1.8 INTERMEDIATE/PROGRESS SURVEYS

- A. Intermediate/progress surveys shall be conducted in accordance with the requirements outlined in paragraph 1.05 “General Construction Surveying” of this Section.
- B. The purpose of intermediate/progress surveys is for quality assurance and quality control to assure products are installed as specified. Owner’s Representative and Owner’s Construction Manager may use the results of intermediate/progress surveys to direct the Contractor to adjust its methods to assure compliance with the Contract Drawings and permit requirements, at no additional expense to the Owner.
- C. Intermediate/progress surveys of the work may be submitted for partial payment upon prior approval from the Owner’s Representative.
- D. The Contractor shall perform intermediate/progress surveys for all work items where progress payments are requested and as specified below. Intermediate/progress terrestrial and hydrographic surveys (if required) shall, to the practical extent possible, be performed in a similar manner (areas of coverage and point density) as any pre-construction survey works. The Owner’s Representative will use the survey data to confirm design elevations monitor construction progress and confirm partial payments.
- E. Intermediate/Progress survey cross-sections shall be taken at the same cross-section locations as previously performed surveys for comparison of work element progress.
- F. Intermediate/progress surveys shall include, but are not limited to the following:
 - 1. After completion of excavation
 - 2. After placement of any fill materials (bedding stone type I or II, armor stone, and/or backfilled native materials)

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Section 01 71 23 – Construction Surveying

3. After the concrete scour apron and abutments are installed
4. After access road aggregate placement

1.9 POST-CONSTRUCTION SURVEY

- A. Upon completion of all work activities, the Contractor shall hire an Independent Licensed Surveyor to perform a post-construction survey within all work areas.
- B. The purpose of the post-construction survey is to assure compliance with the Contract and to record the as-built condition of the work.
- C. The post-construction survey shall include the following:
 1. Post-construction surveys shall meet the requirements outlined in paragraph 1.05 - General Construction Surveying of this Section.
 2. Terrestrial, hydrographic and/or hybrid/alternative survey data collection within the work areas indicated on the Contract Drawings and Specifications. Survey areas include areas within and outside of the project site limits.
- D. The Contractor shall survey all existing utility lines and residential laterals located along State Highway 57 and Lamb Creek Lane. Any damage to the existing utility lines located along the haul road that are identified following the Owner's Representative and Owner's Construction Manager's review of the post-construction utility survey data shall be the responsibility of the Contractor and repaired in accordance with Section 01 50 00 – Temporary Facilities and Controls.
- E. All Post-construction survey data shall be reviewed and verified by the Owner's Representative prior to Demobilization from the site.

1.10 SUBMITTALS

- A. Action Submittals
 1. Qualifications: Contractor shall submit a description of construction survey personnel qualifications to the Owner's Representative for review prior to start of survey work. Surveys shall be submitted in accordance with 01 33 00 – Submittals. Survey qualifications are as follows:
 - a. Licensed Surveying: Licensed surveying shall be performed under the direct supervision of an independent licensed State of Idaho Professional Land Surveyor that is not an employee of the Contractor. All primary control verification and secondary control establishment, pre-construction, pre-

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excavation, post-excavation, final intermediate/progress surveys, and post-construction survey work shall be conducted as a licensed survey. Licensed survey may require multiple survey methods and may be performed by different licensed surveyors, provided that they meet the following requirements:

- (1) General: The surveyor shall be a licensed public land surveyor (PLS) in the State of Idaho and shall have a minimum 5 years of documented experience with construction field surveying for similar types of shoreline and nearshore upland improvement projects.
 - (2) Hydrographic Survey: The surveyor shall be a licensed public land surveyor (PLS) in the State of Idaho and shall have a minimum 5 years of documented experience with hydrographic surveying works using the equipment proposed for use on this project.
- b. Non-Licensed Surveying: Intermediate/progress surveys shall be performed by either an employee of the Contractor or and independent licensed surveyor meeting the following requirements
 - (1) General: The surveyor shall have a minimum of five (5) years of documented experience performing topographic surveying utilizing electronic surveying instruments (total station, GPS, etc.) and qualified in the use of the survey equipment proposed by the Contractor.
 - (2) Hydrographic Survey: The surveyor shall have a minimum of five (5) years of documented experience performing hydrographic surveying of similar works using the equipment proposed for use on this project.
2. Survey Plans: Contractor shall submit survey plans for all work and all phases to the Owner's Representative's for review in accordance with Technical Specification Section 01 33 00 – Submittals. All survey plans must be reviewed and approved by the Owner's Representative and Owner's Construction Manager prior to the start of surveys and construction activity by the Contractor. The plans shall include a description of the methods, procedures, and proposed survey equipment and model number to be used for pre-construction, intermediate/progress, and post-construction survey works. The following list includes, but is not limited to, the survey plans that shall be provided by the Contractor:
 - a. Pre-construction Survey Plan

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- b. Progress/Intermediate Survey Plan
- c. Post-Construction Survey Plan
- 3. Survey Data and Drawings
 - a. Primary and Secondary control established by the Contractor
 - (1) Provide descriptions of primary and secondary control to the Owner's Representative and Owner's Construction Manager. The description shall include coordinates and elevations of all primary and secondary control points.
 - b. Utility locate surveys, potholing, etc.
 - c. Temporary Construction Easement and Access Surveys
 - d. Intermediate/Progress surveys
 - (1) The Contractor shall furnish the original field notes and data of the surveys to the Owner's Representative and Owner's Construction Manager within 24 hours following completion of the survey. Survey data shall be in PC compatible, ASCII format, in delimited files of easting, northing, and elevation (xyz), and description.
 - (2) Survey data file shall list the project name, surveyor's name, area surveyed, date of survey, and the horizontal and vertical datum.
 - (3) Topographic and/or bathymetric survey data shall include measured Outlet Dam and Priest Lake water levels to the nearest 0.1 foot in the project datum for the period of the survey.
 - (4) Cross-sections and plan views shall be plotted in AutoCAD 2014 (or newer format) and submitted in hard copy and electronic format to the Owner's Representative. Cross-sections and plan views shall follow within 3 business days after completion of the survey, or as approved by the Owner's Representative. Plotted survey submittals shall be drawings of sections on 11x17 inch sheets at a suitable scale.
 - (5) Data shall be submitted to the Owner's Representative and Owner's Construction Manager in electronic ASCII and PDF formats.
 - e. Pre/post construction and pre/post excavation drawings

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- (1) The processed data pre-construction and pre-excavation (ASCII format), one (1) foot contour map of the work areas, and cross-section drawings (in AutoCAD format) with overlays of design templates shall be submitted to Owner and the Owner's Representative at least 14 business days prior to the start of on-site construction activities.
- (2) The Contractor shall furnish the original field notes of all construction surveys and data of the surveys to the Owner's Representative and Owner's Construction Manager within 24 hours following completion of the survey. Survey data shall be in PC compatible, ASCII format, in delimited files of easting, northing, and elevation (xyz), and description.
- (3) Survey data file shall list the project name, surveyor's name, area surveyed, date of survey, and the horizontal and vertical datum.
- (4) Topographic and/or bathymetric survey data shall include measured Thorofare and Priest Lake water levels to the nearest 0.1 foot in the project datum for the period of the survey.
- (5) Cross-sections and plan views shall be plotted in AutoCAD 2014 (or newer format) and submitted in hard copy and electronic format to the Owner's Representative. Cross-sections and plan views shall follow within 7 business days after completion of survey, or as approved by the Owner's Representative. Plotted survey submittals shall be drawings of sections on 11x17 inch sheets at a suitable scale.
- (6) Data shall be submitted to the Owner's Representative and Owner's Construction Manager in electronic ASCII and PDF formats.

f. Project Record Drawings

- (1) Refer to Specific Requirements.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 SURVEY EQUIPMENT

- A. Surveying equipment and methods used for pre-construction, intermediate/progress surveying and post-construction surveys shall be

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Section 01 71 23 – Construction Surveying

conducted in accordance with paragraph “General Construction Surveying” of this Section.

3.2 EXISTING UTILITY LOCATION SURVEY

- A. Contractor shall clearly mark and stake the location of existing utilities located within the access road corridor shown on the Contract Drawings.

3.3 PRE-CONSTRUCTION SURVEY

- A. Pre-construction survey areas shall include surveying for all within and outside of the project site limits. Pre-construction survey works also include utility line locate surveys and pre-construction condition assessments along Lamb Creek Lane. Pre-construction survey works also include all pre-construction condition assessment and surveying work associated with temporary construction easements and access areas.
- B. Existing Utility Surveys
 - 1. Pre-construction Utility Condition Survey: The Contractor shall submit photos and a video recording of an initial walkthrough of the Construction Access Easements prior to construction. Inspections of utility infrastructure, including CCTV, potholing, and other utility location works shall be documented and provided to the Owner’s Representative and Owner’s Construction Manager for review prior to initiating construction activities. The photos, video, and other documentation shall be used at the end of construction as a baseline for the Contractor to restore the site.
- C. Pre-construction survey works within the project site limits shall consist of survey transects taken perpendicular to specified structure centerlines or along shoreline reference line and at no greater than 20 feet on center. Survey points along each transect shall be taken at all major breaks in grades, slope, and alignment to accurately depict topographic conditions. Surveying along transects shall extend at least 25 feet beyond the edge of excavation and fill limits (both landward and waterward directions).
- D. The Contractor shall complete locate surveys for all existing utility lines and residential laterals located along Lamb Creek Lane. Existing utility information is indicated on the Contract Drawings and in Appendix D – Existing Utility Drawings.
- E. All Pre-construction survey data shall be reviewed and verified by the Owner’s Representative for approval prior to the start of construction.

3.4 INTERMEDIATE/PROGRESS SURVEYS

- A. Intermediate/progress surveys for construction associated with excavation and fill and any other works located within the project site limits shall be

DIVISION 1 – GENERAL REQUIREMENTS
Section 01 71 23 – Construction Surveying

performed using terrestrial and hydrographic (if required) survey equipment as specified below:

1. Progress surveys shall be conducted following the same procedures and locations as outlined in the Pre-construction survey section. Results of the intermediate/progress surveys will be transmitted to the Owner's Representative and Owner's Construction Manager within 24 hours of completion of each survey and may be used to direct the Contractor to adjust its method of fill placement and/or temporary stockpiling to assure compliance with the Contract Drawings and permit requirements, at no additional expense to the Owner.
- B. Intermediate/progress surveys shall be conducted at the following stages of construction to ensure the lines and grades shown on the Contract Drawings and specified herein are being achieved:
1. Every 25 feet, relative to the centerline of the Outlet Dam, following excavation. Intermediate/progress surveys shall be conducted along the same transects surveyed during the pre-construction survey.
 2. Every 25 feet, relative to the Outlet Dam Centerline, following placement of geotextile, fill/beneficial reuse, cofferdams, and stone materials. Intermediate/progress surveys shall be conducted along the same transects surveyed during the pre-construction survey.
- C. Intermediate/Progress Survey Submission Requirements. The Contractor shall submit intermediate/progress survey data as specified herein for the Owner's Representative review and approval. The Owner's Representative reserves the right to increase or decrease the frequency of intermediate/progress surveys at no additional expense. The frequency of intermediate/progress surveys will depend on the Contractor's ability to progress the work and maintain quality assurance and quality control in accordance with the Contract Drawings and Specifications. The Owner's Construction Manager and Owner's Representative shall be present during the execution of the progress survey data collection effort, unless explicitly waived by the Owner's Representative.
- D. Final payment for the excavation work will be based on volumes computed using the pre-excavation survey and Intermediate/Progress Surveys of excavated areas completed to the lines and grades shown in the Contract Drawings. The comparison of the pre-construction and intermediate/progress surveys will be used as the basis for determining final pay quantities and acceptance of the excavation and fill work. Final pay quantities will be calculated by the Owner's Representative computing volumes to the nearest cubic yard. Upon request, the Contractor will be provided with a copy of the quantity calculations.

DIVISION 1 – GENERAL REQUIREMENTS
Section 01 71 23 – Construction Surveying

3.5 POST-CONSTRUCTION SURVEYING

- A. Post-construction survey areas shall include surveying for all Work within and outside of the project site limits. Post-construction survey works also include utility line surveys and post-construction condition assessments along Lamb Creek Lane. Post-construction survey works also include all pre-construction condition assessment and surveying work associated with temporary construction easements and access areas.
- B. Existing Utility Surveys
 - 1. The Contractor shall survey all existing utility lines and residential laterals located along Lamb Creek Lane. Any damage to the existing utility lines located along the haul road that are identified following Owner's Representative and Owner's Construction Manager's review of the post-construction utility survey data shall be the responsibility of the Contractor and repaired in accordance with Section 01 50 00 – Temporary Facilities and Controls.
- C. The Contractor shall walk the site with the Owner's Representative and Owner's Construction Manager and submit photos of the Construction Access Easement after construction. The Contractor shall submit to the Owner's Representative inspections of the utility's infrastructure following construction activities. Any damage incurred during construction shall be considered the responsibility of and repaired by the Contractor.
- D. All Post-construction survey data shall be reviewed and verified by the Owner's Representative prior to Demobilization from the site.

3.6 PROJECT RECORD DRAWINGS

- A. Contractor shall utilize final progress and post-construction survey data to assemble project record drawings for submission to the Owner at the conclusion of the project.

END OF SECTION

DIVISION 2 – SITE CONSTRUCTION
Section 02 20 00 – Cofferdams & Dewatering

PART 1 – GENERAL

1.01 DESCRIPTION

- A. A flow diversion, cofferdam, and dewatering will be required to complete the Outlet Dam Improvement work. The flow diversion, cofferdam, and dewatering will include the following:
1. Flow Diversion, Cofferdam, and Dewatering Work Plan and Design
 2. Cofferdam
 3. Dewatering System
 4. Rewatering
 5. Temporary Access Road/Structure
 6. Monitoring of Outlet Dam flow conditions and lake levels
 7. Flow Diversion, Cofferdam, and Dewatering System removal and site restoration

1.02 RELATED SECTIONS

- A. All Technical Specification sections relate to this section.

1.03 DEFINITIONS

- A. Cofferdam is a temporary structure within a waterway or body of water designed to provide a dry work area for temporary construction activities and to contain disturbed soil and/or suspended sediments. In this specification “cofferdam” can also include a combined shoring and cofferdam system that is designed to retain soil, groundwater, and surface water as well as provide lateral support of soils and limit lateral movement of soils supporting structures, such that these items are not damaged as a result of the lateral movement of the supporting soils.
- B. Dewatering refers to the removal of water with the purpose of creating a dry work area for temporary construction activities.
- C. Dewatering system defines the machinery, equipment, and appurtenances necessary for and related to the accomplishment of dewatering, and the collection and disposal of all surface water within the protected area.
- D. Flow Diversion defines the temporary re-routing of river flows around work areas.
- E. Combined System refers to an integrated flow diversion, cofferdam, and dewatering system.
- F. Flooding of the excavation is defined as the uncontrolled process of filling the excavation with water to a specified elevation and at a specified rate.
- G. In-water work area is work occurring at or below OHW.

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Section 02 20 00 – Cofferdams & Dewatering

- H. In-water Construction Window is the time period from November 1st, 2023 through March 15th, 2024 during which the Contractor is permitted to conduct work below OHW. No work below OHW may be conducted outside the In-water Construction Window.
- I. Isolated Work Area is the area contained within the temporary cofferdam during construction. The Isolated Work Area will change during various phases of construction.
- J. Rewatering is defined as the controlled process of placing water in the completed structure and/or excavation to its naturally occurring elevation at a specified rate when the construction is completed and the dewatering system is no longer required.

1.04 RIVER FLOWS

- A. The requirements and specifications for the combined system are set forth herein.
- B. A map of available flow data for the Priest Lake/Priest River system is provided in Appendix E - Water Level & Flow Data.
- C. Outlet Dam Discharge: Recently (2016), a gage was installed just downstream of the Outlet Dam to measure discharge through the dam (USGS Gage #12393501).
- D. Additional discharge data: There is also a long data record of river flows further downstream of the Outlet Dam from USGS Gage #12394000. Small tributaries drain into Priest River between the Outlet Dam and Gage #12394000, so the flows measured at this gage are similar to, but not necessarily representative of flows through the Outlet Dam.
- E. A summary of Priest River flow data from USGS Gage #12394000 and available Outlet Dam flow data (#12393501) data is provided in Appendix E – Water Level & Flow Data for design of the cofferdam and dewatering system. A summary of estimated peak flows at the Outlet Dam and daily statistics from USGS Gage #12394000 during the In-water Construction Window are provided.
- F. The estimated 2-year, 5-year, and 10-year peak river flow at the Outlet Dam is provided below for two time periods within the In-Water Construction Window:

Estimated Outlet Dam In-Water Construction Window Peak Flow Rates

	2-YEAR	5-YEAR	10-YEAR
NOVEMBER 1 TO DECEMBER 14:	1,450 CFS	1,970 CFS	2,307 CFS
DECEMBER 15 TO MARCH 15:	917 CFS	1,400 CFS	1,760 CFS

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Section 02 20 00 – Cofferdams & Dewatering

- G. The Contractor shall install a staff gage within or upstream of the project site limits to monitor water levels during Construction.
- H. It is the Contractors responsibility to review the enclosed data, USGS data, and site conditions and develop a Cofferdam System design and work plan that will provide protection of the active work area from inundation of water for the range of flows anticipated during construction.

1.05 DESIGN

- A. The Contractor is responsible for the design of the Combined System. The Combined System shall be designed using accepted professional methods of engineering design consistent with the best current practice and standard guidance.
- B. The Contractor shall secure the services of a professional engineer or engineers licensed to practice in the State of Idaho to design and stamp calculations for the Combined System.
- C. If multiple design professionals are used for different design elements (e.g. structural engineer for cofferdams, hydraulics engineer for flow diversion systems, etc.) one professional engineer shall be identified as the engineer of record and shall be responsible for confirming that the design components are consistent and integrated into the Combined System.
- D. The Combined System shall be designed for site specific conditions to include: existing structures, construction loads, and temporary and permanent site grading and slopes.
- E. The Combined System shall be designed to support soil and aggregate surrounding existing and completed structures and to prevent damage or displacement of existing and completed structures.

1.06 MAINTENANCE AND SERVICES

- A. The Contractor shall be responsible for the maintenance, servicing, and repairs of the entire Combined System and appurtenances during the life of the contract.

1.07 GENERAL CRITERIA

- A. All permanent work under this contract except as otherwise specified shall be carried out in areas free of water. The Contractor shall design, furnish, install, operate, and maintain such facilities necessary to accomplish the following:

DIVISION 2 – SITE CONSTRUCTION
Section 02 20 00 – Cofferdams & Dewatering

1. The Flow Diversion/Dewatering Work Plan and Cofferdam System developed by the Contractor must be in accordance with all environmental permits included in Appendix A – Permit Documents.
2. No fish stranding shall occur. A qualified biologist (possessing all necessary knowledge, training, and experience to ensure safe handling of fish and to ensure the safety of staff conducting the operations) shall assist with any fish relocation efforts, if encountered.
3. The Combined System shall isolate the dry work area from river flow and be able to withstand the In-Water Construction Window two-year peak river flow, at a minimum, without overtopping or change in operation.

1.08 DEWATERING REQUIREMENTS

- A. The dewatering system shall be of a type and capacity to accomplish all requirements specified herein.
- B. The dewatering system shall be designed, installed, and operated to dewater the section of the Outlet Dam and scour apron shown on the Contract Drawings. The Contractor is responsible for selecting the dewatering system design water level for the anticipated river water levels and flows and working conditions required behind the cofferdam. The dewatering system must also include standby pumping and power supply such that a continuously operable system is available during power outages, pump failures, etc.
- C. The dewatering system shall provide a dry, stable bottom, and side slopes.
- D. The dewatering system shall be maintained continuously as specified above so that construction operations can be performed without interruption due to wet conditions.
- E. The system may consist of pumps, standby pumps, sumps, sump pumps, ditches, and necessary appurtenances capable, at all river flows less than or equal to the 2-year peak flow provided in paragraph DESIGN above, at a minimum. The system shall be operated as required as specified herein to prevent flooding of the dewatered work area; and shall be designed to control a rainfall intensity of two (2) inches per hour within the dewatered area. Protection of all slopes will be required to prevent erosion under normal surface runoff and construction conditions. Slope protection may include proper drainage, mulching, vegetation, geosynthetics, etc.
- F. All pumping equipment included in the system shall be muffled or isolated to prevent noise exceeding 75 decibels at the limit of construction.

DIVISION 2 – SITE CONSTRUCTION

Section 02 20 00 – Cofferdams & Dewatering

- G. During dewatering of the isolated work area, all sediment-laden water must be filtered to remove sediment. Possible options for sediment removal include baffle systems, anionic polymers systems, dewatering bags, or other appropriate methods. Water shall have sediment removed prior to being re-introduced to the downstream waterway. A stabilized conveyance from the dewatering device to the waterway must be identified in the plan. Discharge water is considered clean if it does not result in a visually identifiable degradation of water clarity.
- H. Rewatering of the area shall be accomplished by directing surface and ground water into the area. Protection of slopes and excavation surfaces shall be provided as necessary to prevent erosion during flooding operations.
- I. Burying of headers will be allowed only in areas and to depths absolutely necessary for protection against damage at construction equipment crossings.

1.09 COFFERDAM AND FLOW DIVERSION REQUIREMENTS

- A. The Contractor is responsible for protecting the Work, prior to final acceptance, for conditions up to a 10-year flow event (see paragraph 1.03 DESIGN above).
- B. The cofferdam and flow diversion shall be designed to allow for the conveyance of the 2-year peak flow with 1ft of freeboard (at a minimum).
- C. The cofferdam shall be constructed of non-erodible materials (steel sheet piles, steel sheets, aqua barriers, rip rap, and geotextile liner, etc.). Bare earthen cofferdams are not permissible.
- D. The cofferdam must be constructed from the upland area and no equipment may enter flowing water at any time. If the installation of the cofferdam cannot be completed from shore and access is needed to reach the area to be coffered, other measures, such as the construction of a temporary access road, will be necessary to ensure that equipment does not enter the flowing water. Temporary access roads must meet the requirements contained in Section 01 50 00 – Temporary Facilities and Controls. Once the cofferdam is in place and the isolated area is dewatered, equipment may enter the coffered area to perform the required work.
- E. The areas from the toe to the top of the side slopes outside the dewatered area shall be temporarily stabilized during construction to reduce the potential for erosion. All areas disturbed due to construction activities shall be restored to proposed conditions and fully stabilized prior to accepting flows.
- F. The flow diversion shall be constructed to minimize erosion of the stream bed at the point of discharge. Scour shall be remediated by rip-rap infill when removing the Combined System.

DIVISION 2 – SITE CONSTRUCTION
Section 02 20 00 – Cofferdams & Dewatering

- G. The diversion capacity of the combined system may be temporarily restricted for a limited time as needed. The contractor shall not reduce flow of the combined system below 100 cfs. At least one gate must be open at least 6 inches to permit passage of fish. The contractor shall not reduce flow of the combined system below the specified minimum flow for more than 12 hours over a 24-hour period or for more than 24 hours over a 72-hour period.

1.10 SUBMITTALS

- A. The Contractor shall submit an original and an electronic copy (PDF) of its complete Combined System Plan to the Owner's Representative and Owner's Construction Manager for review for general conformance with permit requirements within 20 days of receiving notice to proceed. Engineer will require up to 20 calendar days from the date the Combined System Plan is received until it is returned to the Contractor. The Contractor shall not proceed with the Combined System Plan until comments from the Engineer have been adequately addressed.
- B. Review or approval of the Plan shall neither confer upon the Contracting Agency nor relieve the Contractor of any responsibility for the accuracy of the Plan or their conformity with the Contract. The Contractor shall bear all risk and all costs of any Work delays caused by rejection or nonapproval of the Plan.
- C. Examples of items that shall be shown on the Combined System Plan submittal and supported by calculations include, but are not limited to, the following:
 - 1. Heights; soil slopes; soil benches; and controlling cross sections showing adjacent existing structures, utilities, site constraints, and any surcharge loading conditions that could affect the stability of the cofferdam, including any slopes above or below the cofferdam.
 - 2. A summary clearly describing performance objectives, subsurface soil and groundwater conditions, sequencing considerations, and governing assumptions.
 - 3. Any supplemental subsurface explorations or observations made to meet the requirements for design.
 - 4. Supporting calculations used to design the combined system, including flow calculations of flow diversion structures, the stability evaluation of the cofferdam system in its completed form as well as intermediate system construction stages, the soil and material properties selected for design, and the justification for the selection for those properties.

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Section 02 20 00 – Cofferdams & Dewatering

5. Safety factors, or load and resistance factors used, and justification for their selection.
6. Location and weight of construction equipment adjacent to the cofferdam or excavation.
7. Cofferdam system material properties, spacing, size, connection details, weld sizes, and embedment depths.
8. Combined System installation and construction sequence, procedure, length of time for procedure and time between operations; testing procedures if any; and a list of all assumptions.
9. A monitoring/testing plan to evaluate the performance of the combined system throughout its design life and at each critical phase. Monitoring plan shall include an estimate of water levels in flow diversions, flow rates and drawdown from dewatering systems, and deflections of cofferdams. The monitoring/testing plan shall also include, threshold limits that would trigger remedial actions, and a list of potential remedial actions should thresholds be exceeded.

D.

PART 2 – PRODUCTS

2.01 MATERIALS

The Contractor shall furnish all materials, tools, and equipment for the combined cofferdam, and dewatering system. Materials shall be selected by the Contractor.

PART 3 – EXECUTION

3.01 OPERATION

- A. The Contractor shall perform dewatering and maintain the isolated work areas in a dry condition as long as is necessary for the work under this contract. Once an area is dewatered, it shall be maintained in a dewatered condition until all work in that area is completed, unless flooding is directed by the Owner. In the event that flooding is deemed necessary by the Owner, the protected area shall be flooded in accordance with the sequence of flooding proposed by the Contractor and approved by the Owner's Representative and Owner's Construction Manager. However, the Contractor shall not flood the protected areas without the approval of the Owner. If flooding occurs because of the Contractor's fault, negligence, or convenience, all costs resulting from such flooding shall be borne by the Contractor. Commencement of dewatering subsequent to flooding will be subject to prior approval of the Owner.

3.02 QUALITY CONTROL

- A. The Contractor shall establish and maintain quality control for all operations to assure compliance with contract requirements and maintain records of

DIVISION 2 – SITE CONSTRUCTION
Section 02 20 00 – Cofferdams & Dewatering

quality control for all construction operations, including but not limited to the following:

1. Designing,
2. Fabrication and Workmanship,
3. Installation, Operation, Maintenance, and Removal.

3.03 REMOVAL

- A. The dewatering facilities required to maintain a dry condition within the protected area shall be maintained until completion of the work within the protected area, and then shall be completely removed. However, no dewatering facilities of any kind shall be removed without prior approval of the Owner's Representative. Pumps and appurtenances employed in the dewatering system and all materials other than earth shall remain the property of the Contractor and shall be removed from the site of the work. Any approvals of the implementation and/or removal plans by the Owner's Representative does not shift the responsibility for the removal of the system from the Contractor to the Owner. Nor does it relieve the Contractor of their responsibility to provide a removal plan, which comports with industry standards and prudent construction practices.
- B. The Contractor shall restore all riverbed areas to pre-construction conditions and all imported materials removed within the areas of flow diversion work.

END OF SECTION

DIVISION 3 – CONCRETE
Section 03 30 00 – Cast-In-Place Concrete

PART 1 – GENERAL

1.1 DESCRIPTION

- A. This Technical Specification covers supply, placement, and testing for all cast-in-place concrete, including formwork, reinforcement, concrete materials, mix design, and finishes for construction of the concrete apron, keyway, upstand, apron walls, floating slab, and pier repair as shown in the Contract Drawings. Work included under this Technical Specification is to include all equipment, labor, and materials, including reinforcement, formwork, placement, curing, testing, and any other associated work required for the installation of cast-in-place concrete.
- B. Testing will be required at numerous stages of construction. The Contractor shall be responsible for coordinating all testing activities, related to this work, with the Owner's Representative and/or Owner's Construction Manager. The Contractor shall be responsible for ensuring that the test results for each testing activity are obtained within the acceptable timeframes specified in subsequent items of this section and are stamped by a professional engineer with current license under Idaho Statutes, Title 54, Chapter 12, or by other certifying individual, who is qualified to review and approve such results or perform such testing. All test results shall be accompanied with the following information:
 - 1. Manufacturer's Certificate of Compliance by Professional Engineer or certified individual as may apply, listing the test standard(s) used and that the testing was in compliance with the Contract.
 - 2. The name of the testing laboratory including the accrediting agency, date of accreditation, principal in charge of testing, name of personnel doing testing if different including qualifications, address, phone number, and email address.
 - 3. The results of the test(s) presented in the format required by the designated recognized test standard unless the Contract specifies otherwise.
 - 4. Where and how the sample was obtained, any care given to the sample, and any care given in preparing the sample not specified in the test standard, any deviations from the testing standard used in testing.

1.2 RELATED SECTIONS

- A. Section 01 33 00 – Submittals
- B. Section 01 40 00 – Quality Requirements
- C. Section 01 71 23 – Construction Surveying
- D. Section 05 12 00 – Structural Steel Framing

DIVISION 3 – CONCRETE
Section 03 30 00 – Cast-In-Place Concrete

1.3 REFERENCE STANDARDS

- A. Codes and Standards: Comply with the provisions of the following codes, specifications and standards, except as otherwise shown or specified:

ACI

- 66 ACI Detailing Manual
- 117 Tolerances for Concrete Construction and Materials
- 211.1 Selecting Proportions for Normal, Heavyweight and Mass Concrete
- 301 Structural Concrete
- 304 Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete
- 305 Recommended Practice for Hot Weather Concrete
- 306 Recommended Practice for Cold Weather Concrete
- 308 Guide to Concrete Curing
- 315 Manual of Standard Practice for Detailing Reinforced Concrete Structures
- 318 Building Code Requirements for Reinforced Concrete (2014)
- 347 Recommended Practice for Concrete Formwork

ASTM

- A82 Steel Wire, Plain, for Concrete Reinforcement
- A497 Steel Welded Wire Reinforcing
- A 615 Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement

- C31 Making and Curing Concrete Test Specimens in the Field
- C33 Concrete Aggregates
- C39 Test Method for Compressive Strength of Cylindrical Concrete Specimens
- C42 Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
- C94 Ready-Mixed Concrete
- C150 Portland Cement
- C172 Sampling Freshly Mixed Concrete
- C 260 Air-Entraining Admixtures
- C 309 Liquid Membrane-Forming Compounds for Curing Concrete

DIVISION 3 – CONCRETE
Section 03 30 00 – Cast-In-Place Concrete

- C 494 Chemical Admixtures for Concrete
- C 618 Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
- C 989 Slag Cement for Use in Concrete and Mortars

1.4 QUALITY ASSURANCE

A. General

1. All concrete shall be reinforced unless otherwise stated.
2. Workmanship: The workmanship must be equal to the best practice in modern construction. The Contractor shall exercise the greatest possible care to make a uniform dense concrete of required strength, true to the elevations and lines shown on the Contract Drawings.
3. All concrete work which does not conform to the specified requirements, including those for strength, tolerances, and finishes shall be corrected or removed and recast as directed by the Owner's Representative and/or Owner's Construction Manager at the Contractor's expense with no modification of project schedule requirements. The Contractor shall also be responsible for the cost of corrections to any other work affected by, or resulting from, corrections to the concrete work.
4. Special Inspection by an independent inspector will be required prior to placement of concrete to ensure all formwork has been adequately prepared and cleaned and all reinforcement has been adequately installed.

B. Installer Qualifications

1. An experienced installer and finisher who has completed concrete work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance. Qualifications must include:
 - a. Has experience completing installation of five (5) or more projects with similar finish techniques and has been in business ten (10) years or more. Provide the following information:
 - 1) Provide list of five (5) projects with the address of the installation, the date of the installation, point of contact for the project and phone number as a reference.
 - 2) Provide two (2) photos of each project listed above representing the project/installation.

C. Manufacturer Qualifications

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1. A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C94 requirements for production facilities and equipment.
 - a. Manufacturer must be certified according to the National Ready Mixed Concrete Association's Certification of Ready Mixed Concrete Production Facilities.
 - D. Testing Agency Qualifications
 1. An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM C1077 and ASTM E329 to conduct the testing indicated, as documented according to ASTM E548.
 - a. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
 - E. Source Limitations
 1. Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, each aggregate from one source, and each admixture from the same manufacturer.
- 1.5 DELIVERY, STORAGE, AND HANDLING
- A. Deliver, store, and handle steel reinforcement to prevent bending and damage.
- 1.6 SUBMITTALS
- A. Submittals shall be in accordance with Technical Specification Section 01 33 00 – Submittals.
- B. Concrete Work Plan: The Contractor shall submit a work plan detailing scheduling and methods to be used for cast-in-place concrete construction activities. The Concrete Work Plan shall include the following:
1. Pour and Joint Plan: The Contractor shall submit a detailed dimensioned pour plan that includes reinforcing in the concrete, the construction and cold joint locations, and pour sequencing. This plan shall be approved by the Owner's Representative prior to ordering the materials for construction.
 2. Repair Plan: Prior to commencement of any concrete work, the Contractor is to submit a repair plan for both structural and non-structural repairs addressing materials and methods.
 3. Thermal Control Plan: If hot or cold weather concrete placement is anticipated as defined by ACI 301, the Contractor shall adhere to the manufacturer's recommendations and submit a thermal control plan

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to the Owner's Representative for review and approval prior to commencement of any concrete work.

4. Reinforcing Steel Shop Drawings: Contractor shall submit shop drawings for all reinforcing steel. Shop drawings shall conform to ACI and CRSI standards. Reproductions of contract drawings are unacceptable. Include material, grade, bar schedules, stirrup spacing, bent bar diagrams, arrangement, and supports of the concrete reinforcement.
- C. Concrete Mixes: The Contractor shall submit concrete mixture proportions and supporting data for review and approval by the Owner's Representative to prequalify their mix design. The mix design shall be approved prior to any concrete placement. The proportions of each ingredient used in all mixes, the compressive strengths at 7 and 28 days, and slump, air content, chloride-ion content, and other characteristics of all mixes shall be submitted for approval. This includes an initial test result for the proposed concrete mix shall be submitted and approved prior to the first pour. Note that all testing during construction for this project is at the point of placement not the point of discharge, and it is the Contractor's responsibility to ensure the mix design will provide the required properties at the point of placement. This submittal shall be accompanied by the test data showing the properties of each ingredient used in the mixes including cement and aggregates. The materials used in the work shall be the same as those in the submittal.
- D. Test Results: Concrete cylinders taken during concrete construction shall be tested in accordance with these Technical Specifications and the results submitted to the Owner's Representative for approval. An initial test result for the proposed concrete mix shall be submitted and approved prior to the first pour.
- E. Mill Certifications: The Contractor shall submit certified mill test reports for reinforcing steel.
- F. Curing Compounds: The Contractor shall submit the manufacturer's literature for curing compounds to be used in the work if applicable.
- G. Batch Tickets: The Contractor shall submit one original copy in accordance with ASTM C94, Section 15.

PART 2 – PRODUCTS

2.1 GENERAL

- A. Unless otherwise specified, measure, batch, mix concrete materials, and deliver concrete in approved equipment in conformance with ASTM C94.
- B. All cast-in-place concrete shall be normal-weight concrete made with normal-weight aggregate and shall meet the requirements for exposure class C2 per ACI 318 Tables 19.3.1.1 and 19.3.2.1. Lightweight aggregates shall not be used.

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2.2 MIX COMPONENTS

- A. Concrete Mix: Concrete mixtures shall be proportioned by the Contractor in accordance with ACI 211.1. Concrete mixtures shall conform to ACI 318, Chapter 4, and shall meet both the strength and durability criteria specified herein.
- B. Consistency of mix shall be obtained with the minimum amount of water required to produce a concrete that will work properly into the corners, angles, and reinforcement without excessive puddling, or the need for spading or excessive vibrating and without permitting the materials to segregate or free water to collect on the surface.
- C. Mix Proportions: The mixture proportions for concrete shall be developed by the Contractor to produce the design strength and to provide durability, workability, and mixture consistency to facilitate placement, compaction into the forms and around reinforcement without segregation or bleeding. The Contractor shall submit this mix design to the Owner's Representative for approval. The following durability requirement considerations shall be incorporated in the mixture proportions for concrete subjected to water immersion, splash, and debris abrasion:
 - 1. Maximum water/cement ratio: 0.40 by weight
- D. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than Portland cement (fly ash or other pozzolans, slag, or silica) in concrete as follows.
 - 1. Combined fly ash and pozzolan conforming to ASTM C 618: 25%
 - 2. Ground granulated blast-furnace slag conforming to ASTM C 989 Grade 100 or 120: 25%
 - 3. Combined fly ash or pozzolans and ground granulated blast-furnace slag: 25%
- E. Portland Cement: Portland cement shall conform to ASTM C 150, Type II for all cast-in-place elements unless otherwise noted. Only cement of low alkali (less than 0.60 percent as Na₂O) content shall be used with aggregates identified as potentially reactive. All cement used shall be from the same mill and manufacturer and shall have uniform color and shade.
- F. Water soluble, chloride-ion content in hardened concrete is not to exceed 0.15% by weight of cement. The Contractor shall include test results showing compliance with this requirement with the submittal of their proposed mix design.
- G. Water used in the mixing of concrete shall be potable in accordance with ASTM C1602 and shall be clean and free from oil, acid and injurious amounts of organic material, or alkalis and other salts.
- H. Aggregates

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1. Coarse aggregate shall be hard, durable, clean, uncoated particles conforming to the requirements for deleterious substances contained in ASTM C 33, Class Designation 4S. Coarse aggregate shall conform to ASTM C 33 No. 67 gradation requirements unless otherwise approved by the Owner's Representative. The aggregate shall contain no more than 8 percent by weight of flat or elongated pieces (ratio between maximum and minimum dimensions of a circumscribing rectangular prism exceeding 5:1) when tested in accordance with ASTM D 4791.
2. The Contractor shall propose an aggregate gradation for Owner's Representative's approval.
3. Fine aggregate shall be clean, hard, durable, uncoated grains of natural medium sand, free from silt, loam and clay, as available from established, approved local sources conforming to ASTM C 33, including grading requirements.
- I. Admixtures: Use of admixtures as necessary, shall be approved by the Owner's Representative upon submittal of the Contractor's mix design.
 1. No admixtures containing calcium chloride shall be used.
 2. All admixtures shall be provided by the same supplier and shall be stated by the manufacturer as being compatible.
 3. Air-Entraining Admixture: Air-entraining admixture shall be in strict accordance with agent manufacturer's printed instructions and shall conform to ASTM C 260. Percent air entrainment shall be in accordance with section 3.02.F of this specification.
 4. Set-Retarding Admixture: Set-retarding admixture shall conform to ASTM C494, Type A or D. All concrete shall contain set retarding admixture, which shall be used at the rate, recommended by the manufacturer if the concrete cannot be placed within 1 hour of batching.
 5. Water Reducing Agent(s) (Plasticizers): Water reducing agent shall conform to ASTM C494, Type B or D. All concrete shall contain water reducing agent, which shall be used at the rate recommended by the manufacturer if the concrete cannot be placed within 1 hour of batching.
 6. Concrete Accelerator Admixtures may be used, if approved by the Owner's Representative.
 7. Other Admixtures: Anti-freeze liquids, salts, or other similar materials shall not be used in concrete unless specifically authorized in writing by the Owner's Representative prior to construction.

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8. Superplasticizer can be added to a concrete mix on-site to increase slump prior to placement, provided that the finished mix meets all specified requirements and the manufacturer's mix design parameters. Superplasticizer cannot be added to a partially-emptied batch of concrete. Superplasticizer additions can only be made to a load of concrete of known volume. Superplasticizer can only be added by the concrete manufacturer's representative.

2.3 REINFORCING STEEL AND MISCELLANEOUS

- A. Reinforcing steel (deformed bars & undeformed rod) shall be in accordance with ASTM A 615, Grade 60.
- B. Metal Accessories: Metal accessories including spacers, chairs, ties and other devices necessary for proper placement, spacing, supporting and fastening reinforcement in place shall conform to the Concrete Reinforcing Steel Institute (CRSI) Manual of Standard Practice.

2.4 FORMING AND CURING

- A. Formwork: Materials for concrete formwork shall be suitable to achieve the finish requirements for formed surfaces specified and meet ACI 347 "Recommended Practice for Concrete Formwork." Unless specified or detailed otherwise, construct all formwork with new plywood or clean steel forms, to provide continuous straight, smooth, exposed surfaces. Vertical surfaces not over 12 inches high may be formed with new dimension lumber or stock steel forms. Provide form material with sufficient strength and rigidity to withstand pressure of newly placed concrete without bow or deflection. Include edges that prevent leakage of all cementitious materials from inside the forms into the water.
- B. Form Coatings, Sealers and Release Agents: Form coating, sealers and release agents shall not bond with, stain, nor adversely affect concrete surfaces, and shall not impair subsequent treatments (painting, etc.) of concrete surfaces.
- C. Curing compounds: Curing compounds can be used at the Contractor's option and if used shall be an approved paraffin-based substance conforming to ASTM C 309 Type 1 that shall not impair subsequent treatments (painting, etc.) of concrete surfaces. Liquid membrane-forming curing compounds shall not be used on surfaces to receive additional concrete or cementitious finishing materials, and shall be used only where approved by the Owner's Representative.
- D. Owner's Representative Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- E. Watertight forms will be constructed to contain cast-in-place concrete and prevent leaching. Impervious materials and forms will be placed against and over any exposed wet concrete that could come into contact with waters of

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the state. The impervious materials and forms must remain in place until the concrete is cured for at least 7 days. Any water that comes into contact with concrete before it is cured must be treated as required by project permit requirements.

2.5 CONCRETE REPAIR MATERIALS

A. Defect Repair Materials:

1. Cement Binder: ASTM C 150, Portland cement or hydraulic or blended hydraulic cement as defined in ASTM C219.
2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3 to 6 mm) or coarse sand as recommended by underlayment manufacturer for site conditions and repair thickness.
4. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C109.

B. All repair materials and methods shall be submitted by the Contractor to the Owner's Representative for review and approval. The Contractor shall allow sufficient time for review and approval of all submittals taking into consideration that repair materials and/or methods may be rejected and may need to be resubmitted.

C. Materials defined for repair in this Technical Specification are not all inclusive and may not be applicable to the type of repair that is to be performed in the field. It is at the Owner's Representative's discretion to define the applicability of specific repair materials and whether or not the damaged item is repairable or not. If an item is deemed non-repairable the Contractor shall replace such item(s) at no additional cost to the Owner.

2.6 EPOXY REBAR BONDING MATERIAL FOR CONCRETE

A. Meet ASTM C881 with the classification (Type IV and Grade 3) of the system selected as specified. Use the following products or an approved equal to bond reinforcing steel in drilled holes:

1. Unitex®Pro-Poxy™300 from Dayton Superior.
2. Hilti HIT-RE 500®from Hilti, Inc.
3. Simpson Set Pac Epoxy from Simpson Strong-Tie Company, Inc.

B. Submit the manufacturer's certification verifying compliance to material specifications.

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PART 3 – EXECUTION

3.1 GENERAL

- A. Trucks or barges used for transportation of concrete shall have a water-gage for monitoring the water added to the concrete batch. The water-tank shall always arrive on-site full, and no other uses of this water shall be permitted until any on-site water additions have been made. On-site water additions shall be recorded on the batch receipt that becomes part of the project records.
- B. Measuring, mixing, transporting and placing concrete shall adhere to the requirements and recommendations of ACI 304. Aggregate shall be handled in such a way as to avoid segregation prior to incorporation.
- C. The work shall be protected from the elements, rain, flowing water, and defacement of any nature during construction.
- D. Ends of reinforcement ties shall be bent inwards, away from the outside edges of the concrete pour.

3.2 INSPECTIONS

- A. The Owner's Representative and/or Owner's Construction Manager shall be notified upon completion of installation of concrete reinforcement and formwork. The Owner's Representative and/or the Owner's Construction Manager will review and approve the work for conformance with the contract documents prior to placement of concrete.
- B. All concrete testing is the responsibility of an independent testing firm hired by the Contractor.
- C. Concrete Testing – General:
 - 1. Testing will be required per Section 1.01 B per this specification.
 - 2. An initial test result for the proposed concrete mix shall be submitted to the Owner's Representative and approved prior to the first pour.
 - 3. All concrete test samples during construction are to be procured at the point of placement prior to consolidation to ensure the in-place product provides the required level of performance.
 - 4. Materials and installed work will require testing by the Contractor's inspection laboratory and services in accordance with ASTM C172.
 - 5. The Owner's Representative and/or Owner's Construction Manager may independently sample concrete and perform slump, temperature and air tests in accordance with ASTM C143. Concrete exceeding the maximum slump may be rejected by the Owner's Representative and/or Owner's Construction Manager. Concrete rejected for excessive slump shall be immediately removed from the Project Site.

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D. Concrete Strength Testing

1. Unless otherwise shown on the Contract Drawings or otherwise approved the minimum 28-day cast-in-place concrete compressive strength shall be 5000 psi.
2. Concrete test specimens shall be collected in accordance with ASTM C172 at the point of placement, created in accordance with ASTM C31, and be tested in accordance with ASTM C39. Sample acquisition and testing shall proceed promptly so as not to impede progress of the work. Strengths of concrete shall be considered satisfactory if the average of any three consecutive strength tests of the laboratory cured specimens representing each specified strength of concrete is 15 percent greater than the specified strength, and if not more than 10 percent of the strength tests have values not more than 10 percent less than the specified strength.
 - a. A minimum of four (4) 4-inch diameter by 8-inch tall cylinders shall be taken per mix per day or two (2) cylinders per twenty (20) yards of concrete, whichever is greater.
 - b. One (1) cylinder shall be tested at seven (7) days, two (2) cylinders shall be tested at twenty-eight (28) days and one (1) cylinder shall be held in reserve. The twenty-eight (28) day compressive strength shall be evaluated in accordance with ASTM C39.
 - c. Testing results shall be furnished to the Owner's Representative and/or Owner's Construction Manager as they are received.
 - d. One test specimen of each set shall be tested at seven (7) days or prior to stripping of the form and three test specimens shall be tested at 28 days. The 28 day compressive strength shall be evaluated in accordance with ASTM C39.
3. Specimens will be collected by a testing laboratory/special inspector. The Contractor shall provide labor, and material as required, to assist testing laboratory in preparing specimens for testing, and job storage facilities for making and storage of specimens. The Contractor is responsible for protecting the specimens from damage while they are on the project site. Delivery and responsibility of the test specimens will be that of the testing laboratory/special inspector.
4. The Contractor is to keep an identification record of cylinders taken and concrete poured. Mark all cylinders from each set with the same number on one end and enter this number in the concrete testing records and include the date, time, and location.

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5. If compressive strength test samples fail to meet the minimum strength requirements, the concrete represented by the failed tests shall be considered questionable and shall be subjected to further testing. In this case, the Owner's Representative and/or Owner's Construction Manager may require test cores of cured concrete to be taken by the testing laboratory in accordance with ASTM C42 and ASTM C39. If core specimen compressive strength test results do not meet the minimum strength requirements, the Contractor is to remove and replace the concrete in question at the Contractor's expense.
6. Compressive strength test results shall be submitted by the laboratory in writing to the Owner's Representative and/or Owner's Construction Manager, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in work, design compressive strength, concrete mix proportions and materials, compressive breaking strength, and type of break for all tests and shall be correlated to the corresponding on-site test results.

E. Concrete Slump Testing

1. Perform slump tests in accordance with ASTM C143 at the point of placement. Concrete failing the slump test cannot be placed as-is. Perform one test for each batch of each strength of concrete and at least one test per batch. Maximum slump of all concrete measured in accordance with ASTM C143 shall be as follows: 4-inch maximum and 1-inch minimum slump for all concrete structures. The maximum slump may be increased when approved chemical admixtures are used, provided that admixture concrete has the same or lower water-cement ratio and does not exhibit segregation potential or excessive bleeding.

F. Concrete Air Entrainment Testing

1. Perform air entrainment tests in accordance with ASTM C173 for each batch of concrete at the point of placement. Add air-entraining admixture in accordance with the approved mix design as required to achieve required percent air content at the point of placement in accordance with the table below, unless otherwise noted. The air content shall be within the range shown below – additional tolerances shall not be applied.

Maximum Aggregate Size [inches]	3/8	1/2	3/4	1	1 1/2
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Corresponding Air Entrainment [%]	6.0% - 9.0%	5.5% - 8.5%	4.5% - 7.5%	4.5% - 7.5%	4.0% - 7.0%
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G. Concrete Temperature Testing

1. Concrete Temperature: ASTM C1064; test hourly when the ambient air temperature is 40 degrees F (4.4 degrees C) or below and when the ambient air temperature is 80 degrees F (27 degrees C) or above, and whenever cylinders are taken. Concrete temperatures shall be in conformance with ACI 301.

H. Testing of concrete mix components

1. Limit water soluble, chloride-ion content in cured concrete to 0.15% by weight of cement. The Contractor shall submit test records indicating that their proposed mix design meets this requirement. The Contractor shall ensure that the test records represent samples made with materials from the same material suppliers as will be used for the work.
2. Aggregate shall have an L.A. abrasion loss of no more than 40%, tested in accordance with ASTM C131.
3. Aggregate from sources determined on the basis of petrographic analysis or tests to be susceptible to the alkali-carbonate form of alkali-aggregate reaction shall not be used. Evaluate and test aggregates to be used in concrete for alkali-aggregate reactivity per ASTM C1260.
 - a. Evaluate fine and coarse aggregates separately and in combination, which match fabricator's proposed mix design proportioning, using modified version of ASTM C1260.
 - 1) Test results of combination shall have a measured expansion equal to or less than 0.08 percent at 16 calendar days after casting.

3.3 CONCRETE FORMWORK

- A. Design, erect, support, brace and maintain formwork according to ACI 301 to support vertical and lateral loads that might be applied until such loads can be supported by the concrete structure. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation and position, within tolerance limits of ACI 117.
- B. Formwork shall be designed to be readily removable without impact, shock or damage to concrete surfaces and adjacent materials and surfaces.
- C. Forms shall be in compliance with ACI 347. Construct to sizes, shapes, lines and dimensions as necessary to produce the finished shapes shown in the

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Contract Drawings. Obtain accurate alignment, location, grades, level and plumb work in the finished structures. Solidly butt joints of forms and provide back-up at joints to prevent leakage of water and/or cement paste. The Contractor shall immediately notify the Owner's Representative and/or Owner's Construction Manager if any wet concrete enters the water. Voids, honeycombing, sand pockets, fins, etc., may be cause for rejection.

- D. Forms shall be constructed of wood or steel, straight, and of sufficient strength to resist springing during depositing and consolidating concrete. Wood forms shall be of adequate thickness, straight and free from warp, twist, loose knots, splits or other defects. Steel forms shall be channel formed sections with a flat top surface and with welded braces at each end at not less than two intermediate points. Ends of steel forms shall be interlocking and self-aligning.
- E. Fabricate forms for easy removal without hammering or prying against the concrete surfaces.
- F. Form coatings, sealers and release agents shall be applied immediately before erecting forms where necessary to achieve the specified curing and finishes. Forms shall be protected from dust and dirt.
- G. Cleaning and tightening: Before inspection of forms and reinforcing steel, thoroughly clean forms and adjacent surfaces to receive concrete. Remove wood chips, sawdust or other debris just before concrete is placed. Retighten forms after placement of concrete, and as required, eliminating any concrete or water leakage.
- H. Removing and Reusing Forms: Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damages form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
 - 1. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by the Owner's Representative and/or Owner's Construction Manager.

3.4 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete so that strength and appearance of concrete are not impaired. Joints shall be in compliance with the approved concrete pour sequence and joint plan submittal. All necessary joint locations, spacing and offsets from adjacent structures shall be considered to reduce shrinkage cracking in concrete. A layout in plan view of all joint locations (construction, control, expansion) shall be included for approval.

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- B. Construction Joints: Install joints so that strength and appearance of concrete is not compromised, and shrinkage cracking is reduced.
 - 1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated.
 - 2. Joints shall be roughened and not smooth formed and have a bonding agent at every location where fresh and existing concrete meet.
 - 3. See Contract Drawings for additional restrictions and requirements for cold and construction joint locations.

3.5 PRIOR TO PLACEMENT

- A. Notify the Owner's Representative and/or Owner's Construction Manager and Independent Inspector not less than twenty-four (24) hours before placing concrete.
- B. Clean formwork thoroughly, removing all loose dirt, scrap lumber and other debris from forms prior to concrete placement.
- C. Do not place concrete until the forms and reinforcement have been completed and all preparations for the pour have been made, and have been inspected and approved by the independent inspector.

3.6 PLACEMENT

- A. Discharge and place concrete not later than one hour after the original addition of water to the mix. Mix concrete for a minimum of 10 minutes prior to placing, at least 3 minutes of which must be immediately prior to discharge at the site.
- B. No additional water to be added on-site, unless on-site water additions are pre-authorized by the Owner's Representative. On-site water additions shall be recorded on the batch receipt that becomes part of the project records.
- C. In no case shall concrete be placed on standing water, muddy, soft, or spongy areas.
- D. Cold weather: Unless otherwise approved in writing by the Owner's Representative, concrete shall not be placed when the ambient temperature is below 40°F, or when the concrete is likely to be subject to freezing temperatures before expiration of the curing period. Where cold weather placement is approved, special procedures shall be adopted to heat the material and to protect the concrete from damage by freezing during mixing, placing, and curing. All such special procedures shall be subject to prior approval of the Owner's Representative. Cold weather concreting procedures contained in ACI 306 Cold Weather Concreting shall be utilized.
- E. Hot Weather: Unless otherwise approved in writing by the Owner's Representative, the maximum allowable temperature of the concrete as it is placed, shall be 90°F. When the ambient air temperature approaches or

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exceeds this maximum, special procedures shall be adopted to control the temperature of the materials and to protect the concrete from damage due to hot weather during mixing, placing and curing. All such special procedures shall be subject to the prior approval of the Owner's Representative. Hot weather concreting procedures contained in ACI 305 Hot Weather Concreting shall be utilized.

- F. Concrete shall not be placed during rain, sleet or snow unless Owner's Representative approved protection is provided.
- G. Pours of concrete, once started, shall be carried on as a continuous operation until the section of approved size and shape is completed. The Contractor shall determine pour sizes based on ability to provide finishes as specified in this Technical Specification. If the Contractor elects to pour more concrete than agreed upon by the Owner's Representative, any defects in finishing work shall be repaired, using a method approved by the Owner's Representative, at no additional cost to the Owner.
- H. Depositing of concrete shall be continuous, or in layers, or bands, of such thickness that no concrete will be deposited on, or against, concrete which has hardened sufficiently to cause the formation of seams or planes of weakness within the section.
- I. Concrete shall be consolidated by use of approved immersion-type mechanical vibrators immediately upon placement. Concrete shall be vibrated sufficiently to remove entrapped air such that the concrete closes snugly against all surfaces to the maximum practicable density but not so much as to cause the coarse aggregate to settle or excessive accumulation of mortar at the surface. Vibrators shall not be held against embedded materials.
- J. Concrete shall be deposited in or near its final position; segregation due to rehandling or flowing shall be avoided.
- K. Depositing a large quantity at any point, or running or working the concrete along the forms will not be permitted.
- L. Concrete shall be conveyed from mixer to place of final deposit by methods which will not cause separation or loss of material.
- M. Concrete shall be placed in a manner that prevents it from dropping from a height greater than 4 feet.
- N. Concrete which has developed initial set shall not be used. Concrete which has developed initial set shall not be re-tempered or remixed.
- O. Concrete shall be thoroughly worked around reinforcement and embedded items, and into corners of forms by effective vibration. Top surfaces shall be generally level during placement.

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- P. Placing of concrete shall be regulated so that the pressure caused by the wet concrete shall not exceed that used in the design of the forms.
- Q. Concrete shall not be cast underwater or used to displace water in the forms without written approval of the Owner's Representative.

3.7 FINISHES - GENERAL

- A. Prepare pours for finishing by tamping concrete with special tools to force the coarse aggregate away from the surface and then screed to the required level.
- B. All finishes are to be clearly designated on the Contractor's shop drawings.
- C. All finishes shall be in accordance with ACI 301 unless otherwise noted.
- D. Exterior edges of the cap shall be tooled with a 4-inch-wide edger for a smooth finish and a 1/2-inch chamfer.
- E. Top Surface Broom Finish: All top surfaces of the concrete shall have a broomed finish as described herein. The broomed finish shall consist of a medium-to-coarse textured broomed surface preparation followed by final texturing with a wire comb tine device.
 - 1. The surface preparation for the wire comb tine device shall be obtained by striating the float-finished concrete surface 1/16 inch to 1/8-inch-deep with a stiff-bristled broom in with the finish orientation shown in the Contract Drawings to create a moderately abrasive, uniform, non-skid surface.

3.8 CURING AND PROTECTION

- A. Curing: Concrete is to be wet-cured for no less than seven days after placement for Type I and II cement concrete. During wet-curing the concrete is to remain wet by covering with burlap or cotton mats or rugs which are to be kept moist with a soaker hose or sprinkler. Plastic sheets or other moisture barrier shall not be an acceptable substitute for a soaker hose or sprinkler unless approved by the Owner's Representative. To simplify the wet curing process, concrete curing compounds can be used in accordance with the manufacturer's recommendations and in conformance with ASTM C 309.
- B. Concrete shall be protected from damage during removal of formwork and from injury resulting from the storage or movement of materials during construction. Careful attention shall be given to the proper curing and protection of all concrete.
- C. Curing shall start as soon as concrete has hardened sufficiently to prevent surface damage.
- D. Changes in temperature. Curing temperature of all concrete shall be as uniform as possible. Changes shall not exceed 5 degrees F. in any one hour or 50 degrees F. in any 24-hour period. The Contractor is to monitor the

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concrete temperature intermittently as required to ensure the change in temperature requirements are met.

- E. Formwork shall not be disturbed until the concrete has hardened adequately. All forms shall be loosened and removed as soon as practicable, but in no case shall they be removed earlier than seven days after placement of cement concrete unless otherwise approved by the Owner's Representative. Concrete exposed by form removal prior to seven days after placement shall be moist-cured in accordance with this Technical Specification. Forms shall be removed carefully so as to prevent damage to the concrete. Any repairs needed or finish treatment required on surfaces shall be performed at once and shall be followed immediately by the specified curing.
- F. If forms are removed prior to end of prescribed curing time, continue curing for the prescribed time as specified herein.
- G. If voids and/or rock pockets are present when forms are removed, the contractor shall modify his placement procedure on future pours. Do not proceed until placement procedure has been corrected.

3.9 CONCRETE REPAIRS

- A. All repairs are to be performed at the Contractor's expense. The Contractor shall not be granted schedule extensions due to time spent performing concrete repairs. Curing shall be interrupted for the shortest time and in the smallest area practicable to perform repair.
- B. All tie holes shall be patched.
- C. Every defect shall be reported to the Owner's Representative and/or Owner's Construction Manager by a means adequate to convey the size and extent of the defects. The Owner's Representative shall reply to the Contractor and direct them to consider the repair as either structural or non-structural. The Contractor can then proceed to make the repair in accordance with their approved repair plan. The Contractor is not permitted to repair a defect that the Owner's Representative has not been made aware of.
- D. Defective Concrete: Repair and patch defective areas when repair designation (structural or non-structural) has been made by the Owner's Representative. Remove and replace concrete that cannot be repaired and patched as directed by the Owner's Representative and/or Owner's Construction Manager.
- E. Non-structural Patching Mortar: Mix dry-pack patching mortar, consisting of one-part Portland cement to two and one-half parts fine aggregate passing a No. 16 (1.2-mm) sieve, using only enough water for handling and placing.
- F. Structural Repairs: Perform structural repairs of concrete, subject to the Owner's Representative's approval, using epoxy adhesive and patching

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mortar in accordance with the manufacturer's recommendations and the Owner's Representative comments on the Contractor's submitted structural repair procedure.

G. EPOXY REBAR BONDING

1. Follow the manufacturer's written instructions regarding mixing, drill-hole diameter and depth, application, and curing temperatures and conditions. Size the holes to fully develop the deformed bar. Clean and clear the holes of debris before adhesive placement. If necessary, adjust the reinforcing steel embedment depth specified to meet development length requirements of the bonded bar. Ensure the pullout strength of the bonded reinforcing steel exceeds the yield strength of the deformed bar.

H. LEVELNESS CORRECTIONS

1. Correct low areas in unformed top of cap surfaces during, or immediately after completion of surface finishing operations by cutting out low areas to the nearest joint or edge on all sides and replacing with fresh concrete. Finish repaired areas to match adjacent concrete.

3.10 CLEAN-UP

- A. Areas to be kept clean during progress of work and until completion. Dispose of all surplus, waste materials, and rubbish according to laws, regulations, and ordinances.
- B. Provide certification from disposal site operator stating that disposal site complies with governmental regulations.
- C. Clean up shall be in conformance with Section 01 35 43 – Environmental Controls.

END OF SECTION

PART 1 – GENERAL

1.1 DESCRIPTION

- A. This Technical Specification covers delivery, placement, and testing for all precast concrete for construction of the concrete keyway shown in the Contract Drawings. Work included under this Technical Specification is to include all equipment, labor, and materials associated work required for the installation of government furnished precast concrete keyways.

1.2 SUMMARY

- A. Section Includes:
 - 1. Precast structural concrete.
- B. Related Requirements:
 - 1. Section 033000 "Cast-in-Place Concrete" for placing connection anchors in concrete.

1.3 ACTION SUBMITTALS

1.4 INFORMATIONAL SUBMITTALS

- A. Placement Plan: plan layout indicating individual precast keyway part numbers.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A precast concrete erector qualified and with experience in completing installation of five (5) or more projects with similar finish techniques and has been in business ten (10) years or more.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Support units during shipment on nonstaining shock-absorbing material in same position as during storage.
- B. Store units with adequate bracing and protect units to prevent contact with soil, to prevent staining, and to prevent cracking, distortion, warping or other physical damage.
 - 1. Store units with dunnage across full width of each bearing point unless otherwise indicated.
 - 2. Place adequate dunnage of even thickness between each unit.
 - 3. Place stored units so identification marks are clearly visible, and units can be inspected.
- C. Handle and transport units in a manner that avoids excessive stresses that cause cracking or damage.
- D. Lift and support units only at designated points indicated on government supplied Shop Drawings.

PART 2 – PRODUCTS

2.1 FINISHES

- A. Finish: Normal plant-run finish produced in molds that impart a smooth finish to concrete. Major or unsightly imperfections, honeycombs, or structural defects are not permitted. Repair surface blemishes due to holes, dents, and honeycombing with a sand-cement paste matching color of adjacent surfaces.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Examine supporting conditions for compliance with requirements for bearing surface tolerances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Do not install precast concrete units until supporting subgrade has been prepared.

3.2 INSTALLATION

- A. Install reinforcing accessories required for connecting precast structural concrete units to each other.
- B. Erect precast structural concrete level, plumb, and square within specified allowable tolerances. Provide temporary structural framing, shoring, and bracing as required to maintain position, stability, and alignment of units until permanent connections are complete.
 - 1. Maintain horizontal and vertical joint alignment and uniform joint width as installation progresses.
- C. Connect precast structural concrete units in position as indicated on Shop Drawings.
- D. Field cutting of precast units is not permitted.

3.3 ERECTION TOLERANCES

- A. Erect precast structural concrete units level, plumb, square, and in alignment without exceeding the noncumulative erection tolerances of PCI MNL 135.
- B. Minimize variations between adjacent slab members.

3.4 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:
 - 1. Erection of precast structural concrete members.

2. Fabrication of precast structural concrete members.
- B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- C. Testing agency will report test results promptly and in writing to Contractor and Owners Representative.
- D. Repair or remove and replace work where tests and inspections indicate that it does not comply with specified requirements.
- E. Additional testing and inspecting, at Contractor's expense, shall be performed to determine compliance of replaced or additional work with specified requirements.
- F. Prepare test and inspection reports.

3.5 REPAIRS

- A. Repair precast structural concrete units if permitted by Owners Representative.
 1. Repairs may be permitted if structural adequacy, serviceability, durability, and appearance of units have not been impaired.
- B. Mix patching materials and repair units so cured patches blend with color, texture, and uniformity of adjacent exposed surfaces and show no apparent line of demarcation between original and repaired work, when viewed in typical daylight illumination from a distance of 20 feet (6 m).
- C. Remove and replace damaged precast structural concrete units that cannot be repaired or when repairs do not comply with requirements as determined by Owners Representative.

END OF SECTION

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PART 1 – GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. The provisions and intent of the Contract, including the General Conditions, Supplementary Conditions, and General Requirements, apply to this Work as if specified in this Section. Work related to this Section is described in:
 - 1. Section 03 30 00 – Cast-in-Place Concrete

1.02 DESCRIPTION OF WORK

- A. The Work includes furnishing all necessary labor (including manufacturer's representative(s)), materials, equipment, and accessories necessary for preparing the concrete surfaces and providing the required rehabilitation of existing concrete spalls, delaminations, joints and cracks as indicated on the Contract Drawings, using high performance cementitious (HPC) repair materials and polyurethane grout. Take all precautions necessary to protect workers and the environment during the course of the work and to meet all in-water work restrictions and regulatory requirements. The Owner will provide a Construction Manager to be present and observe preparation and placement of HPC materials.

1.03 REFERENCE STANDARDS

- A. Publications from the following organizations form a part of this Section to the extent indicated by the references thereto, and these publications are referred to by basic designation only. Use the most current edition of each publication available at the time of bid unless otherwise indicated.
- B. American Concrete Institute (ACI) Specifications, References, and Procedures
 - 1. ACI 548.12 Specification for Bonding Hardened Concrete with an Epoxy Adhesive
- C. American Society for Testing Materials (ASTM), Standard Specifications and Standard Test Methods
- D. American Welding Society (AWS) D1.1, Structural Welding Code - Steel and D1.4, Structural Welding Code – Reinforcing Steel.
- E. ICRI 310.2R International Concrete Repair Institute (ICRI) Guidelines

1.04 SUBMITTALS

- A. Submit the following items to the Owner's Representative for review and approval. Submit data sheets, letters, written plans, schedules, and procedures prior to start of work. Include signatures of the Contractor's personnel overseeing the work on all submittals. Include signature of the HPC repair material manufacturer's (RMM) representative on written procedures for surface preparation, HPC repair material placement, and HPC repair material curing.

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- B. Spill prevention, control, and countermeasures plan (SPCC). The Owner's Representative will review this submittal for consistency with the projects permit requirements including all best management practices (BMP's). The Contractor is responsible for developing and implementing the SPCC and the Owner's Representative's review does not constitute an approval.
- C. Technical data sheets for the repair materials used, with the HPC RMM's written instructions for use of the materials.
- D. Letter identifying the name, address, telephone number, and e-mail address of the HPC RMM representative(s).
- E. Letter from the HPC RMM indicating the HPC RMM representatives have been directly involved in evaluation and placement of HPC repair materials on not less than five structures within the last five years and are not employees of the Contractor or any subcontractor.
- F. Letter certifying that the HPC RMM representatives have reviewed procedures for surface preparation, placement, and curing of the HPC repair materials.
- G. Letter identifying the name, address, telephone number, and e-mail address of any subcontractor(s) performing work.
- H. Schedule for the field placement of the HPC repair materials and crack polyurethane grout injection.
- I. Written procedures for surface preparation of areas to receive the HPC repair materials.
- J. Written procedures for containment and disposal of debris generated during the course of the work. Include procedures that define how permit and regulatory requirements will be met.
- K. Written procedures for placement of the HPC repair materials into the forms by the trowel (hand-applied method), form and pour method, and form and pump method, including formwork and venting to remove air.
- L. Written procedures for curing the HPC repair materials including minimum cure times, minimum and maximum temperatures, and minimum time for formwork to remain in place.
- M. Weld procedures and welder qualifications for welded reinforcing splices

1.05 TESTING

- A. The Owner's representative and/or Construction Manager will retain the services of a testing laboratory certified in accordance with ASTM C 1077 to perform field tests as stipulated in this Section.

1.06 QUALITY ASSURANCE

- A. Qualifications of personnel: submit evidence that personnel for this project (Contractor and subcontractor(s) if applicable) have a minimum of five years of experience preparing surfaces and applying Injection Grouting and HPC repair materials under similar conditions and methods of placement on other

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projects and have successfully performed surface preparation, placement, curing, and finishing of HPC repair materials on a minimum of three separate structure repair projects within the past five years. List by individual and include the following for each project.

1. Name of individual and proposed position for this project
 2. Position or responsibility on each previous project
 3. Previous employer (if other than the Contractor for this project)
 4. Name of each previous facility owner where project was performed
 5. Mailing address and telephone number of each facility owner
 6. Name of contact reference in previous facility owner's organization
 7. Location, size, and description of structures in previous projects
 8. Dates that previous work was performed
 9. Description of work performed on structures in previous projects
- B. Qualifications of the HPC RMM's representative: provide records of experience and training, including name, phone number and address; and a statement from the HPC RMM certifying the representative has successfully completed training for material storage, mixing, surface preparation, placement, curing, and testing.
- C. Repair material instructions: submit HPC RMM's printed instructions, including detailed mixing and placement procedures, minimum and maximum placement temperatures, and curing procedures. Include material safety data sheets (MSDS) for all materials to be used at the job site.

1.07 DELIVERY, HANDLING, AND STORAGE

- A. Ship, store, and handle HPC repair materials in accordance with the HPC RMM's recommendations. Maintain temperature in storage spaces in accordance with those recommendations. Inspect materials for damage prior to use and properly dispose of non-compliant materials.
- B. Mix HPC repair materials and other materials only in such quantities as are required for immediate use, and use before initial set takes place. Do not use HPC repair material which has developed initial set. Do not remix or temper HPC repair material which has partially hardened.

1.08 MATERIAL HAZARDS

- A. HPC repair materials may have potential health hazards if improperly handled. Follow the HPC RMM's written safety precautions throughout mixing, placement, and curing of the materials. During cleaning, cleanup, surface preparation, and placement phases, ensure that employees are protected from toxic and hazardous chemical agents. The existing debris released

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during power tool cleaning and/or abrasive blasting may cause adverse health reactions.

1.09 DEFINITIONS

- A. Spall - A location on a member where one or more concrete fragments have detached from the larger concrete mass by expansion within the mass.
- B. Delamination - Splitting apart of a concrete mass.
- C. Crack – a split or break in a concrete mass without a complete separation of parts.

PART 2 – PRODUCTS

2.01 HPC REPAIR MATERIALS

- A. Use materials from one HPC RMM only for the project. Select HPC repair materials suitable for the methods of placement described in this Section. When used in combination, select materials that are compatible. Use prepackaged HPC repair materials with premeasured, properly proportioned components by the HPC RMM. Select HPC repair materials with the following properties:
 - 1. Minimum pot life at 75 degrees F = 15 minutes
 - 2. Minimum bond strength per ASTM C 1583, at 7 days = 150 psi. Testing per ACI 305R, Appendix A – Permit Documents, modified for cementitious materials may be allowed if approved by the Owner's Representative.
 - 3. Minimum compressive strength per ASTM C109, modified for cementitious materials = 2,000 psi at 1 day and 4,500 psi at 7 days.
 - 4. Maximum drying shrinkage at 28 days per ASTM C 157, modified per ICRI Guideline No. 320.2R = 0.09
 - 5. Minimum splitting tensile strength per ASTM C 496 at 7 days = 450 psi
 - 6. Rapid freeze/thaw durability per ASTM C 666, minimum relative durability factor at 300 cycles = 90
 - 7. Maximum rapid chloride permeability per ASTM C 1202 = 1000 coulombs
 - 8. Does not produce a vapor barrier
 - 9. Do not use non-conductive repair materials such as epoxy, urethane, or magnesium phosphate. Do not use materials such as epoxy bonding agents unless approved by the Owner's Representative.

2.02 HPC Repair Material Manufacturers and Products

- A. General: the following HPC RMM and HPC repair materials comply with this Section.
- B. Hand-troweled

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1. BASF Emaco S88 CI
2. SikaTop 123 plus

C. Form and pump method or form and pour method

1. BASF Emaco S66 CI
2. Sika Monotop 611

2.03 Concrete Bonding Agent

In lieu of conditioning the prepared concrete surface immediately before placement of HPC repair material, a bonding agent recommended by HPC RMM may be used. Mix and apply in accordance with the HPC RMM recommended procedure. Do not use an epoxy bonding agent unless specifically approved by the RMM and Owner's Representative. Bonding agent shall be an ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

2.04 Curing Compounds

Provide material recommended by the HPC RMM.

2.05 Reinforcement

- A. Reinforcing steel: ASTM A 706, Grade 60, deformed.
- B. Splices: Meet ACI 318 requirements for mechanical splices and develop 125 percent of the bar capacity. Meet AWS D1.4 requirements for welded splices, including weld procedures and welder qualifications.

2.06 Polyurethane for Injection Grouting

- A. Grout shall be Low Viscosity Expanding Hydrophillic Polyurethane
- B. General: the following Polyurethane grout materials comply with this Section.
 1. Sika - SikaFix HH Hydropllic
 2. Prime Resins - Prime Flex 900 XLV polyurethane grout
 3. Euclid Chemical Company DURAL AQUA-FIL

PART 3 – EXECUTION

3.01 GENERAL

- A. Repair all structures to the extent indicated on the Contract Drawings and in accordance with project permits and regulatory requirements. Perform the work in conformance with the selected HPC RMM's requirements. Wherever there is a discrepancy between those requirements and the requirements contained in this Section, notify the Owner's Representative for resolution prior to proceeding with the work.

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- B. Pre-Repair Conference: A minimum of 1 week prior to start of repairs in accordance with this Section, meet to review the detailed repair procedures included surface preparation, equipment and procedures; material mixing, placing, and curing; schedules; climatic conditions; etc.

The HPC RMM representative shall demonstrate the approved placement method(s) if requested by the Owner's Representative and/or Owner's Construction Manager. Required attendees are the superintendent and employees performing the repair work, HPC RMM representative, and the Owner's Representative and/or Owner's Construction Manager.

- C. Prior to beginning any concrete repair with HPC, perform a pre- construction survey of the areas to be repaired. Include verification that the repair areas in this survey match the Contract Drawings. With the Owner's Representative and/or Owner's Construction Manager, jointly estimate the total material quantities for the areas to be repaired and jointly prioritize the areas to be repaired so that any quantity discrepancies are resolved prior to starting any work. Do not begin repairs until after this joint survey and prioritization are completed. The true limits of the defects will be defined during removal. Cracks may be present within the delaminated areas that do not continue into the substrate. Jointly verify all repairs with the Owner's Representative and/or Owner's Construction Manager during a post-construction survey. Provide all equipment and materials necessary to perform pre- construction and post-construction surveys for these repairs.
- D. Inspection: Locate, mark, and measure the size and extent of all areas designated to be repaired on the Contract Drawings. Determine the actual perimeter of each repair by hammer sounding to determine if unforeseen subsurface delaminations exist in addition to visual spalls and areas of delamination.
- E. Provide adequate quantities of materials to accomplish all work.

3.02 PREPARATION

- A. Spalled and Delaminated Concrete
1. Remove loose, unsound, or delaminated concrete from each spalled or delaminated area by sawcutting the perimeter and then removing concrete using small chipping hammers or hydro-jetting tools. Use oil-free air in pneumatic tools. Remove all unsound concrete. Remove all organic matter, dirt, grease, paint, or other deleterious materials from concrete surrounding the repair area.
 2. Inspect the cavity for remaining defective concrete by tapping with a hammer or steel rod and listening for dull or hollow sounds. In areas where tapping does not produce a solid tone, remove additional

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concrete until tapping produces a solid tone. Make the entire cavity at least 1-inch deep except at and near the saw cut edges where the cavity depth shall be ½ inch deep.

3. Where reinforcing steel or structural steel is exposed, remove concrete around the bar to provide a 3/4-inch gap between the bar and the remaining concrete unless otherwise indicated on the Contract Drawings. Remove all corrosion by abrasive blasting or mechanical means to a near white metal condition and in accordance with the HPC RMM's recommendations.
 4. Sawcut edges of cavity to a depth of 1½ inch around the area of unsound concrete unless otherwise indicated on the Contract Drawings. Make the sawcut in sound concrete. Do not cut reinforcing steel or structural steel. Determine the depth of all reinforcing steel in the cavity area prior to sawcutting. Reduce the depth of sawcut locally to avoid cutting reinforcing steel or structural steel. Chip concrete at these locations to provide sharp edges. Outline each repair area in a square or rectangular shape with straight edges dressed perpendicular to the member face. Prepare surfaces by abrasive blasting or mechanical scarification, as recommended by the HPC RMM, to remove all loose laitance.
 5. When longitudinal reinforcing steel is corroded, remove additional concrete for a minimum of 6 inches beyond active corrosion each side.
 6. Replace reinforcing steel damaged during sawing or concrete removal at no additional cost to the Owner.
 7. Limit impact hammer size for concrete removal to 15 pounds and use pointed gads only.
 8. Roughen all concrete surfaces to a ¼-inch amplitude.
- B. Debris: Remove dust, dirt, and loosely bonded material resulting from cleaning. Collect, manage, and dispose of all debris and sandblast grit in accordance with all permits and all local, state, and federal government regulatory requirements. Do not allow debris, grit, water from surface preparation or other associated work, or other items to fall into the water.
- C. Replacement of Deteriorated Reinforcement: follow ACI 301. Replace all existing bars with greater than 20 percent section loss (by cross-sectional area). Provide bars, wire ties, supports, and other devices necessary to install and secure reinforcement. For supports use non-corrodible chairs, spacers, or hangers. Do not install reinforcement with rust, scale, oil, grease, clay, or foreign substances that would reduce the bar to repair

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material or concrete bond. Rusting of reinforcement is a basis of rejection if the effective cross-sectional area or the nominal weight per unit length has been reduced greater than 20 percent in cross-sectional area. Remove loose rust prior to placing steel. Do not tack weld.

- D. Splicing of reinforcement: Splice as required. Use approved welded and mechanical splices only. Perform all welding in accordance with AWS D1.4 using certified welders and qualified joint welding procedures of the type required for the work. Consider all existing reinforcing steel to have a carbon equivalency rating greater than 0.75, as defined in AWS D1.4. Maintain minimum cover at welded and mechanical splices per paragraph 3.04B titled “HPC Repair Material Cover Over Reinforcement”.
- E. Coat the entire surface of all existing and replacement reinforcement and accessories (including mechanical splices) with a zinc-based corrosion inhibitor.

3.03 MIXING MATERIALS

Mix batches small enough to ensure placement before the HPC repair material begins to take any set. Mix materials in accordance with the HPC RMM recommendations.

3.04 PLACEMENT

- A. General: Place HPC repair material and consolidate using methods prescribed by the HPC RMM. Place HPC repair material on vertical and overhead surfaces using the trowel method, form and pour method, or form and pump method, as approved. Level the final surface to match the adjoining surfaces. See paragraph 3.04B titled “HPC Repair Material Cover Over Reinforcement”. Remove excess material from adjacent surfaces before it begins to harden. Do not feather out on to adjacent surfaces.
- B. HPC Repair Material Cover Over Reinforcement: Provide 2-inch clear cover unless otherwise indicated on the Contract Drawings. Where the existing concrete cover was less than aforementioned minimum coverage, place HPC repair material to match the original concrete profile unless otherwise directed by the Owner’s Representative and/or Owner’s Construction Manager. Transition (reduce) repair thickness at repair locations where the coverage extends beyond the original concrete surface profile so that repair edges become flush with the original concrete profile beyond the repair area.
- C. Do not allow wet or cured HPC repair material to enter the water. Construct forms in a manner to prevent leaching of wet material into the water. Place impervious materials over any exposed concrete not lined with forms that

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will come in contact with the water. Keep forms and impervious materials in place until the HPC repair materials are cured.

- D. Trowel (Hand-Applied) Method: Apply HPC repair material in accordance with the HPC RMM recommendations. Use on repair areas with up to two square feet or less of surface area or in locations where the prepared surface does not extend to a vertical edge. The trowel method may also be allowed in areas where the form and pour method or form and pump method may result in trapped air, if approved by the Owner's Representative and/or Owner's Construction Manager on a case by case basis. Pay special attention to consolidation of the material behind reinforcing steel, and to working the material into the concrete substrate at the interface of subsequent lifts to achieve a sound bond. Prepare cavity surfaces using a stiff bristle brush to apply a thin film ("scrub coat") of the HPC repair material unless otherwise directed by the HPC RMM recommendations. Use wood dowels to ram material tightly behind reinforcing steel. Finish the exposed surface to match adjacent surfaces.
- E. Form and Pour Method or Form and Pump Method: Use on repair areas larger than two square feet. Properly secure forms and place material through ports located near the bottom the form, filling the form from the bottom up. Provide additional ports or other means of venting at the top of the form on overhead repairs to provide necessary venting during placement of the HPC repair material. Pre-dampen the entire cavity surface with clean, fresh potable water immediately prior to HPC repair material placement unless otherwise directed by the HPC RMM recommendations. Remove all freestanding water in the forms prior to repair material placement.
- F. Timing of HPC Repair Material Placement: When reinforcement is exposed, apply material after completion of surface preparation and in accordance with this Section and the HPC RMM recommendations. Do not exceed 48 hours between time of surface preparation and repair material placement unless approved by the HPC RMM.
- G. Forms: Anchor to surrounding concrete with drilled-in expansion anchors. Remove anchors after form removal and repair holes with a stiff consistency of the HPC repair material. Construct forms so that finish surface will be free of ridges, bulges or other irregularities.

3.05 CURING

Cure HPC repair materials in accordance with the HPC RMM recommendations.

3.06 REPAIRS

Repair any voids remaining in repairs after form removal at no additional cost to

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the Owner. Use HPC repair material, prepare void and apply material in accordance with the HPC RMM recommendations.

3.07 FIELD QUALITY CONTROL

The following Inspections and Testing will be performed by the IWRB and coordinated with the Contractor, unless stated otherwise.

- A. Sampling: Obtain and test one sample of the HPC repair material for each day's production for the first 5 days of production and one sample each week thereafter. Resume daily sampling if two successive test failures occur. Collect 12 test cubes for each test sample. Identify samples by designated name, HPC repair material batch number, project contract number, where used, and quantity involved.
- B. Testing: Perform by an approved laboratory in accordance with ASTM C 109. Test 3 test cubes at 1 day and 3 at 7 days and hold 3 in reserve. If a sample fails to meet the HPC RMM's published physical properties after two tests, the Contractor shall replace HPC repair materials in the repaired area represented by the samples tested at no additional cost to the Owner and the Inspector will retest.
- C. Bond Strength Pull-off Tests: Conduct in accordance with ASTM C 1583 at 7 days. Perform two bond strength tests on the substrate in the repair test described in the paragraph titled "TESTING OF SAMPLE PLACEMENTS" in a relatively smooth area after the surface preparation is complete and before HPC repair material is placed. Penetrate substrate 1/2 inch minimum to 1 inch maximum with the cores. If a substrate test core fails to meet 150 psi minimum bond strength, then perform additional surface preparation and retest before placing the HPC repair material. The Inspector may perform two additional substrate tests at its discretion during the work. Once the substrate meets bond strength criteria, the Contractor shall place HPC repair material in repair area in accordance with this Section and the Inspector will test bond strength of placed material. Bond strength result data will be provided within 48 hours of testing. Samples for bond strength tests will be taken once for each 200 square feet of repair area. For the entire Project, the Inspector will take no less than three sets of samples of material applied by each method and perform bond strength test on each. Each bond strength test result will be the average of the three samples. The Inspector will retest locations represented by erratic bond strengths. The Contractor shall remove HPC repair material not meeting bond strength criteria and provide new material and retest. The Contractor shall repair cored holes with HPC repair material at no additional cost to the Owner.
- D. Inspection: The Contractor shall assist the Owner's Representative and/or Owner's Construction Manager to check each repaired area for cracks,

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spalls, popouts and loss of bond between repaired area and surrounding concrete by making equipment and access available for use in performing the checks. Check each repaired area for voids by tapping with a hammer or steel rod and listening for dull or hollow sounds. The Contractor shall immediately repair all defects so sound, well-bonded repairs result at no additional cost to the Owner, regardless of level of inspection by the Owner's Representative and/or Owner's Construction Manager before, during, or after repair work.

- E. HPC RMM Representative: Advise the Contractor on material handling, batching and mixing; surface preparation; curing, inspections, and testing of HPC repair materials.
- F. Injection Grouting Installation
 - 1. Condition material overnight to manufacturers recommended temperatures.
 - 2. Keep lid tightly sealed when not in use and avoid splashing water into pails.
 - 3. Install in accordance with manufacturer's instructions.
 - a. Expose the cracks or joint.
 - b. Drill injection holes.
 - c. Flush injection holes with water using a probe that reaches the back of the hole.
 - d. Install injection ports and zerk fittings.
 - e. Flush the crack with water.
 - f. Inject resin and allow to cure.
 - g. Remove injection ports and fill holes with either a cementitious epoxy-based patching material.
 - h. Grind excess resin from face of concrete.
 - 4. Cured material is chemically inert and safe to dispose of in landfill. Cleanup any spilled liquid resin and place in a suitable sealed container. Dispose of in accordance to applicable environmental regulations.

END OF SECTION

DIVISION 5 – METALS
Section 05 05 00 – Galvanizing

PART 1 – GENERAL

1.01 DESCRIPTION

- A. The work includes the requirements to provide a galvanized coating to miscellaneous metals as specified with all handling, pre-finishing, cleaning, pickling, rinsing, dipping, cooling, draining, vibrating, centrifuging, inspection, and other processes or materials required. The work specified in this Technical Specification is incidental work and the cost shall be included in other associated bid items in the contract. All exposed steel shall be hot-dip galvanized. All other exposed metal shall have a coating system approved by the Owner's Representative. This section is applicable to:
1. All steel fabricated metal items.
 2. Miscellaneous steel hardware.

1.02 RELATED SECTIONS

- A. Section 01 33 00 – Submittals
B. Section 01 40 00 – Quality Requirements
C. Section 05 12 00 – Structural Steel Framing

1.03 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. Latest editions apply.

ASTM

ASTM A123/A123M	Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products.
ASTM A143	Practice for Safeguarding Against Embrittlement of Hot Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement.
ASTM A153/A153M	Specification for Zinc Coating (Hot Dip) on Iron and Steel Hardware.
ASTM A384	Practice for Safeguarding Against Warpage and Distortion During Hot Dip Galvanizing of Steel Assemblies.
ASTM A385	Practice for Providing High Quality Zinc Coatings (Hot Dip).
ASTM A653	Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc Iron Alloy Coated (Galvannealed) by the Hot Dip Process.

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ASTM A767	Standard Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement
ASTM A780	Practice for Repair of Damaged and Uncoated Areas of Hot Dip Galvanized Coatings.
ASTM B6	Standard Specification for Zinc.

AGA

Inspection of Products Hot Dip Galvanized After Fabrication

Quality Assurance Manual

1.04 GENERAL

- A. Galvanizing metals material specification requirements shall apply to all galvanized items unless otherwise identified or noted on the Contract Drawings. It is the Contractor's responsibility to thoroughly review the design prior to commencement of work to prevent delays.

1.05 QUALIFICATIONS

- A. Galvanized Coating Applicator: Company specializing in hot-dip galvanizing after fabrication and following procedures of the Quality Assurance Manual of the AGA.

1.06 INSPECTION AND TESTING

- A. The Contractor shall provide and pay for the following testing of galvanized materials, which is to occur at their galvanizing facility:
- B. Inspect and test hot dip galvanized fabricated items in accordance with ASTM A123/A153M and A153/A153M.
- C. Visually inspect coating and test for thickness and adhesion of zinc coating for a minimum of three test samples from each lot in accordance with ASTM A123/A123M and A153/A153M.
- D. Reject and retest nonconforming articles in accordance with ASTM A123/A123M and A153/A153M.

1.07 PRODUCT HANDLING

- A. Handle and store hot-dip galvanized material in a manner that minimizes potential for warping and distortion of the material.
- B. Replacements: Repair or replace damaged work, if any, as necessary for acceptance by the Owner's Representative and at no additional cost to the Owner.

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1.08 ACTION SUBMITTALS

- A. The following items shall be submitted to the Owner's Representative for review and approval in accordance with Technical Specification Section 01 33 00 – Submittals:
 - 1. Certificate of compliance signed by galvanizer, with description of material to be galvanized and ASTM standard used for coating.
 - 2. Reports from inspection and testing.

PART 2 – PRODUCTS

2.01 ZINC

- A. Zinc for galvanizing shall conform to manufacturers' specifications, directions, and recommendations for best results in the use of each of their products for each condition. If results are at variance with these Technical Specifications, immediately report the discrepancy to the Owner's Representative and proceed with the related work only after receiving direction from the Owner's Representative in writing.

2.02 REPAIR PRODUCTS

- A. Galvanizing repair shall be performed with zinc-based alloy solder rods.

PART 3 – EXECUTION

3.01 FABRICATION AND PREPARATION

- A. Fabricated steel to be fabricated and galvanized in accordance with ASTM A143, ASTM A384, and ASTM A385. Avoid fabrication techniques that could cause distortion or embrittlement of the steel before, during, or after the galvanizing process.
- B. All welds shall be continuous on assemblies to be welded prior to galvanizing. Abutting surfaces shall be at a minimum seal welded. All welds shall be shown on the shop drawings.
- C. All flame-cut surfaces shall be ground smooth and plane to bright metal prior to galvanizing.
- D. All edges and corners shall be ground to a 2mm radius prior to galvanizing.
- E. Any drain or vent holes not indicated on the Contract Drawings which are required to produce a high quality galvanized coating with minimal warping and distortion shall be identified by the coating manufacturer, clearly shown on the shop drawings, and shall be subject to acceptance by the Owner's Representative. The fabricator shall detail the assembly in accordance with ASTM A384 recommendations. Any discrepancies between the shop drawings and the recommendations of ASTM A384 shall be indicated in the shop drawings to alert the Owner's Representative of potential warpage problems during hot-dip galvanizing.

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- F. The fabricator shall consult with the Owner's Representative and hot-dip galvanizer regarding potential concerns, including handling issues, during the galvanizing process that may require design modification before fabrication proceeds.
- G. Remove welding slag, splatter, burrs, grease, oil, paint, lacquer, and other deleterious material prior to delivery for galvanizing.
- H. Remove, by blast cleaning or other methods, surface contaminants and coatings not removable by normal chemical cleaning process in the galvanizing operation.

3.02 GALVANIZING

- A. Hot-dip galvanizing of steel members, fabrications, and assemblies shall occur after fabrication in accordance with ASTM A123/A123M.
- B. Hot-dip galvanizing of bolts, nuts, washers, and hardware components shall be in accordance with ASTM A153 and ASTM A385. Provide oversize holes to allow for zinc alloy thickness. Test-fit nuts and bolts after galvanizing prior to shipment. Nut/bolt pairs are to be shipped in an assembled state.
- C. Galvanize components of bolted assemblies separately before assembly.
- D. Tapped holes to be cleaned with a wire brush immediately after galvanizing and test-threaded full-depth prior to shipment from the galvanizer. Threads may be cleaned with a tap if fastener cannot be fully finger-inserted for the full depth of the threaded hole.
- E. Galvanizing for all steel bolts, washers, and nuts shall be performed in accordance with ASTM A385 and ASTM A153. Coating thickness shall be in accordance with the relevant ASTM requirements.

3.03 REPAIR OF GALVANIZED COATING

- A. Repair all new and existing galvanized surfaces removed or damaged during welding, shipping, or erection in accordance with ASTM A780. Repair material shall be zinc-based alloy solder (zinc rod). Application shall be in accordance with ASTM A780 and rod manufacturer's recommendations. Minimum applied thickness shall be the minimum original galvanizing thickness required for the component in accordance with ASTM galvanizing requirements, or 4 mils, whichever is greater. After cooling, apply two coats of grey zinc rich paint. Any galvanizing repair conducted by the Contractor, Subcontractor, or supplier which occurs onsite will be subject to approval by the Owner's Representative. The Contractor shall notify the Owner's Representative and Owner's Construction Manager when any repair is being performed, and provide access to adequately review the repair area before and after the repair.

END OF SECTION

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Section 05 12 00 – Structural Steel Framing

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. Section 01 33 00 – Submittals
- B. Section 01 40 00 – Quality Requirements
- C. Section 05 05 00 – Galvanizing

1.02 SUMMARY

- A. Section Includes:
 - 1. Hand Railing Repairs

1.03 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Show fabrication of structural-steel components.
 - 1. Include details of cuts, connections, splices, camber, holes, and other pertinent data.
 - 2. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld. Show backing bars that are to be removed and supplemental fillet welds where backing bars are to remain.
 - 3. Indicate type, size, and length of bolts, distinguishing between shop and field bolts.

1.04 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer and fabricator.
- B. Survey of existing conditions.
- C. Field quality-control and special inspection reports.

1.05 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- B. Comply with applicable provisions of the following specifications and documents:
 - 1. AISC 303.
 - 2. AISC 360.
 - 3. RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
 - 4. ASME B46.1 2009 Edition, 2009 Surface Texture (Surface Roughness, Waviness, and Lay)

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5. American Welding Society (AWS) D1.1 Structural Welding Code – Steel

6. AWS D19.0 Welding on Zinc-Coated Steels

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.

B. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.

PART 2 – PRODUCTS

2.01 STRUCTURAL-STEEL MATERIALS

A. Angles: ASTM A 36/A 36M.

B. Plate and Bar: ASTM A572 Grade 50

C. Welding Electrodes: Comply with AWS requirements.

2.02 FABRICATION

A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC 303, "Code of Standard Practice for Steel Buildings and Bridges," and to AISC 360.

1. Mark and match-mark materials for field assembly.

2. Complete structural-steel assemblies, including welding of units, before starting shop-priming operations.

B. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.

1. Plane thermally cut edges to be welded to comply with requirements in AWS D1.1/D1.1M.

C. Steel Fabrication Metal Galvanizing – Specification Section 05 05 00 – Galvanizing.

2.03 SHOP CONNECTIONS

A. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

1. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in AISC 303 for mill material.

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Section 05 12 00 – Structural Steel Framing

2.04 GALVANIZING

- A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to all new structural steel pieces according to Technical Specification Section 05 05 00 – Galvanizing.

2.05 SOURCE QUALITY CONTROL

- A. Testing Agency: Owner's representative and/or Construction Manager will engage a qualified testing agency to perform shop tests and inspections.
 - 1. Provide testing agency with access to places where structural-steel work is being fabricated or produced to perform tests and inspections.
- B. Welded Connections: Visually inspect field-welded connections according to AWS D1.1/D1.1M
- C. Prepare test and inspection reports.

PART 3 – EXECUTION

3.01 PREPARATION

- A. Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place unless otherwise indicated.

3.02 ERECTION

- A. Set structural steel accurately in locations and to elevations indicated and according to AISC 303 and AISC 360.
- B. Maintain erection tolerances of structural steel within AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."
- C. Align and adjust various members that form part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that are in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
 - 1. Level and plumb individual members of structure.
 - 2. Make allowances for difference between temperature at time of erection and mean temperature when structure is completed and in service.
- D. Install radial gates in such a way that the rubber J-seals are not damaged and proper sealing will occur when upstream water levels are restored.
- E. Do not use thermal cutting during erection.

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Section 05 12 00 – Structural Steel Framing

3.03 FIELD CONNECTIONS

- A. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

3.04 FIELD QUALITY CONTROL

- A. Special Inspections: Engage a qualified special inspector to perform the following special inspections:
 - 1. Verify weld materials and inspect welds.
- B. Welded Connections: Visually inspect field welds according to AWS D1.1/D1.1M.

3.05 REPAIRS AND PROTECTION

- A. Galvanized Surfaces: Clean areas where galvanizing is damaged or missing and repair galvanizing to comply with ASTM A 780/A 780M and the Technical Specification Section 05 05 00 – Galvanizing.

END OF SECTION

DIVISION 31 – EARTHWORK
Section 31 00 00 – Excavation and Fill

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This section includes specifications for excavation and fill work lakeward of the OHW line and within the project site limits. Excavation work, described herein, constitutes the work required to remove sediment to construct the concrete Apron Extension, Armor Stone Extension, grades and profiles shown on the Contract Drawings and described within the Specifications. It is assumed that land-based excavation will be performed as proposed by the Contractor.
- B. The work described herein includes excavation, material handling, temporary stockpiling or staging, backfilling, compaction and finish grading activities as indicated on the Contract Drawings and Specifications.
- C. Earthwork within the project site limits is subject to fluctuating water levels as well as erosion due to wind, wave, current, and ice action that may hinder earthwork activities. It is the Contractor's responsibility to select appropriate means and methods to achieve the work shown on the Contract Drawings while avoiding sedimentation of the work areas and erosion of subgrade soils that would preclude this work.
- D. Excavation and Backfill Work Stoppage. All work below the OHW line shall be conducted within the timeframe allowed by the regulatory permit conditions and the substantial completion date designated within the Contract Documents.

1.02 RELATED DOCUMENTS

- A. The provisions and intent of the Contract, including the General Conditions, Supplementary Conditions, and General Requirements, apply to this work as if specified in this section. Related Sections include the following:
 - 1. Section 01 71 23 – Construction Surveying
 - 2. Section 01 40 00 – Quality Requirements
 - 3. Section 01 35 43 – Environmental Controls
 - 4. Section 01 41 00 – Regulatory Requirements
 - 5. Section 01 50 00 – Temporary Facilities and Controls
 - 6. Section 01 57 13 – Temporary Erosion and Sediment Control
 - 7. Section 35 31 23 – Armor Stone
 - 8. Appendix A – Permit Documents

1.03 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

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Occupational Safety and Health Administration (OSHA)

29 CFR 1910	Occupational Safety and Health Regulations.
29 CFR 1926	Safety and Health Regulations for Construction.

1.04 DEFINITIONS

- A. Beneficial Reuse: The reuse of excavated materials from within the project site limits by the Contractor as fill for the various work elements shown on the Contract Drawings and as described within the Specifications.
- B. Flow Diversions Systems: Temporary systems that may be required to facilitate the execution of various works within the project site limits. Flow diversion may include, but is not limited to, the temporary installation of products such as Super Sacks, Geobags, or other products installed for the purpose of redirecting Outlet Dam flow from active work areas below the OHW line. The design of Flow Diversion Systems is the responsibility of the Contractor in accordance with the Contract Drawings and Technical Specification Section 02 20 00 – Cofferdams and Dewatering.

1.05 SUBMITTALS

- A. The following items shall be submitted to the Owner's Representative for review and approval in accordance with Section 01 33 00 – Submittals:
 - 1. Prepare and submit for Owner's Representative approval an Excavation and Backfill Plan as a component Work Plan described in Section 01 33 00 – Submittals that includes details of Contractor's methods and equipment to accomplish the work herein, including equipment to be used, description of excavation and fill construction sequencing method, description of proposed work area isolation method, grading, sequencing of excavation/backfill activities, and schedule.
 - 2. The Owner's Representative has completed environmental and geotechnical assessments in the vicinity of project site limits. General site environmental, geotechnical, and subsurface conditions are described in the Appendices.
 - 3. The Contractor shall make its own interpretations, deductions, and conclusions as to the nature of the materials to be excavated, the difficulties of making and maintaining the required excavations, and the difficulties of doing any other work affected by environmental, geotechnical subsurface, and groundwater conditions and shall accept full responsibility thereof.

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4. Product specifications for imported fill materials if the Contractor elects to import fill rather than beneficially reuse excavated removed from within the project site limits.
5. All pertinent source and test records (imported fill material quality, testing results, gradation, chemical analyses results, and a description of previous uses within fluvial environments from the material source shall be submitted to the Owner's Representative for review and approval. Documentation shall include the following:
 - a. Name and location of material source, name, and telephone number of supplier.
 - b. Laboratory test results completed within the last 12 months for test procedures listed Part 2 of this Technical Specification.
6. Such test records will be evaluated to help determine if imported fill materials from that source can meet quality standards as hereinafter specified. Materials sourced for fill shall meet, to the extent possible, the gradation of the in-situ sediments within the project site limits unless otherwise approved by the Owner's Representative.
7. Weigh Scale Certification: Prior to the use of any scale under this contract, the contractor shall submit details on the location and construction of the scale and a copy of the certification of the scale's accuracy from the local weights and measures regulating agency.
8. Daily Activities Report: The Contractor shall provide a daily record of construction activities and shall include the following:
 - a. Report shall document the percent of project completion, limits of excavation and/fill, and adverse weather conditions or other problems that cause problems for each day there are on-site work activities. The report shall be submitted to the Owner's Representative and Owner's Construction Manager at the end of each week.
9. Daily Shipment Log Sheets: On the workday following imported fill material shipment, the Contractor shall submit a copy of the log of all shipments from the material source(s). The log sheets shall include information regarding placement or stockpiling of the shipments, and what shipments were sampled. The Daily Log sheet and its format shall be approved by the Owner's Representative prior to the shipment of any materials.
10. Weigh Bills: Certified weigh bills shall be provided to the Owner's Representative and/or Owner's Construction Manager at the time the weighted material is delivered. Certified weigh bills for each load of imported fill materials delivered to the project site shall include

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certification of weight, the time of weighing, time of delivery, and serial number and description of delivery truck.

11. Progress Survey Data: In accordance with Technical Specification Section 01 71 23 – Construction Surveying.

1.06 OFF-SITE TRANSPORTATION AND DISPOSAL

- A. All excavated material that is not used for beneficial reuse as indicated on the Contract Drawings or Specifications herein shall be loaded into trucks for disposal at an approved location or landfill. Submit locations to the Owner.
- B. The Contractor shall be responsible for coordinating truck scheduling. The Contractor shall coordinate truck traffic and loading locations on site with stockpile and excavation locations, including providing suitable on-site truck routes.

PART 2 – PRODUCTS

2.01 GENERAL IMPORTED MATERIAL QUALITY REQUIREMENTS

[NOTE: For clarity, it is likely that excavated and/or dredged material volumes are sufficient for all work elements requiring fill and/or beneficial reuse however, for bidding purposes assume all excavated material (including rip rap and armor stone) is to be disposed of offsite at an approved location. Import of any sand and/or aggregate materials to the site, not including the stone materials identified within Section 35 21 23 – Armor Stone, shall be submitted for approval to the Owner's Representative prior to use.]

- A. Imported materials (if required) shall be tested and certified to be free of contaminants as approved by the Owner's Representative. See Paragraph 1.05 (6, 7) herein for the details of the required testing, submittals, and approval.
- B. The Owner's Representative maintains the right to reject any materials that have been determined to be substandard for any reason. In the event of rejection, it shall be the responsibility of the Contractor to remove all rejected material from the site at its sole expense.
- C. Visually inspect each load of imported material upon delivery. Material shall be inspected for presence of foreign, recycled, or reprocessed material. Owner's Representative and/or Owner's Construction Manager may at any time perform an independent inspection. Material may be rejected due to identification of any such material or as a result of substandard test results.

PART 3 – EXECUTION

3.01 GENERAL EXCAVATION AND GRADING

- A. Excavating and grading that is part of this Contract, shall be completed within the tolerances established or within reasonably close conformity

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Section 31 00 00 – Excavation and Fill

within the alignment grade and cross sections indicated on the Contract Drawings or as established within these Specifications. Specific requirements for surveying are described in Technical Specification Section 01 71 23 – Construction Surveying.

- B. All excavation activities will be performed ‘in the dry’ to the extent practicable or at least during low flows, low groundwater flows and/or low water levels, to minimize the amount of water in excavations. This will require special installation methods including controlling water, and/or timing activities to coincide with low flow conditions.
- C. Excavation shall only include what is needed to complete the work elements shown on the Contract Drawings and Specifications. Any excess excavation not needed to construct the slopes shall be disposed of at a Contractor provided facility that meets the local, state and federal requirements. No payment will be made for excessive excavation.
- D. Excavation material shall be moved with the use of mechanical equipment, such as shovels, loaders, bulldozers, hydraulic excavators, graders, rippers, etc., but shall not require drilling and blasting or drilling and line breaking. Excavation by sluicing methods will not be permitted unless specifically approved by the Owner’s representative. In general excavation shall be removed in horizontal layers.
- E. Conduct all required activities associated with excavation, stockpiling, and disposal of sediment in accordance with the requirements of the Contract Documents, regulatory permits, and as directed by the Owner or Owner’s Representative to complete the work under this Contract. Coordinate the work with the Owner’s Representative to limit adverse effects of the work on the activities of other adjacent public and privately-owned areas and/or the public.
- F. Implement environmental protection measures, temporary erosion and sediment control, BMPs, site access and traffic control, utility protection, spill prevention and pollution control, noise control, and all other controls needed to protect environmental quality during the work. Refer to Specification Section 01 57 13 – Temporary Erosion and Sediment Control.
- G. The Contractor may construct temporary stockpile areas located within the project site limits, unless alternative locations are pre-approved by the Owner’s Representative. The Contractor shall not stockpile any material in areas subject to flowing water. Sediment placed in stockpiles shall be protected from the weather and environmental conditions (water level variation, waves, and currents). Contractor shall be responsible for proper handling and discharge of water collected within the stockpile areas as defined in Section 01 57 13 – Temporary Erosion and Sediment Control.

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3.02 BACKFILLING

- A. No backfilling shall occur until excavation elevations have been confirmed, based on Contractor provided intermediate/progress survey(s), by the Owner's Representative. See Section 01 71 23 – Construction Surveying.
- B. Contractor shall backfill excavations back to existing grade unless noted otherwise on the Contract Drawings or Specifications herein.
- C. Contractor shall be responsible to maintain excavation subgrades to excavated elevations and lateral extent during backfilling operations. The Contractor shall be responsible to remove displaced soil (loose fill) greater than 1 foot above base of excavation or subgrade that occurs during backfilling.
- D. Backfill work shall not occur within areas subject to active river flow conditions.

3.03 GENERAL COMPACTION REQUIREMENTS

- A. Compaction shall be performed for backfill of excavated materials. Compaction equipment suitable for the soil and the area being compacted shall be used. Each lift of material placed shall be uniformly compacted as indicated for the specific material and indicated in these Specifications. The compaction equipment may be of any type, provided it can compact each lift of the material as specified. The Owner's Representative may require that the use of particular compaction equipment be discontinued if it is not capable of compacting the material as indicated within a reasonable time, or if the equipment may damage underlying or adjacent soils and/or structures.
- B. Contractor shall place fill in 1 to 2-foot maximum loose lift thickness, unless specified otherwise herein.
- C. Adjustments to achieve compaction shall be at no additional cost to the Owner.
- D. Lifts shall be uniform thickness, sloped to drain, and even across the entire width of the fill surface. Shape the surfaces to uniform cross sections and eliminate ruts and holes.
- E. Specific compaction requirements for general fill and/or the beneficial reuse of dredged material are described in the following Paragraphs herein.

3.04 CLEARING AND GRUBBING

- A. Remove shrubs, and other vegetation to permit the installation of new construction within the areas indicated on the Contract Drawings and as specified herein.
 - 1. The clearing limits shown on the Contract Drawings represent the maximum area that may be cleared and grubbed. Within the clearing

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limits, remove existing vegetation only where necessary to complete new construction. Preserve all other existing native vegetation.

- B. Material generated from clearing and grubbing shall be disposed of by the Contractor at an approved offsite disposal location.
- C. Contractor shall not burn material generated from clearing and grubbing activities.

3.05 TOLERANCES

- A. Vertical:

Finished elevations shall be graded within a vertical tolerance of ± 0.25 feet relative to the pre-construction survey and/or the Contract Drawings and maintain positive site drainage unless noted otherwise.

3.06 SURVEY

- A. The Contractor shall provide for all survey needs on this project as identified in these Specifications or as required to complete the work. See Section 01 71 23 – Construction Surveying for required control and as-built documentation.

3.07 STOCKPILING

- A. The Contractor may elect to temporarily stockpile excavated material for dewatering/decant and/or temporary storage within the project site limits.
- B. The Contractor shall not temporarily stockpile materials in areas subject to flowing water/currents, waves, or fluctuating water levels.
- C. The Contractor shall locate stockpiles as necessary within the project site limits to complete the work. No stockpiles may be located in such a manner as to impair access to adjacent sites or facilities or be detrimental to work progress or the completed work in any way. Stockpile locations and configurations must be approved by the Owner's Representative or Owner's Construction Manager.
- D. All stockpile areas shall be sized to accommodate anticipated volumes and rates of excavation and import.
- E. The Contractor shall maintain a written log of stockpiles containing excavated/dredged materials from on-site.
- F. The Contractor shall inspect all stockpile areas daily and after rain or high flow events and shall maintain a written inspection log. The inspection log shall be available at the request of the Owner, Owner's Representative, or Owner's Construction Manager and also submitted with the Contractor's Weekly Report. Inspection logs shall contain date and time of inspection, name of individual conducting the inspection, observations, problems noted, and corrective actions taken. For each stockpile, the log shall note the material present; dates that the stockpile was established or modified;

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Section 31 00 00 – Excavation and Fill

and daily volumes based on visual or other estimates. The log shall establish a sequential number system of each stockpile.

3.08 SITE CLEANUP

- A. Contractor shall return stockpile areas to original conditions on completion of use. Original conditions will be determined based upon review of the pre-construction survey data by the Owner's Representative.
- B. Contractor shall clean up soil tracked from the site onto roadways on a daily basis or more frequently, as directed by the Owner or Owner's Representative.
- C. Periodically clean up wastes, debris, and leftover materials resulting from the earthwork activities. Clear the work areas of all debris and waste materials that may have accumulated during execution of the work and dispose of such materials in accordance with all applicable regulations.

END OF SECTION

DIVISION 31 – EARTHWORK

Section 31 09 13 – Geotechnical Instrumentation and Monitoring

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This section includes specifications installation of geotechnical monitoring equipment beneath the dam. The location and type of monitoring equipment is shown on the Contract Drawings.
- B. The work described herein includes intent and description of the work to be accomplished. The sequencing, materials, and detailed methods have been left to the contractor.
- C. The objective of the geotechnical instrumentation is to provide ability to monitor groundwater pressures beneath the dam periodically. One instrument is to be installed in a borehole at a depth indicated on the Contract Drawings. The connecting wires from the new borehole and the two existing boreholes are to be extended to the shoreline where a monitoring station can complete periodic readings.
- D. Installation timing. All work below the ordinary high water line shall be conducted within the timeframe allowed by the regulatory permit conditions and the substantial completion date designated within the Contract Documents.

1.02 RELATED DOCUMENTS

- A. The provisions and intent of the Contract, including the General Conditions, Supplementary Conditions, and General Requirements, apply to this work as if specified in this section. Related Sections include the following:
 - 1. Section 01 71 23 – Construction Surveying
 - 2. Section 01 40 00 – Quality Requirements
 - 3. Section 01 35 43 – Environmental Controls
 - 4. Section 01 41 00 – Regulatory Requirements
 - 5. Section 01 50 00 – Temporary Facilities and Controls
 - 6. Section 01 57 13 – Temporary Erosion and Sediment Control
 - 7. Section 35 31 23 – Armor Stone
 - 8. Appendix A – Permit Documents

1.03 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

Occupational Safety and Health Administration (OSHA)

29 CFR 1910

Occupational Safety and Health Regulations.

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Section 31 09 13 – Geotechnical Instrumentation and Monitoring

29 CFR 1926

Safety and Health Regulations for
Construction.

1.04 DEFINITIONS

- A. Vibrating Wire Piezometer (VWP): A device for measuring groundwater pressure comprising a tensioned wire that resonates at a measurable frequency. The vibrating wire is connected to a diaphragm exposed to the ambient pressure. The diaphragm is typically protected by a ceramic porous stone. As the pressure and tension change, the resonant frequency is altered and measured as an electrical signal. The wire is plucked through activation by an automated or manual readout device.
- B. Vibrating Wire Piezometer Array: All VWPs (proposed and existing) indicated in the Contract Plans connected together with wire in conduit and connected to a control panel that completes a fully operational system as described in in this Technical Specification.

1.05 SUBMITTALS

- A. The following items shall be submitted to the Owner's Representative for review and approval in accordance with Section 01 33 00 – Submittals:
 - 1. Prepare and submit for Owner's Representative approval a Vibrating Wire Piezometer Installation Plan detailing the sequencing of drilling, installation of the piezometer, and backfill of the borehole. The plan shall include detail of the conduit placement and protection during construction activities. Sequencing of the boreholes shall be provided considering the cofferdam access to the installation locations. Protection of installed instruments during remaining construction activities shall be described.
 - 2. Provide documentation for acquired VWP including manufacturers recommendation for borehole grout backfill mix, calibration factors, and calibration checks at least one week prior to installation. Notify Owner's Representative to anticipated drilling and installation schedule at least one week prior to mobilization of the drilling equipment.
 - 3. The Contractor shall make its own interpretations, deductions, and conclusions as to the nature of the materials to be excavated or drilled, the difficulties of making and maintaining the required excavations or boreholes, and the difficulties of doing any other work affected by environmental, geotechnical subsurface, and groundwater conditions and shall accept full responsibility thereof.
 - 4. Contractor shall provide as-built submittal for the VWPs indicating approximate location in plan (± 1 foot) and approximate elevation (± 2 inches) of the porous stone end of the VWP. Contractor shall provide an as-built indication of which cable represents which VWP as per Construction Drawings. Calibration certificates, cabling

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diagram, location information, and elevation information shall be included in an operations manual. Operation manual shall include photographic documentation of VWP installation, cabling, conduit, and enclosure.

1.06 OFF-SITE TRANSPORTATION AND DISPOSAL

- A. All drilling cuttings that is not used for beneficial reuse as indicated on the Contract Drawings or Specifications herein shall be disposed at an approved location or landfill.
- B. The Contractor shall be responsible for coordinating truck scheduling. The Contractor shall coordinate truck traffic and loading locations on site with stockpile and excavation locations, including providing suitable on-site truck routes.

PART 2 – PRODUCTS

2.01 VIBRATING WIRE PIEZOMETERS

- A. Conduit to house and protect cabling to be provided by Contractor.
- B. Weatherproof enclosure for cabling to be provided by Contractor. May consist of DGSI/Slope Indicator housing for 4-Channel V-Logger (without logging componentry) or Contractor-provided timber enclosure, at Contractor's discretion.
- C. Vibrating Wire Data Recorder – DGSI Item Number 52613500 or equivalent, to match VWP componentry.

PART 3 – EXECUTION

3.01 VIBRATING WIRE PIEZOMETER INSTALLATION

- A. VWPs shall be installed approximately 10-15 feet below the concrete apron in a grouted-in-place borehole at a known depth in quantity and locations identified on the Contract Drawings. The objective of the VWP installation is to provide an ongoing measurement capability for groundwater pressures beneath the Outlet Dam. VWPs shall be installed in a borehole that is constructed in accordance with local regulations. The Owner's Representative and Geotechnical Engineer shall be on-site for the drilling and installation of the VWP.
- B. Borehole grout backfill shall conform to VWP manufacturer specifications for bentonite mix. Mud rotary drilling and tremie grout placement methods are recommended. VWP shall be mounted on a rigid frame for accurate placement within the borehole. Mounting on one-inch diameter sacrificial PVC pipe used as tremie pipe is recommended.

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- C. VWP porous stones shall be saturated by placing in filtered water for at least 24 hours prior to placement in the borehole, or as otherwise directed by the manufacturer recommendations. The VWP shall be tested for functionality immediately prior to placement in the borehole.
- D. The cabling resulting from the installation shall be of sufficient length to pass through a conduit to the shoreline. The ends of the cabling shall be labeled so as to differentiate which VWP is represented. The free end of the cabling shall be left in a weatherproof but accessible enclosure for periodic measurements to be taken with the Vibrating Wire Data Recorder provided by the Contractor. At least three feet (3 ft) of cabling shall be coiled within the enclosure and the bare wiring ends stripped and soldered for long-term resilience.
- E. The cabling conduit may be located within the apron subgrade or within the apron slab, at the contractor's discretion. If located within the slab, it shall not impede construction of the reinforced concrete. Conduit location must be approved by the Owner's Representative prior to installation. Filling or sealing the conduit against water seepage may be required.

3.02 TOLERANCES

- A. Vertical:
Elevation of the porous stone shall be determined to within two inches (± 2 inches). Porous stone shall be mounted facing upwards to maintain saturation.
- B. Horizontal
Horizontal elevation of the porous stone shall be determined within one foot (± 1 foot).

END OF SECTION

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PART 1 – GENERAL

1.01 DESCRIPTION

- A. This section covers excavation, fill and stonework required to construct the armor stone apron. Stone shall be supplied to the site and installed as per the Contract Drawings and as specified herein. Geotextile fabric required for stonework is also included.
- B. All arrangements must be made prior to construction for right-of-way, for adequate investigation and exploration, and for selection, development, and operation of the quarry to supply stones for this contract of the weights, sizes, and quality specified herein. Inspection for acceptance of individual stones will be at the construction site.
- C. Owner furnished material shall be used first to complete the project. This material is stockpiled near the project sites. Refer to the appendices regarding quantities and location of stockpiled materials.

1.02 RELATED DOCUMENTS

- A. The provisions and intent of the Contract, including the General Conditions, Supplementary Conditions, and General Requirements, apply to this work as if specified in this section. Related Sections include the following:
 - 1. Section 01 40 00 – Quality Requirements
 - 2. Section 01 35 43 – Environmental Controls
 - 3. Section 01 71 23 – Construction Surveying
 - 4. Section 31 00 00 – Excavation and Fill
 - 5. Appendix A – Permit Documents

1.03 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

American Society for Testing and Materials (ASTM)

- | | |
|------|---|
| C88 | Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate. |
| C127 | Specific Gravity and Absorption of Coarse Aggregates. |
| C131 | Resistance to Degradation of Small Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine. |
| C535 | Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine. |

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D2938 Unconfined Compressive Strength of Intact Rock Core Specimens.

D4992 Evaluation of Rock to be used for Erosion Control.

U.S. Army Corps of Engineers Handbook for Concrete and Cement (CRD-C)

CRD-C 148-69 Method of Testing Stone for Expansive Breakdown on Soaking in Ethylene Glycol.

CRD-C 144-92. Resistance of Rock to Freezing and Thawing.

1.04 DEFINITIONS

- A. Armor Stone: Layer of stones used as an armor layer for apron as shown on the Contract Drawings.
- B. Bedding Stone: Layer of small stones used for bedding/filter layer between the Armor Stone and the geotextile fabric as shown on the Contract Drawings.
- C. Stoneworks: Installation of any stone materials including, Armor Stone Type and Bedding Stone, in accordance with the Contract Drawings and requirements specified herein.
- D. Excavation: Includes only what is needed to install geotextile and construct the final stonework in accordance with the Contract Drawings and requirements specified herein.
- E. Fill: Includes only what is needed to replace excavation for installation of geotextile and stonework in accordance with the Contract Drawings and requirements specified herein.

1.05 SUBMITTALS

- A. The following items shall be submitted to the Owner's Representative for review and approval in accordance with Section 01 33 00 – Submittals:
 - 1. Product specifications for geotextile, and other materials specified herein.
 - 2. All pertinent source and test records (stone quality, testing results, gradation, chemical analyses results, and a description of previous use on coastal and/or fluvial structures) from the stone source shall be submitted to the Owner's Representative for review and approval. Documentation shall include the following:
 - a. Name and location of material source, and name and telephone number of supplier.

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- b. Laboratory test results completed within the last 12 months for test procedures listed Part 2 of this Technical Specification.
- 3. Such test records will be evaluated to help determine if stones from that source can meet quality standards as hereinafter specified.
- 4. Weigh Scale Certification: Prior to the use of any scale under this contract, the contractor shall submit details on the location and construction of the scale and a copy of the certification of the scale's accuracy from the local weights and measures regulating agency.
- 5. Daily Activities Report: The Contractor shall provide a daily record of construction activities and shall include the following:
 - a. Report shall document the percent of project completion, limits of construction, and adverse weather conditions or other problems that cause problems for each day there are on-site work activities. The report shall be submitted to the Owner's Representative at the end of each week.
- 6. Daily Shipment Log Sheets: On the workday following stone shipment, the Contractor shall submit a copy of the log of all shipments from the stone source(s). The log sheets shall include information regarding placement or stockpiling of the shipments, and what shipments were sampled. The Daily Log sheet and its format shall be approved by the Owner's Representative prior to the shipment of any stone materials.
- 7. Weigh Bills: Certified weigh bills shall be provided to the Owner's Representative and/or Owner's Construction Manager at the time the weighted material is delivered. Certified weigh bills for each load of stone materials delivered to the project site shall include certification of weight, the time of weighing, time of delivery, and serial number and description of delivery truck or barge.
- 8. Stone Work Plan consisting of the following subsections:
 - a. Description of stone construction sequencing method.
 - b. Description of proposed work area isolation method.
 - c. Intermediate/Progress Survey sequencing and review plan for the stone in accordance with Section 01 71 23 – Construction Surveying.

PART 2 – PRODUCTS

2.01 GEOTEXTILE FABRIC

- A. Physical Properties: The geotextile shall be pervious, non-woven geotextile composed of polypropylene fibers, which are formed into a stable network such that the fibers retain their relative position. The material shall be a geotextile consisting only of long chain synthetic polymeric fibers or yarns

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formed into a stable network such that the fibers or yarns retain their position relative to each other during handling, placement, and design service life. At least 95 percent by weight of the material shall be polyolefins or polyesters and shall meet or exceed the requirements of AASHTO M288-92. The material shall be free from defects or tears. Geotextile material shall be inert to chemicals commonly found in natural water, the soils conditions encountered at the site, and UV stabilized. The edges of the geotextile shall be finished to prevent the outer fiber from pulling away from the geotextile. The geotextile fiber shall contain stabilizers or inhibitors added to the base material if necessary to make filaments resistant to deterioration due to ultraviolet and heat exposure. The geotextile shall also be free of any treatment or coating which might adversely alter its hydraulic or physical properties after installation. Geotextile shall be sampled and tested in accordance with ASTM D4354. The geotextile fabric shall meet the following physical property requirements:

Table 1 – Physical Requirements for Geotextile

Fabric Property	ASTM Method	Property Value
Grab Tensile Strength, in machine and x-machine direction	D4632	200 lb. min.
Grad Failure Strain, in machine and x-machine direction	D4632	≥ 50%
Seam Breaking Strength	D4632	180 lb. min.
Puncture Resistance	D6241	430 lb. min.
Tear Strength, in machine and x-machine direction	D4533	79 lb. min.
Ultraviolet Radiation Stability	D4355	50% strength retained min.
Apparent Opening size AOS	D4751	No. 80 max.
Water Permittivity	D4491	0.3sec ⁻¹ min.
Weight	D5261	
Thickness	D5199	

2.02 STONE SOURCES

- A. The Contractor is responsible for obtaining a source for the materials in accordance with these Specifications. The name and location of the material source the Contractor proposes for supply of the Products shall be submitted to the Owner's Representative after the notice of award. The Owner's Representative will evaluate these sources as potential suppliers

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and determine if they are qualified for consideration under these Specifications. Evaluation will be conducted based on a review of test results and review of source material at the proposed source location. If the primary source is determined to be unqualified, subsequent sources shall also be evaluated at the Contractor's expense. The Contractor shall select stone materials from an existing commercial source for which all operating permits have been obtained prior to bid opening. Contractor shall assure himself of availability of an adequate and acceptable material source based on quantity, quality, production rate, and gradation standpoints prior to submitting his bid.

2.03 SAMPLING, STONE QUALITY TESTING, AND ACCEPTANCE OF STONES

A. General

1. The acceptability of stone materials from the proposed source will be determined by sampling and laboratory testing results, geologic examination, quarry field investigation by the Owner's Representative, and drop tests at the quarry. The Contractor shall submit existing quarry test results from a laboratory that has been validated by the Owner's Representative, in accordance with the tests specified herein and which are representative of the stone to be used on the project. The Contractor shall submit existing laboratory test documentation to the Owner's Representative within five (5) business days of receipt of Notice to Proceed. Existing test records shall have been completed during the previous 12 months from bid opening. When satisfactory test records are not available, the proposed stone shall be subjected to all such tests as are necessary to determine that the stones are durable and suitable for use in the work at the Contractor's expense. Tests to which the stones may be subjected include unit weight or specific gravity, absorption, abrasion, accelerated expansion, and such other supplemental tests as may be necessary.

2.04 SAMPLING

- A. Should the Contractor's documentation not include previous satisfactory laboratory test results for tests completed within the last 12 months or fail to satisfy the Owner's Representative, samples of all types of stone proposed for use in construction shall be selected in the presence of the Owner's Representative and delivered to the testing lab for testing at the Contractor's expense. These samples shall be delivered to the testing lab within five (5) business days after receipt of notification of insufficient or unsatisfactory lab tests. Samples of stone shall consist of 5 to 10 pieces with a total weight of not less than 200 pounds with an average weight of 25 pounds per piece for each stone type proposed for use as armor and bedding stone. No single piece shall weigh more than 100 pounds. The presence of the Owner's Representative during selection of samples of

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stones will not relieve the Contractor of the responsibility to secure representative samples from the quarry for testing.

2.05 STONE QUALITY

- A. All stone used for any Product described hereinafter shall meet the following requirements:
1. Stone materials shall be clean, dense, hard, sound, rough, angular, close grained durable, naturally occurring stone, free from overburden material, and shall not slake or deteriorate on exposure to the action of water or atmosphere. The faces of individual stone shall be roughly angular, not rounded in shape.
 2. Stone shall be free of cracks, joints, honeycomb, faults, flaws, seams or mineral in-fillings, or other defects that would tend to increase its deterioration from the weathering process or result in breakage during re-handling at offsite stockpile locations, normal handling, placing, or service in the armor stone pad.
 3. Each stone shall have sufficiently uniform physical properties throughout so that all portions of the stone will meet the specified test requirements. All quarried Products shall be cured in the quarry and stockpiled for a minimum of 48 hours after blasting during which time the atmospheric temperature does not drop below 40° F prior to shipment to the site of the construction.
 4. Stone materials shall be produced only from quarries in areas free of marine basalt flows, reefs, shale, or chert.
 5. Each stone shall not have a longest dimension greater than three times its shortest dimension.
 6. Any stone containing an inferior stone material portion that does not meet the specified test requirements will be rejected as unsatisfactory and shall be removed from the project area at the Contractor's expense.
 7. Weak or inferior appearing portions of any non-uniform type stone such as igneous flow breccias, volcanic breccias, scoria, cataclastic metamorphics, or irregularly cemented sedimentaries shall be subjected to all testing to determine that the stone will not be susceptible to splitting or differential weathering.

2.06 STONE QUALITY TESTING

- A. Separate tests shall be made for each different stone type. All costs of tests shall be borne by the Contractor and shall be incidental to placing materials. All tests shall be conducted by an independent laboratory acceptable to the Owner's Representative. In the event any stone type in the sample fails to pass the required tests, subsequent tests for that stone type shall also be

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conducted at the Contractor's expense. The Owner's Representative will be notified of the results of laboratory tests. Satisfactory Contractor documentation of laboratory test results on stone sample will not constitute approval of all stone in the quarry and will not in any way change the Contractor's responsibility for obtaining, developing, and maintaining a satisfactory source of stones. Throughout the duration of this contract, the Owner's Representative may sample and test stones delivered to the construction site and proposed for use in the construction. No contract extension will be granted for specified submittal and testing time or because materials fail to meet the specification requirements.

- B. The test results reported by the laboratory will be considered as exact results for unit weight, absorption, abrasion, accelerated expansion, or other necessary supplemental tests, regardless of any permissible variance that may be established by test procedures in determining the acceptability of stone furnished under this contract. Test procedures to be utilized and required values are as follows:

Armor Stone and Bedding Stone Testing Requirements

Test	Required Value	Test Method
Specific Gravity	>2.60	ASTM C127
Water Absorption	<2.7%	ASTM C127
Sodium Sulfate Soundness	<10% loss (after 5 cycles)	ASTM C88
L.A. Abrasion	<25% loss** (after 500 revolutions)	ASTM C535
Unconfined Compressive Strength	>10,000psi	ASTM D2938
Expansive Breakdown in Ethylene Glycol	<5% loss in 15 days	CRD C148*

* The proposed stone should be free of the presence of clay minerals in the stone fabric. If during the Owner's Representative review of the proposed stone source, clay is observed in the stone and laboratory tests (from past 12 months) are not available to validate conformance with the specification, the Contractor will be required to conduct a new test and ensure compliance with the specified value.

- C. The Contractor shall perform a drop test on armor stone for each load delivered or as determined necessary by the Owner's Representative. The drop test shall be performed by dropping a stone specimen, selected by the Owner's Representative, from a height of half the average diameter of the stone onto a rigid surface or second stone. Stone fracturing as a result of the drop test constitutes test failure. Individual fractured stones will be

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rejected for use as armor stone. If a stone fractures as a result of the drop test, the Owner's Representative may elect to test other stones from the same load. If multiple stones from a single load fail the drop test, the Owner's Representative may elect to reject the entire load for use as armor stone.

- D. In the event any stone in the sample fails to pass the required tests, subsequent tests for that stone type shall also be conducted at the Contractor's expense. Samples shall be delivered to the testing lab within five (5) business days after receipt of notification of insufficient or unsatisfactory lab tests. No contract extension will be granted for specified submittal and testing time or because materials fail to meet the specification requirements.
- E. Failure of Stones: Stones failing to meet the specified requirements or as determined by the Owner's Representative to be in non-conformance shall be removed from the project site. No materials or stones shall be placed until those materials or stones have been approved for use by the Owner's Representative. Individual stones failing to meet specified requirements, or loads containing more than 10 percent by weight of stones failing to meet specified requirements, will be rejected prior to placement, or shall be removed from the site if placed on the prepared site.

2.07 GRADATION

- A. The stone shall conform to the following size gradation for the in-place condition. The percent smaller value shall not be less than that listed for each weight or size category for the materials described below.

1. Armor Stone

Approximate Size (in)	Percent Passing (Smaller)
42	100
36	80-95
30	50-80
22	15-50
14	15 max

2. Bedding Stone Type I

Use aggregate consisting of naturally angular or manufactured crushed aggregate having strong, durable particles that are free of adherent coatings and deleterious materials such as organics or construction debris. The fracture requirement shall be at least one fractured face and applies to the combined aggregate retained on the No. 4 sieve in accordance with AASHTO T 335.

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Sieve Size	Percent Passing
8 inches	100
3 inches	95-100
2 inches	90-95
1.5 inches	85-92
3/8 inch	45-55
No. 4	25-35
No. 8	10-20
No. 16	3-10
No. 30	0-2

3. Bedding Stone Type II

Stone Size (inches.)	Percent Passing
8	100
3	40 max.
$\frac{3}{4}$	10 max.

- B. Gradation tests of the stone shall be accomplished at the quarry. Tests by weight shall be made by the Contractor in the presence of the Owner's Representative. The Contractor shall notify the Owner's Representative not less than three (3) working days in advance of each test. A minimum of one gradation test shall be performed for each 1,000 tons of stone.
- C. Specified gradation is for the installed (in-place) condition. The Contractor shall consider breakage during material handling, delivery and installation in order to provide the specified in-place stone gradations.

2.08 OWNER FURNISHED MATERIALS

- A. Material furnished by the Owner include Armor Stone, Bedding Stone I, and Bedding Stone II in the approximate quantities indicated in the Contract Documents
- B. Coordinate a visual inspection of the material with the Engineer prior to transporting the material to the site.
- C. Materials meet the gradation and performance requirements indicated in the specifications

PART 3 – EXECUTION

3.01 SITE PREPARATION

- A. Preparatory works include general excavation, scour hole fill and compaction. Excavation and fill works shall be executed in accordance with

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the Contract Drawings and as specified within Section 31 00 00 – Excavation and Fill, as specified herein, and in accordance with any applicable requirements of related sections. Excavation shall only include what is needed to place geotextile and construct the bedding stone and armor stone as shown on the Contract Drawings.

- B. Excavation. Immediately prior to placing stone, the area to receive the stone will be inspected by the Owner's Representative and/or Owner's Construction Manager, and no material shall be placed thereon until that area has been approved.

3.02 GEOTEXTILE INSTALLATION

- A. The geotextile shall be installed on the prepared base as described below and within the limits shown on the Contract Drawings.
- B. Geotextile shall be kept dry and wrapped such that it is protected from the elements during shipping and storage. At no time shall the geotextile be exposed to ultraviolet (sun) light for a period exceeding seven days. The geotextile shall be labeled as per ASTM D4873.
- C. The area to receive the geotextile shall be cleared of any debris or obstructions which may damage the geotextile. The geotextile must be placed to cover the footprint shown on the Contract Drawings prior to placement of stone material.
- D. The installed geotextile shall have no tears or punctures.
- E. Should the geotextile be torn or punctured, the damaged area shall be repaired by the Contractor. The repair shall consist of a patch of the same type of geotextile which replaced the ruptured area. All geotextile within 2 feet of the ruptured area shall be removed from the geotextile by cutting the geotextile using a method which produces a smooth geotextile edge and does not cause geotextile ripping or tearing. The patch shall be sewn onto the geotextile using a double sewn "Flat" seam, one inch from the edge, Type Ssn-2, may be used for the repair. The stitch density shall be six stitches per inch. High strength polypropylene, polyester, or Kevlar thread shall be used.
- F. All non-sewn geotextile fabric panel seams shall be overlapped at a minimum distance of 3 feet.
- G. The geotextile fabric shall be unrolled and laid smooth without excessive wrinkles. The Contractor may elect to sew fabric seams. A double sewn "J" seam, Type Ssn-2, with parallel stitching spaced approximately 0.5 inches apart, shall be used for both factory and field sewn seams. The seams shall be sewn in such a manner that the Owner's Representative and/or Owner's Construction Manager can inspect the seam readily. High strength polypropylene, polyester, of Kevlar thread shall be used. If a patch of fabric is to be placed on damaged fabric for the purpose of repairing the fabric,

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then a double sewn “flat” or “prayer” seam, 1 inch from the edge of the fabric, Type Ssa-2, may be used for this repair. Stitch density shall be 6 stitches per inch.

- H. Geotextile shall be placed with the machine direction perpendicular to the river flow with a minimum 1-foot of the upstream geotextile overlapping the downstream geotextile.
- I. The geotextile shall be placed in the manner and at the locations shown on the Contract Drawings. The Contractor shall prepare the surface to receive the geotextile to ensure that the surface is relatively smooth and free of obstructions, depressions, debris, or stone that could damage the geotextile during placement. Geotextile placement areas shall be protected from inundation of currents and waves until the geotextile, bedding stone and armor stone are installed to a level above the native ground elevation.
- J. Geotextile shall be temporarily anchored into its final position, using sandbags and other methods that will not rupture the geotextile, prior to the placement of bedding stone and/or armor stone on the geotextile.
- K. At the time of installation, the geotextile shall be rejected if it has defects, rips, holes, flaws, deterioration or damage incurred during manufacture, transportation or storage. The geotextile shall be protected at all times during construction to ensure that the original chemical and physical properties of the geotextile are not changed.
- L. All wrinkles and sags shall be stretched out immediately before stone is placed on the geotextile. The geotextile shall be protected from damage during placement of stone. This shall be accomplished by limiting the height of drop to less than 1 foot. In the event that this damages the geotextile, the stone shall be placed directly on the geotextile with zero height of drop. Before placement technique will not damage the geotextile. Any geotextile that is rejected or damaged shall be replaced by the Contractor at no additional cost to the Owner.

3.03 GENERAL STONE PLACING

- A. Stone shall be delivered to the project site for installation by methods that will minimize multiple re-handling of the materials to minimize breakage. Acceptance of stone gradations will be provided by the Owner's Representative and/or Owner's Construction Manager based on in-place materials. If excessive breakage occurs so that in-place required gradations are not being provided, the installed stone may be rejected by the Owner's Representative and/or Owner's Construction Manager which require the Contractor to remove and replace the installed materials.
- B. Armor and bedding stone shall be mechanically placed on secured geotextile fabric layer in such manner that will produce a well-keyed mass of stone (with maximum level of stone interlocking) to the lines, grades and thickness shown on the Contract Drawings. Stone shall be placed to its full

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course thickness in one operation and in such a manner as to avoid displacing the underlying material. Placing stone through chutes, dropping more than 2 feet (above or below water surface), and other methods which may segregate the various sizes or damage the armor stone or underlying material will not be permitted. The large stones shall be well distributed in the mass of stones.

- C. Rearranging of individual armor stones will be required to the extent necessary to achieve the results specified herein. Any stonework which contains objectionable segregation of stone sizes shall be excavated, removed from the site of the work, and replaced with material conforming with these Specifications.
- D. Placement of bedding stone and armor stone shall be suspended when adverse weather, and flow conditions do not allow for proper placement.
- E. Stone shall be placed within the limits shown on the Contract Drawings. All stone shall be placed by excavation bucket with thumb, clamshell bucket, stone grab, or by some other method approved by the Owner's Representative that will not drop or cast the stone, but will release the stone in such a manner that they will be properly interlocked with the underlying or adjacent stones to resist displacement by turbulent flow action and provide a uniform and compact section. Stones shall be firmly set and well supported by underlying or adjacent stones to resist displacement by turbulent flow action and provide a uniform and compact section.
- F. The Contractor shall place the stone using methods, techniques, and equipment that will produce a tight-fitting mass of stone.
- G. Armor Stone shall be installed using the "Selected Placement" method. This method requires the careful selection and mechanical placement of individual armor stones to achieve a high degree of interlocking and stability between adjacent stones. Individual stones shall be selected for placement on the structure and repositioned as necessary to produce a tight fitting and interlocked structure.
- H. Stone shall be constructed, within the specified tolerance, to the lines and grades shown on the Contract Drawings. The Contractor will not be paid for stone placed outside the allowable tolerance. The Contractor shall relocate the unsatisfactorily placed stone within the specified limits for payment or the weight of the stone so misplaced will be estimated by the Owner's Representative and the payment deductions shall be determined from this estimate and the bid unit price of the stone.
- I. The largest armor stones shall be well distributed and the entire mass of armor stones in their final position shall be graded to conform to the gradation specified in Part 2 above. The finished armor stone slopes shall be free from objectionable pockets of small stones and clusters of larger stones.

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- J. Placing stone by dumping it at the top of the slope and pushing it down the slope will not be permitted. The desired distribution of the various sizes of stones throughout the mass shall be obtained by selective loading of the material at the quarry or other source, by controlled dumping of successive loads during final placing, or by other methods of placement that will produce the specified results.
- K. Rearranging of individual armor stones by mechanical equipment will be required to the extent necessary to obtain a reasonably well-graded distribution of armor stone sizes as specified above.
- L. The Contractor shall maintain the stone until accepted and any material displaced prior to acceptance and due to the Contractor's negligence shall be replaced at his own expense and to the lines and grades shown on the Contract Drawings.
- M. Smaller armor stone shall be utilized to "chink" the voids of the pad.
- N. Placing of armor stone shall ensure that the stones are firmly set and supported by underlying materials and adjacent stones. Stones shall be placed such that at least three sides of the placed stone are in contact with the adjacent in-place stones. Loose and unstable stones shall be reset by picking the stone up off the slope and twisting and rolling it back into its required position or be replaced with a different stone to ensure sufficient stability.

3.04 ARMOR STONE

- A. The armor stone shall be constructed as specified herein and at the locations and geometrical configuration as shown on the Contract Drawings.
- B. The armor stone layers of the pad shall be constructed to thickness at a minimum equal to 2 diameters of the median size of the respective stone type. Stones shall be placed in such a manner as to provide the 2-stone thickness at a minimum or as indicated on the Contract Drawings.

3.05 BEDDING STONE TYPE I

- A. The bedding stone layer shall be constructed to the thickness indicated on the Contract Drawings.
- B. Place bedding stone on 12-inch lifts and compact prior to placing the next lift.

3.06 BEDDING STONE TYPE II

- A. The bedding stone layer shall be constructed to the thickness indicated on the Contract Drawings.

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Section 35 31 23 – ARMOR STONE

3.07 WORK SEQUENCE

- A. It is the Contractor's responsibility to develop a work method to ensure all excavations are protected while the works are being constructed. The Contractor shall take permit requirements into consideration in developing their work approach and sequencing plan. See Contract Drawings for details and requirements on construction sequencing.

3.08 TOLERANCES

- A. Vertical
 - 1. A tolerance of plus 6 inches or minus 6 inches from the surface plane of the Armor Stone layer shown will be allowed for armor stone placement. A tolerance of plus 3 inches or minus 3 inches from the surface plane of the bedding stone layer shown will be allowed for bedding stone installation. Either extreme of such tolerance shall not be continuous over an area greater than 200 square feet. The tolerance limit will be determined on the basis of the average surface elevation within 10 square feet. The armor stone surface shall be shaped with plating equipment or bucketing in order to achieve a uniform surface with no stones protruding more than 6 inches from the average surface area.
- B. Horizontal
 - 1. The horizontal location tolerance of the extents of armor stone, as measured along the centerline, will be 1 foot laterally along the length of the outlet dam structure as indicated on the Contract Drawings.

3.09 PROTECTION OF EXCAVATION AND SHORELINE

- A. Alteration or disturbance of existing shorelines shall be limited to that necessary to construct the project to the lines and grades shown on the Contract Drawings. Excavated slopes shall be protected from erosion during construction. The stone protection shall be maintained until accepted, and any material displaced shall be replaced to the lines and grades shown.
- B. Excavated slopes, geotextile, bedding stone, and armor stone shall be protected from erosion and sand infilling by concurrently constructing geotextile, bedding stone and armor stone layers.

3.10 PROTECTION OF DISTURBED SURFACES

- A. All upland disturbed areas shall be stabilized with environmental protection requirements in accordance with Technical Specification 01 57 13 – Temporary Erosion and Sediment Control.

3.11 INSPECTION

- A. Slope lines, grades, and placement of stone shall be inspected and/or tested for gradation. The Owner's Representative and/or Owner's

DIVISION 35 – WATERWAY AND MARINE CONSTRUCTION

Section 35 31 23 – ARMOR STONE

Construction Manager may perform inspection of the stone prior to placement. However, this inspection does not relieve the Contractor from performing the in-place inspection. The Owner's Representative will review the results of the Contractor's intermediate progress surveys specified in Section 01 71 23 – Construction Surveying. The Contractor shall provide sufficient notification and time for the Owner's Representative to check and inspect installed materials prior to placement of overlying material layers.

3.12 WORK AREA ISOLATION

- A. So that construction operations progress successfully, the excavation areas shall be isolated and protected from adverse environmental conditions as to prevent sloughing of excavation slopes and deposition of suspended sediments. The Contractor shall use an isolation system capable of withstanding the hydrodynamic conditions at the project site during the construction to protect the excavation and installed materials. A description of the proposed work isolation method shall be submitted to the Owner's Representative.

3.13 TRUCK MEASUREMENT METHOD

- A. Any trucks used to transport new material shall be measured in accordance with Specification Section 01 20 00 Measurement and Payment.

END OF SECTION

APPENDIX A – PERMIT DOCUMENTS

CONTENTS

1. IDWR Stream Alteration Permit No. S97-20058 Extension
2. IDWR Certificate of Approval
3. USACE Permit No. NWW-2019-00370 Reverification
4. USACE Permit No. NWW-2019-00370 Priest Lake Outlet Dam
5. DEQ Section 401 Water Quality Certification
6. IDWR Permit No. S97-20058



IDAHO DEPARTMENT OF
WATER RESOURCES

Northern Region • 7600 N Mineral Drive, Suite 100 • Coeur D'Alene, ID 83815-7763
Phone: 208-762-2800 • Fax: 208-762-2819 • Email: northerninfo@idwr.idaho.gov • Web: idwr.idaho.gov

Governor Brad Little

Director Gary Spackman

January 5, 2023

Idaho Water Resources Board
PO Box 83720
Boise, ID 83720

RE: Extension of time for **Stream Channel Alteration Permit** State ID No. **S97-20058**

Dear Mr. Morrison:

This office has reviewed your request for an extension of the above referenced permit issued to alter a stream channel and has prepared as provided for in Section 42-3805, Idaho Code.

You may consider this letter as an extension of your permit and modifications to alter Priest River. Project activities include extending scour apron, downstream rock armoring, and gate extensions and strengthening. All conditions, instream work windows and construction procedures approved under the original permit remain in effect.

THIS PERMIT SHALL NOW EXPIRE ON December 31, 2023.

If you object to the decision issuing this permit with the above conditions, you have 15 days in which to notify this office in writing that you request a formal hearing on the matter. If an objection has not been received within 15 days, the decision will be final.

Please contact the Stream Channel Protection Specialist at (208) 762-2800 or Emily.Barnes@idwr.idaho.gov if you have any questions regarding this matter.

Sincerely,

Emily Barnes
Stream Channel Protection Specialist

cc: Megan Biljan, U.S Army Corps of Engineers
Chantilly Higbee, Idaho Department of Environmental Quality
Merritt Horsmon, Idaho Department of Fish and Game
Mike Ahmer, Idaho Department of Lands



DAM and RESERVOIR CERTIFICATE of APPROVAL

This document certifies that:

Priest Lake Dam located in Section 6, T50N, R4W, Bonner County has been inspected by the Idaho Department of Water Resources Dam Safety program as provided in Title 42, Chapter 17 Idaho Code, and is hereby approved to impound water in Priest Lake, not to exceed an operating water surface greater than the top of the radial gate(s) in the primary outlet spillway placed in their closed position(s) however, subject to the following terms and conditions:

- This Certificate supersedes all previous versions;
- This Certificate will expire on **December 31, 2023**;
- Authorized storage is based on the results of periodic inspection and the continued maintenance, repair, and proper operation of the structure by the owner for the protection of public safety;
- This Certificate is the property of the State of Idaho and may be revoked at any time upon written notice if the Department determines the structure is unsuitable to impound water, and thus constitutes a danger to life or property located downstream;
- Reservoir storage is limited to existing and valid water right(s) as may be required or recorded by the Department of Water Resources;
- The Owner shall adhere to the Interseason Dam Operations Recommendations on file with the Department for the continued safe operation of the dam until construction is complete or until superseded by a replacement Operation Manual/ Emergency Action Plan.

Dated this 29th day of December, 2022

A handwritten signature in blue ink, appearing to read "John Falk", is written over a horizontal line.

John Falk, P.E.
Dam Safety Program Manager

COPY



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
COEUR D'ALENE REGULATORY OFFICE
1910 NORTHWEST BOULEVARD, SUITE 210
COEUR D'ALENE, IDAHO 83814-2676

January 31, 2023

WALLA WALLA DISTRICT
REGULATORY DIVISION

SUBJECT: NWW-2019-00370, Priest Lake Outlet Dam

Mr. Rick Collingwood
Idaho Water Resource Board
PO Box 83720
Boise, Idaho 83720

Dear Mr. Collingwood:

We have determined that the Idaho Water Resource Board's proposed Priest Lake Outlet Dam project is authorized in accordance with Department of Army (DA) **Nationwide Permit (NWP) No. 03: Maintenance**. This project is located within Section 6 of Township 59 North, Range 4 West, near latitude 48.490392° N and longitude - 116.904053° W, near Coolin, Bonner County, Idaho. Please refer to File Number NWW-2019-00370 in all future correspondence with our office regarding this project.

Project activities include the discharge of 2,965 cubic yards of rock and 390 cubic yards of concrete in Priest River, a Waters of the United States (U.S.), including wetlands, associated with replacing the existing scour apron at the Priest Lake Outfall Dam with a new 15 foot long concrete apron, with rock riprap armoring extending 30 foot downstream from the structure. Additionally, 3,440 cubic yards of gravel and 1,970 cubic yards of supersacks will be temporarily discharge associated with a temporary access road and cofferdams to facilitate construction activities. All work shall be done in accordance to the attached drawings, titled; *Idaho Water Resource Board, File No. NWW-2019-00370, Dam Maintenance, Sheets 1 through 6*, dated March 29, 2019.

DA permit authorization is necessary because your project may involve the discharge of fill material into waters of the U.S. This authorization is outlined in Section 404 of the Clean Water Act (33 U.S.C. 1344).

You must comply with all general, regional, and special conditions, for this verification letter to remain valid and to avoid possible enforcement actions. The general and regional permit conditions for *NWP No. 03: Maintenance* are attached and also

available online¹. In addition, you must also comply with the special conditions listed below.

The following Special Conditions include:

- a. This Corps permit does not authorize you to take an endangered species, in particular the bull trout. In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (ESA); e.g. an ESA Section 10 permit or Biological Opinion (BO) under ESA Section 7, with "incidental take" provisions with which you must comply.

The U.S. Fish and Wildlife Service (USFWS) in their October 18, 2019 Letter of Concurrence agrees that the potential impacts of your project are not likely to adversely affect listed species or their designated critical habitat.

Your authorization under this Corps permit is conditional upon your compliance with the special conditions in this permit and following the construction procedures described in your application and Biological Assessment (BA).

Failure to comply with these conditions or variance of the construction procedures that result in a take of listed species under the ESA, would constitute an unauthorized take and non-compliance with your Corps permit. To ensure ESA compliance, any changes or deviation from your permit or the action as described in our BA may necessitate re-initiation of consultation with the USFWS.

- b. The permittee is responsible for all work done by any contractor. Permittee shall ensure any contractor who performs the work is informed of and follows all the terms and conditions of this authorization, including any Special Conditions listed above. Permittee shall also ensure these terms and conditions are incorporated into engineering plans and contract specifications.

You must also comply with the conditions detailed in the attached Section 401 Water Quality Certification (WQC) issued by the Idaho Department of Environmental Quality (IDEQ) on December 4, 2020. If you have any questions regarding the conditions set forth in the WQC, please contact IDEQ directly at 208-769-1422, Coeur d'Alene Regional Office.

Nationwide Permit General Condition 30 (Compliance Certification) requires that every permittee who has received NWP verification must submit a signed certification

¹ <http://www.nww.usace.army.mil/Business-With-Us/Regulatory-Division/Nationwide-Permits/>

regarding the completed work and any required mitigation. This Compliance Certification form is enclosed for your convenience and must be completed and returned to us within 30 days of your project's completion.

This letter of authorization does not convey any property rights, or any exclusive privileges and does not authorize any injury to property or excuse you from compliance with other Federal, State, or local statutes, ordinances, regulations, or requirements which may affect this work.

This verification is valid until **March 14, 2026**, unless the NWP is modified, suspended or revoked. If your project, as permitted under this NWP verification, is modified in any way you must contact our office prior to commencing any work activities. In the event that you have not completed construction of your project by March 14, 2026, please contact us at least 60-days prior to this date. A new application and verification may be required.

We actively use feedback to improve our delivery and provide you with the best possible service. If you would like to provide feedback, please take our online survey². If you have questions or if you would like a paper copy of the survey, please contact the Walla Walla District Regulatory. For more information about the Walla Walla District Regulatory program, you can visit us online³.

If you have any questions or need additional information about this permit, you can contact me at 208-433-4476, by mail at the address in the letterhead, or email at Garrett.N.Schock@usace.army.mil. For informational purposes, a copy of this letter will be sent to: the Idaho Department of Environmental Quality, the Idaho Department of Lands, and your authorized agent, Geo Engineers, Inc.

Sincerely,



Garrett Schock
Project Manager, Regulatory Division

Encls

² <https://regulatory.ops.usace.army.mil/customer-service-survey/>

³ <http://www.nww.usace.army.mil/Business-With-Us/Regulatory-Division/>

Transfer of Nationwide Permit Form

TRANSFER OF NATIONWIDE PERMIT

When the structures or work authorized by this Nationwide Permit, **NWW-2019-00370**, **Priest Lake Outlet Dam**, are still in existence at the time the property is transferred. The terms and conditions of this Nationwide Permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this Nationwide Permit, the associated liabilities and compliance with the terms and conditions the transferee must sign and date below.

Name of New Owner:

Street Address:

Mailing Address:

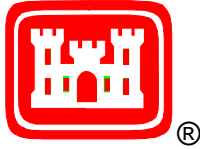
City, State, Zip:

Phone Number:

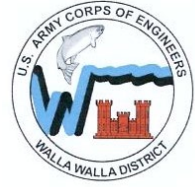
Signature of TRANSFEREE

DATE

COMPLIANCE CERTIFICATION



US Army Corps of Engineers
Walla Walla District



Permit Number: NWW-2019-00370

Name of Permittee: Idaho Water Resource Board

Date of Issuance: January 31, 2023

Upon completion of the activity authorized by this permit and any mitigation required by the permit, please sign this certification and return it to the following address:

U.S. Army Corps of Engineers
Walla Walla District
Coeur d'Alene Regulatory Office
1910 Northwest Blvd., Suite 210
Coeur d'Alene, Idaho 83814-2676

Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with all terms and conditions of this permit, the permit is subject to suspension, modification, or revocation and you are subject to an enforcement action by this office.

I hereby certify that the work authorized by the above-referenced permit has been completed in accordance with the terms and conditions of the said permit. The required mitigation was also completed in accordance with the permit conditions.

Signature of PERMITEE

DATE



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
COEUR D'ALENE REGULATORY OFFICE
1910 NORTHWEST BOULEVARD, SUITE 210
COEUR D'ALENE, IDAHO 83814-2676

October 29, 2019

Regulatory Division

SUBJECT: NWW-2019-00370, Priest Lake Outlet Dam

Mr. Rick Collingwood
Idaho Water Resource Board
PO Box 83720
Boise, Idaho 83720

Dear Mr. Collingwood:

We have determined that the Idaho Water Resource Board's proposed Priest Lake Outlet Dam project is authorized in accordance with Department of Army (DA) **Nationwide Permit (NWP) No. 03: Maintenance**. This project is located within Section 6 of Township 59 North, Range 4 West, near latitude 48.490392° N and longitude - 116.904053° W, in Bonner County, near Coolin, Idaho. Please refer to File Number NWW-2019-00370 in all future correspondence with our office regarding this project.

Project activities include the discharge of 2,965 cubic yards of rock and 390 cubic yards of concrete in Priest River, a Waters of the United States (U.S.), including wetlands, associated with replacing the existing scour apron at the Priest Lake Outfall Dam with a new 15 foot long concrete apron, with rock riprap armoring extending 30 foot downstream from the structure. Additionally, 3,440 cubic yards of gravel and 1,970 cubic yards of supersacks will be temporarily discharge associated with a temporary access road and cofferdams to facilitate construction activities. All work shall be done in accordance to the attached drawings, titled; *Idaho Water Resource Board, File No. NWW-2019-00370, Dam Maintenance, Sheets 1 through 6*, dated March 29, 2019.

AUTHORITY

DA permit authorization is necessary because your project would involve the discharge of dredged and/or fill material into Waters of the U.S., including wetlands. This authorization is outlined in Section 404 of the Clean Water Act (33 U.S.C. 1344).

PERMIT CONDITIONS

You must comply with all regional, general, and special conditions for this verification letter to remain valid and to avoid possible enforcement actions. The regional and general permit conditions for *NWP No. 03: Maintenance* are available online at

<http://www.nww.usace.army.mil/Business-With-Us/Regulatory-Division/Nationwide-Permits/>. If you are unable to access this website or would prefer a hard copy of the regional and general conditions please notify us and we will provide you a copy. In addition you must also comply with the special conditions listed below.

The following Special Conditions include:

- a. This Corps permit does not authorize you to take an endangered species, in particular the bull trout. In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (ESA); e.g. an ESA Section 10 permit or Biological Opinion (BO) under ESA Section 7, with "incidental take" provisions with which you must comply.

The U.S. Fish and Wildlife Service (USFWS) in their October 18, 2019 Letter of Concurrence agrees that the potential impacts of your project are not likely to adversely affect listed species or their designated critical habitat.

Your authorization under this Corps permit is conditional upon your compliance with the special conditions in this permit and following the construction procedures described in your application and Biological Assessment (BA).

Failure to comply with these conditions or variance of the construction procedures that result in a take of listed species under the ESA, would constitute an unauthorized take and non-compliance with your Corps permit. To ensure ESA compliance, any changes or deviation from your permit or the action as described in our BA may necessitate re-initiation of consultation with the USFWS.

- b. The permittee is responsible for all work done by any contractor. Permittee shall ensure any contractor who performs the work is informed of and follows all the terms and conditions of this authorization, including any Special Conditions listed above. Permittee shall also ensure these terms and conditions are incorporated into engineering plans and contract specifications.

WATER QUALITY CERTIFICATION

You must also comply with the conditions detailed in the Section 401 Water Quality Certification (WQC) issued by the Idaho Department of Environmental Quality (IDEQ) on March 3, 2017. For your review, a copy of this 401 WQC is available on the IDEQ's website at: <http://www.deq.idaho.gov/media/60179758/nationwide-permits-2017-401-certification-0317.pdf>. If you have any questions regarding the conditions set forth in the Water Quality Certification, please contact IDEQ directly at 208-769-1422, Coeur d'Alene Regional Office.

COMPLIANCE CERTIFICATION

Further, Nationwide Permit General Condition 30 (*Compliance Certification*) requires that every permittee who has received NWP verification must submit a signed certification regarding the completed work and any required mitigation. The enclosed Compliance Certification form is enclosed for your convenience and must be completed and returned to us.

LIMITATIONS OF THIS VERIFICATION

This letter of authorization does not convey any property rights, or any exclusive privileges and does not authorize any injury to property or excuse you from compliance with other Federal, State, or local statutes, ordinances, regulations, or requirements which may affect this work.

EXPIRATION OF THIS VERIFICATION

This verification is valid until **March 18, 2022**, unless the NWP is modified, suspended or revoked. If your project, as permitted under this NWP verification is changed and/or modified, you must contact our office prior to commencing any work activities. In the event you have not completed construction of your project by March 18, 2022, please contact us at least 60-days prior to this date. A new application and verification may be required.

CUSTOMER SERVICE

We actively use feedback to improve our delivery and provide you with the best possible service. Please take our online customer service survey to tell us how we are doing. Follow this link to take the survey: http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey. If you have questions or if you would like a paper copy of the survey, call our office at 208-433-4464. For more information about the Walla Walla District Regulatory program, visit us online at <http://www.nww.usace.army.mil/Business-With-Us/Regulatory-Division/>.

If you have any questions or need additional information about this permit, you can contact me at 208-433-4474, by mail at the address in the letterhead, or email at shane.p.slate@usace.army.mil. For informational purposes, a copy of this letter will be sent to: the Idaho Department of Environmental Quality, the Idaho Department of Lands, and your authorized agent, Geo Engineers, Inc.

Sincerely,

A handwritten signature in black ink, appearing to read "Shane Slate", with a stylized flourish at the end.

Shane Slate
Project Manager
Regulatory Division

Enclosures

TRANSFER OF NATIONWIDE PERMIT

When the structures or work authorized by this Nationwide Permit, **NWW-2019-00370, Priest Lake Outlet Dam**, are still in existence at the time the property is transferred. The terms and conditions of this Nationwide Permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this Nationwide Permit, the associated liabilities and compliance with the terms and conditions the transferee must sign and date below.

Name of New Owner:

Street Address:

Mailing Address:

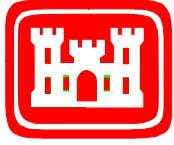
City, State, Zip:

Phone Number:

Signature of TRANSFeree

DATE

COMPLIANCE CERTIFICATION



US Army Corps of Engineers
Walla Walla District



Permit Number: NWW-2019-00370

Name of Permittee: Idaho Water Resource Board

Date of Issuance: October 29, 2019

Upon completion of the activity authorized by this permit and any mitigation required by the permit, please sign this certification and return it to the following address:

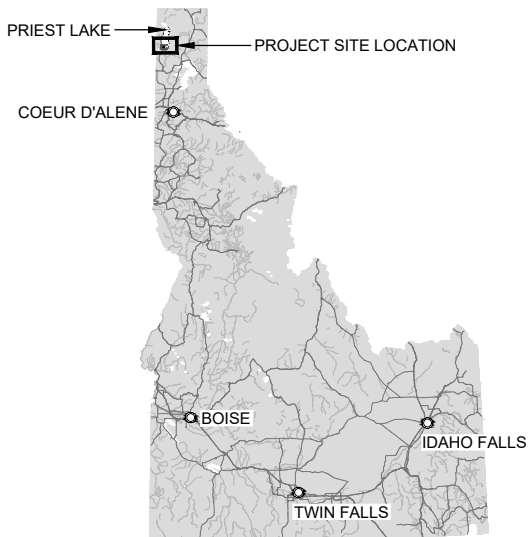
U.S. Army Corps of Engineers
Walla Walla District
Coeur d'Alene Regulatory Office
1910 Northwest Boulevard, Suite 210
Coeur d'Alene, Idaho 83814-2676

Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with all terms and conditions of this permit, the permit is subject to suspension, modification, or revocation and you are subject to an enforcement action by this office.

I hereby certify that the work authorized by the above-referenced permit has been completed in accordance with the terms and conditions of the said permit. The required mitigation was also completed in accordance with the permit conditions.

Signature of PERMITEE

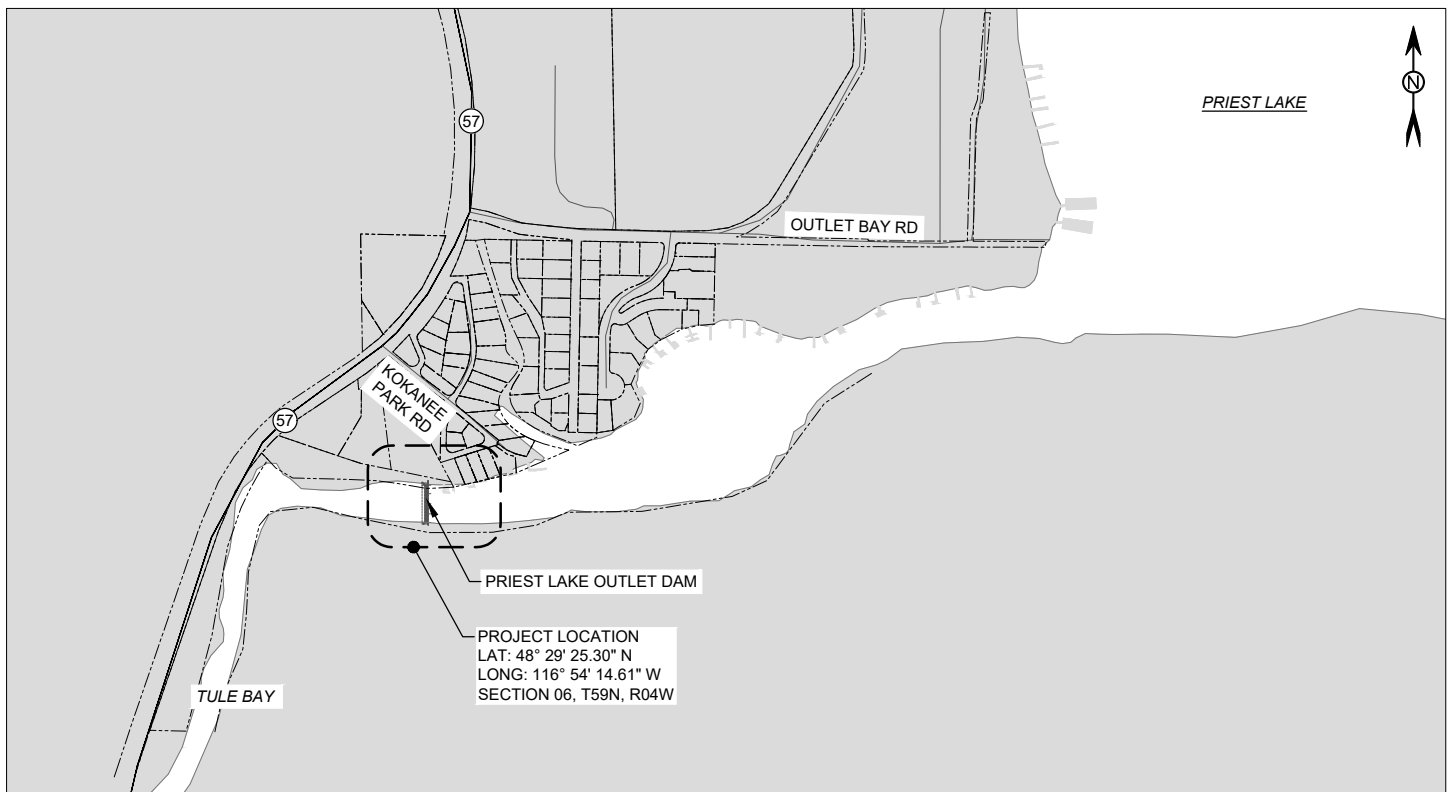
DATE



IDAHO KEY MAP

SHEET INDEX

SHEET NO.	TITLE
1	COVER SHEET
2	EXISTING SITE PLAN
3	PROPOSED SITE PLAN
4	SECTION - EXISTING
5	SECTION - PROPOSED
6	TANTER GATES - 1
7	TANTER GATES - 2
8	ACCESS AND TEMPORARY STRUCTURES



LOCATION MAP

0 500 1,000
SCALE IN FEET

PURPOSE: GATE EXTENSION AND SCOUR PROTECTION

DATUM: NAVD88

ADJACENT PROPERTY OWNERS:

Priest Lake Water Management Project Outlet Dam Modifications

COVER SHEET

APPLICATION BY:
IDAHO DEPARTMENT OF WATER RESOURCES

Applicant: Idaho Water Resource Board
File No. : NWW-2019-00370

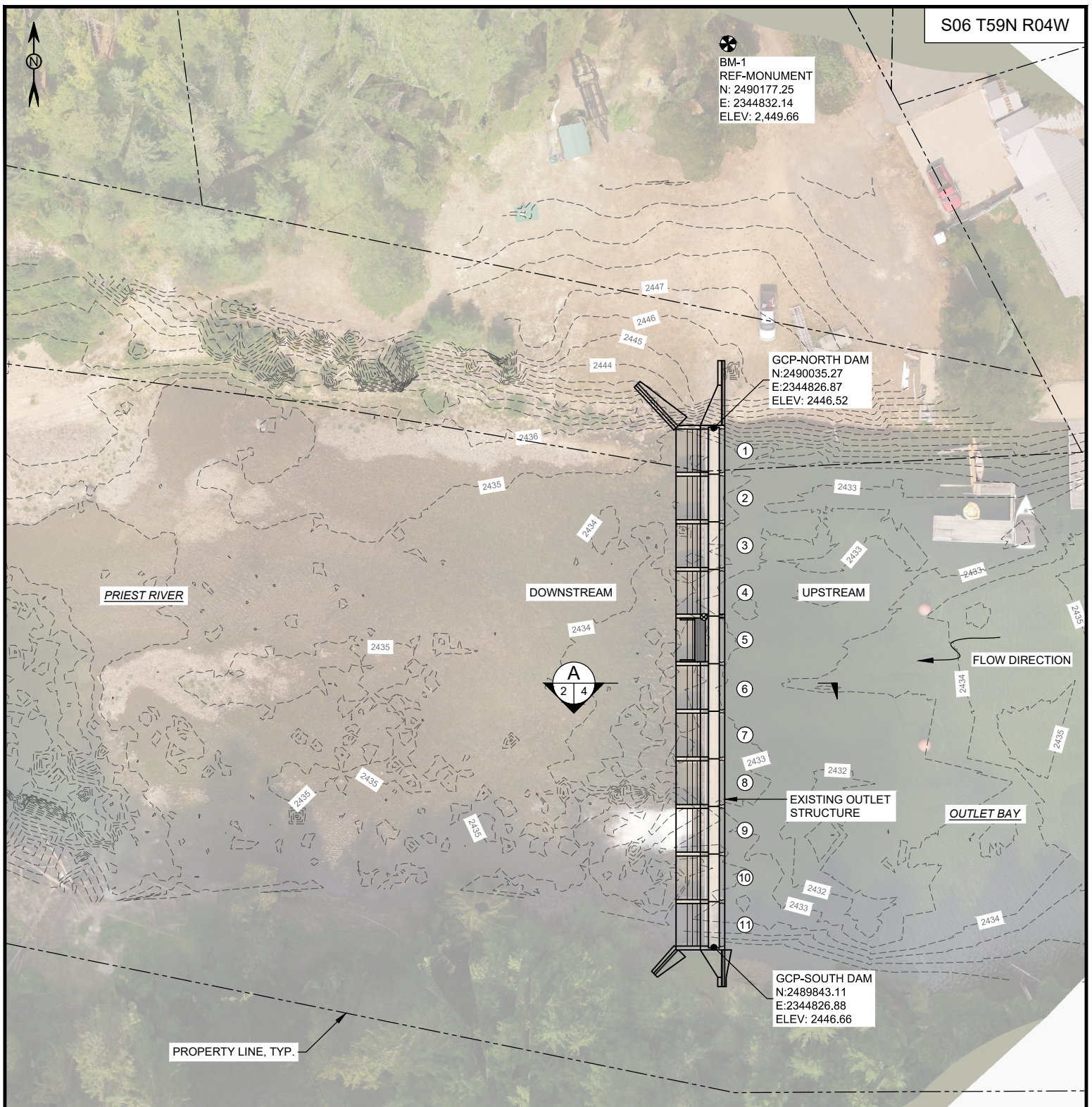
Waterway: Priest River

Proposed activity: Dam Maintenance
Sec 6, T-59N, R-4W

Lat.: 48.490392, Long.: -116.904053

Sheet 1 of 6

Date 3/29/2019



NOTES

1. TOPOGRAPHIC AND BATHYMETRY SOURCE, MOTT MACDONALD DATA COLLECTION, AUGUST-SEPTEMBER 2018.
2. HORIZONTAL DATUM: NAD83, IDAHO STATE PLANE, WEST ZONE
3. VERTICAL DATUM: NAVD88
4. AERIAL SOURCE: DELPHIS, AUGUST 2018, UAV AERIAL PHOTOGRAMMETRY

EXISTING SITE PLAN



SCALE IN FEET

LEGEND

- ⊕ BENCHMARK
- # BAY NUMBER
- PROPERTY LINES

PURPOSE: GATE EXTENSION AND SCOUR PROTECTION

DATUM: NAVD88

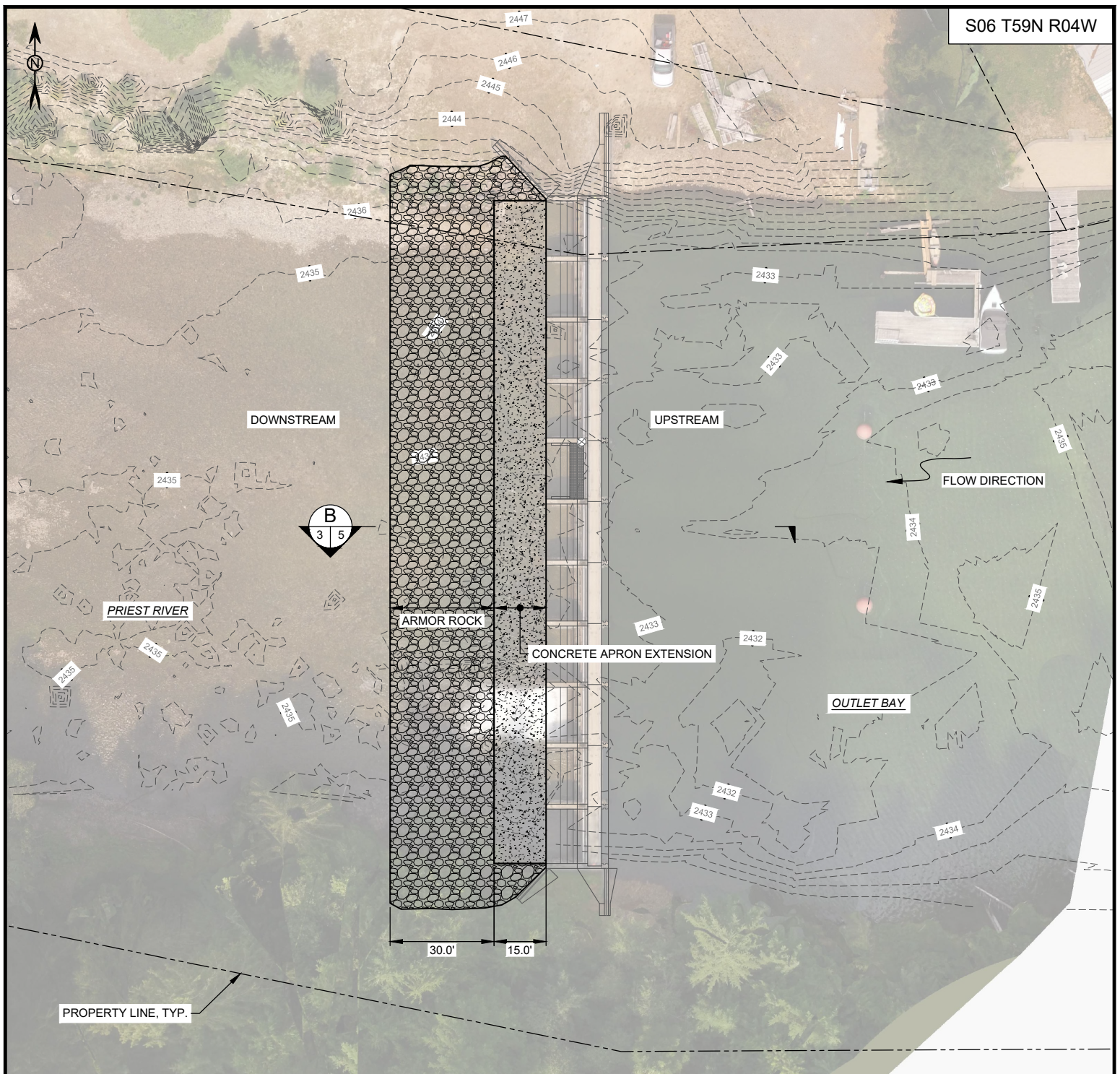
ADJACENT PROPERTY OWNERS:

Priest Lake Water Management Project Outlet Dam Modifications

EXISTING SITE PLAN

APPLICATION BY:
IDAHO DEPARTMENT OF WATER RESOURCES

Applicant: Idaho Water Resource Board
File No. : NWW-2019-00370
Waterway: Priest River
Proposed activity: Dam Maintenance
Sec 6, T-59N, R-4W
Lat.: 48.490392, Long.: -116.904053
Sheet 2 of 6 Date 3/29/2019



PURPOSE: GATE EXTENSION AND SCOUR PROTECTION

DATUM: NAVD88

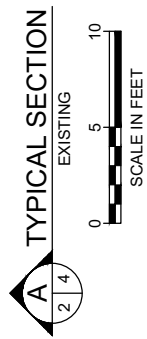
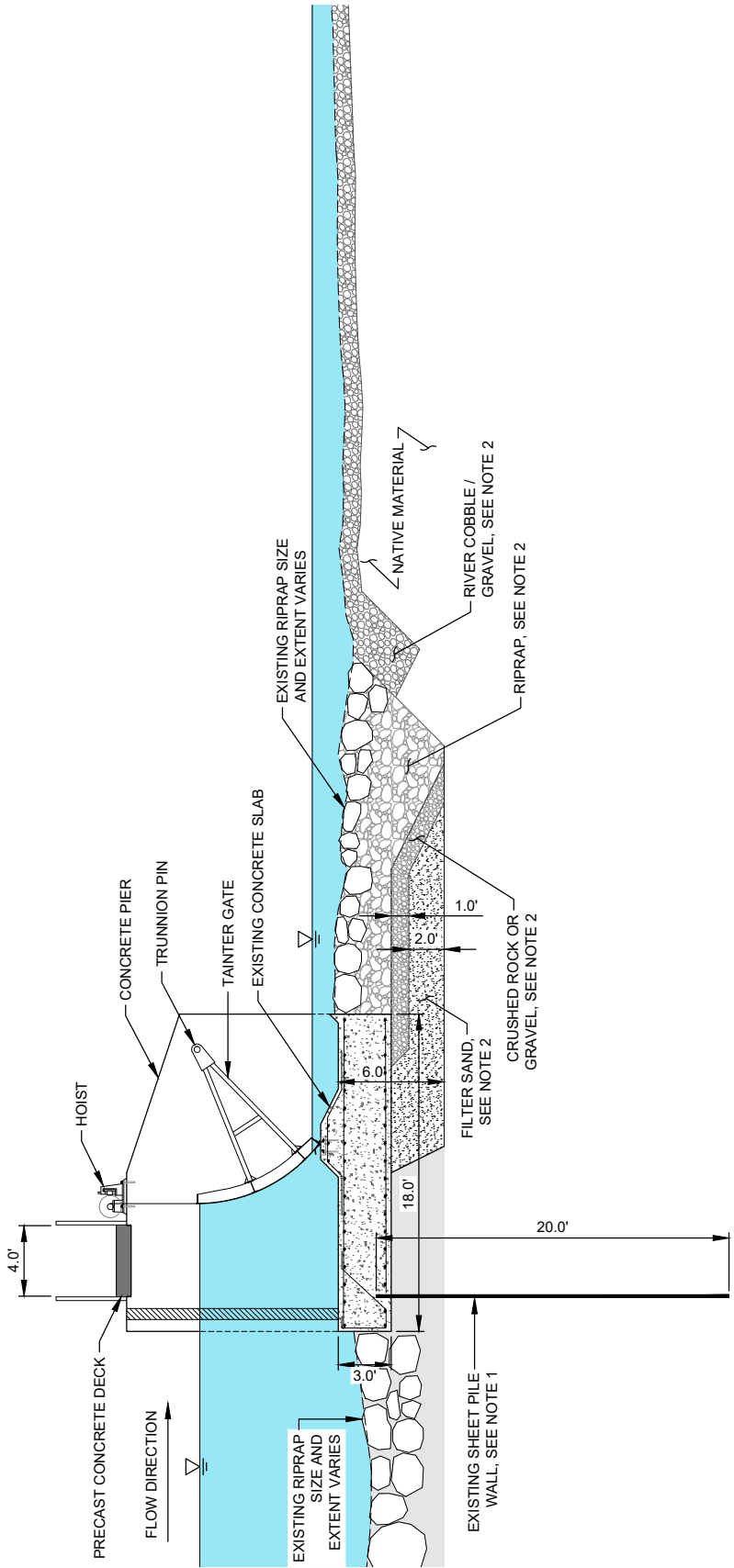
ADJACENT PROPERTY OWNERS:

Priest Lake Water Management Project Outlet Dam Modifications

PROPOSED SITE PLAN

APPLICATION BY:
IDAHO DEPARTMENT OF WATER RESOURCES

Applicant: Idaho Water Resource Board
File No. : NWW-2019-00370
Waterway: Priest River
Proposed activity: Dam Maintenance
Sec 6, T-59N, R-4W
Lat.: 48.490392, Long.: -116.904053
Sheet 3 of 6 Date 3/29/2019



NOTES

1. SHEET PILE WALL IS SHOWN PER 1978 DESIGN DRAWINGS.
2. DOWNSTREAM RIPRAP AND ROCK UNDERLAYER LIMITS ARE SHOWN PER TECHNICAL SECTION DESIGN DRAWINGS.

PURPOSE: GATE EXTENSION AND SCOUR PROTECTION

DATUM: NAVD88

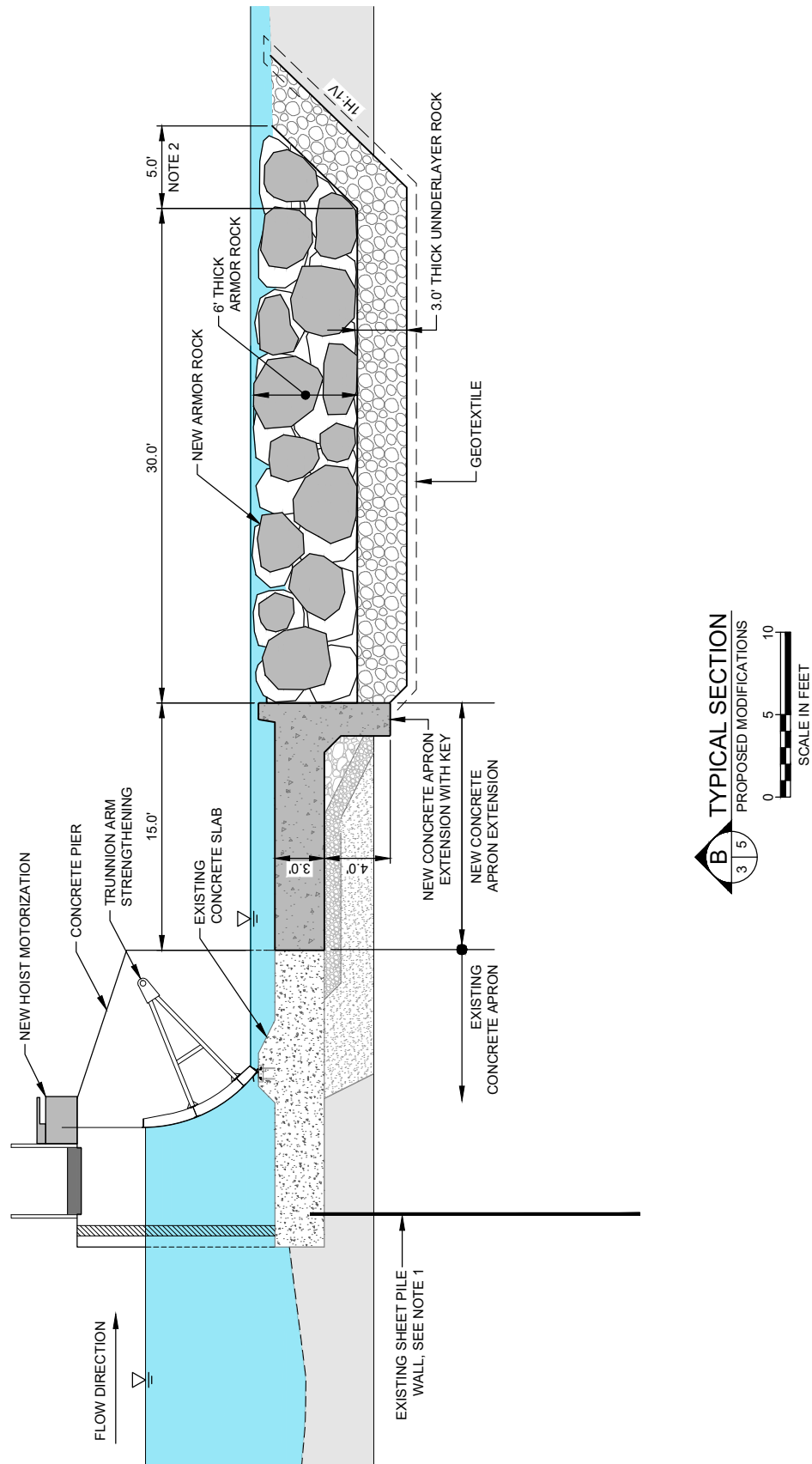
ADJACENT PROPERTY OWNERS:

Priest Lake Water
Management Project Outlet
Dam Modifications

SECTION - EXISTING

APPLICATION BY:
IDAHO DEPARTMENT OF WATER RESOURCES

Applicant: Idaho Water Resource Board
File No. : NWW-2019-00370
Waterway: Priest River
Proposed activity: Dam Maintenance
Sec 6, T-59N, R-4W
Lat.: 48.490392, Long.: -116.904053
Sheet 4 of 6 Date 3/29/2019



NOTES

1. SHEET PILE WALL IS SHOWN PER 1978 DESIGN DRAWINGS.
2. SLOPE OF ARMOR ROCK SURFACE VARIES TO MEET EXISTING.

PURPOSE: GATE EXTENSION AND SCOUR PROTECTION

DATUM: NAVD88

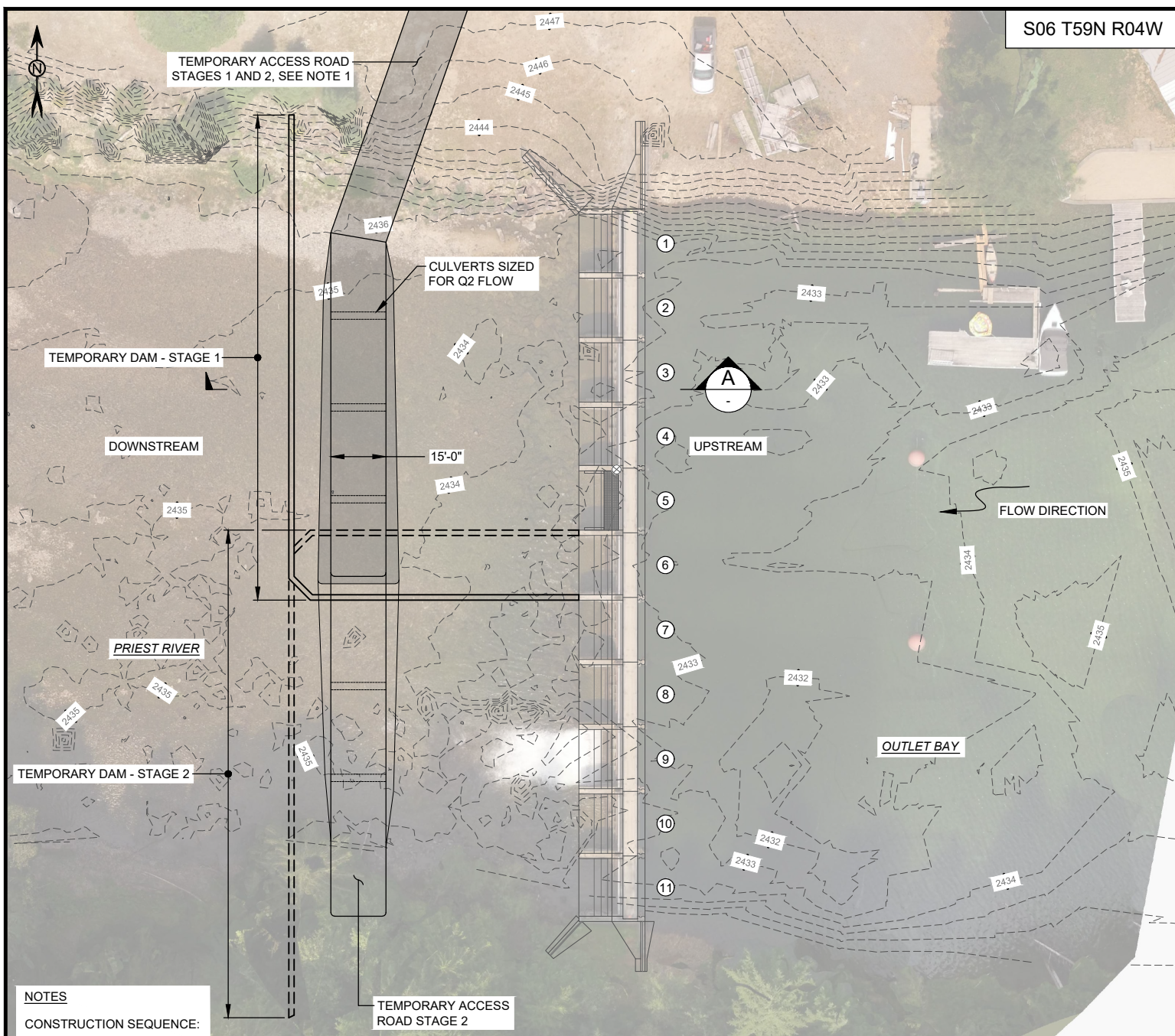
ADJACENT PROPERTY OWNERS:

Priest Lake Water Management Project Outlet Dam Modifications

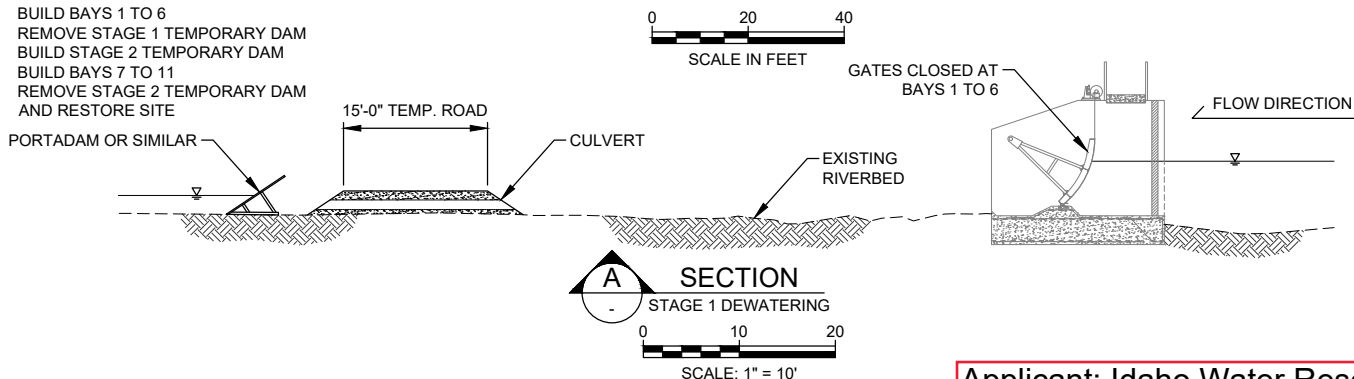
SECTION - PROPOSED

APPLICATION BY:
IDAHO DEPARTMENT OF WATER RESOURCES

Applicant: Idaho Water Resource Board
File No. : NWW-2019-00370
Waterway: Priest River
Proposed activity: Dam Maintenance
Sec 6, T-59N, R-4W
Lat.: 48.490392, Long.: -116.904053
Sheet 5 of 6 Date 3/29/2019

**NOTES****CONSTRUCTION SEQUENCE:**

1. BUILD STAGE 1 TEMPORARY DAM
2. DEWATER
3. BUILD BAYS 1 TO 6
4. REMOVE STAGE 1 TEMPORARY DAM
5. BUILD STAGE 2 TEMPORARY DAM
6. BUILD BAYS 7 TO 11
7. REMOVE STAGE 2 TEMPORARY DAM AND RESTORE SITE

ACCESS AND TEMPORARY STRUCTURES**PURPOSE:** GATE EXTENSION AND SCOUR PROTECTION**DATUM:** NAVD88**ADJACENT PROPERTY OWNERS:**

**Priest Lake Water
Management Project Outlet
Dam Modifications**

ACCESS AND TEMP STRUCTURES

APPLICATION BY:
IDAHO DEPARTMENT OF WATER RESOURCES

Applicant: Idaho Water Resource Board
File No. : NWW-2019-00370
Waterway: Priest River
Proposed activity: Dam Maintenance
Sec 6, T-59N, R-4W
Lat.: 48.490392, **Long.:** -116.904053
Sheet 6 of 6 **Date 3/29/2019**



United States Department of the Interior
U.S. Fish and Wildlife Service
Idaho Fish and Wildlife Office - Spokane
11103 East Montgomery Drive
Spokane Valley, Washington 99206
Telephone (509) 891-6839
www.fws.gov/idaho



In Reply Refer To:
FWS/R1/ES/IFWO/2019-I-1843

October 18, 2019

Shane Slate, Regulatory Project Manager
U.S. Army Corps of Engineers
Walla Walla District
Coeur d'Alene Regulatory Office
1910 Northwest Blvd., Suite 210
Coeur d'Alene, Idaho 83814

Subject: Priest Lake Outlet Dam Modifications, Bonner County, Idaho - Concurrence

Dear Mr. Slate:

This responds to the U.S. Army Corps of Engineers' (Corps) request for the U.S. Fish and Wildlife Service's (Service) concurrence on effects of the subject action to species and habitats listed under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.; [Act]). The Corps' request, dated and received by the Service on August 19, 2019, included a biological assessment (Assessment) entitled *Revised Biological Assessment Priest Lake Outlet Dam Modifications, Priest Lake, Idaho* (Project). Information contained in the Assessment is incorporated here by reference.

The Corps determined, through the Assessment, the Project would have no effect to grizzly bear (*Ursus arctos horribilis*) and North American wolverine (*Gulo gulo*). The regulations implementing section 7 of the Act do not require the Service to review or concur with no effect determinations. Through the Assessment, the Corps determined that the Project may affect, but is not likely to adversely affect the threatened bull trout (*Salvelinus confluentus*) and its designated critical habitat. The Service concurs with the Corps' determination for bull trout and its critical habitat, and presents our rationale below.

Proposed Action

The objectives of the Project are to meet statutory requirements to maintain water levels in Priest Lake between 3.0 and 3.5 feet at the outlet gauge during the summer recreation season, while simultaneously maintaining a minimum discharge of 60 cubic feet per second (cfs) from the Priest Lake outlet dam (dam). The goals of the Project are to improve the dam's structural stability and reduce scour and sedimentation risk that may result from increased pressures and water releases from storing additional surface water. The Project proposes to: 1) replace existing

rock armoring directly below the dam with a concrete scour apron; 2) install rock armoring below the scour apron to a depth of six feet; and 3) conduct improvements to mechanical components of the dam structure. The Project will begin in September of 2020 and will be completed by early 2021 prior to the spring freshet, which typically occurs in mid-March. The Project area will be gradually dewatered immediately below the dam in two separate stages to allow work to be completed in the dry in one-half of the river channel while maintaining continuous flow in the other half. Cofferdams and block nets or bubble curtains will be utilized to isolate the Project area, and pumps will be utilized to divert upwelling water from within the dewatered area. A temporary 15-foot wide access road will be constructed across the stream channel with clean angular rock and sufficiently sized culverts to facilitate equipment access to the Project area from the sole access point on the north riverbank. The Project area will be restored to pre-Project conditions after construction work has been completed. The proposed action is fully described in the Assessment (pp. 2-8).

Species and Habitat Presence in the Action Area

The dam is a complete fish barrier, preventing any migration of bull trout between Priest Lake and the Priest River. The action area extends 1000 feet downstream from the dam in the Priest River, which is designated bull trout foraging, migrating, and overwintering (FMO) critical habitat, and bull trout may be present during Project implementation. Although bull trout primarily use the Priest River to migrate in the fall between spawning and rearing habitat in the East River drainage (approximately 21 miles downstream of the action area) and FMO habitat further downstream in the Pend Oreille River (Dupont et al. 2007, pp. 1271-1273; Stash 2019, *in litt*), they may use habitat in the action area for feeding or overwintering. However, habitat in the action area consists of low quality substrate, minimal hiding cover and elevated water temperatures, and is unlikely to be supportive of bull trout (IDEQ 2018, Appendix K, p. 14; Scott 2019, *in litt*).

Potential Impacts and Effects from the Proposed Action

Bull trout may be present but are not expected to be present in the Project area during Project implementation due to poor habitat conditions. Project effects may result from dewatering, construction-related noise, sediment and turbidity, and chemical contamination. Dewatering will be conducted gradually to encourage bull trout to move from the Project area into downstream habitat. Any bull trout remaining during the drawdown will be herded downstream from the Project area by a qualified fish biologist. As a result, effects of the dewatering process, including fish herding, are expected to be insignificant. Construction-related noise is not expected to exceed levels known to disturb bull trout (Assessment p. 8), and bull trout that may be present in the action area will be able to move downstream, resulting in insignificant effects. Potential sediment plumes that may occur during construction and re-watering will be short-term and minor, and bull trout will be able to avoid potential effects by moving downstream. Use of clean aggregate, filtering of pumped water, gradual re-watering of the dry channel, and use of best management practices (BMPs) (Assessment p. 10) to monitor and control sediment will result in insignificant effects from sedimentation and turbidity. Effects from chemical contaminants will be minimized by machinery operating in the dry and usage of BMPs (Assessment pp. 10-11), resulting in discountable effects.

The Project may also affect bull trout critical habitat by permanently altering the streambed and potentially reducing the food base. Installation of the concrete scour apron and adjoining rock scour protection will result in the alteration of approximately 10,870 square feet of existing rock armoring and native riverbed materials. However, existing habitat conditions in the Project area provide little to no complexity, pools or hiding cover, and alteration of this relatively small area of habitat will not appreciably affect the overall quality of FMO habitat in the Priest River. The concrete scour apron will replace approximately 2,870 square feet of existing rock armoring that currently provides limited macroinvertebrate habitat, but this will have a negligible effect on overall prey abundance in the Priest River. As a result, effects of the Project to bull trout critical habitat are expected to be insignificant.

Concurrence

Based on the Service's review of the Assessment, we concur with the Corps' determination that the action outlined in the Assessment and this letter may affect, but is not likely to adversely affect bull trout and its designated critical habitat. This concurrence is based on expected absence of bull trout in the Project area, conducting activities in the dry, use of BMPs, and minimal alteration of critical habitat that reduce impacts of the proposed action to bull trout and its critical habitat to insignificant or discountable levels.

This concludes informal consultation on the Project. Further consultation pursuant to section 7(a)(2) of the Act is not required. As provided in 50 CFR §402.16, re-initiation of consultation on this action may be necessary if new information reveals that effects of the action may affect listed species or critical habitat in a manner, or to an extent, not considered in this consultation; if the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this consultation; and/or if a new species is listed or critical habitat is designated that may be affected by this Project.

We value the dialogue between our offices that seeks to minimize impacts to listed species and aid their recovery. If you have any questions about this letter, or your responsibilities under the Act, please contact Sean Sweeney of my staff at sean_sweeney@fws.gov or phone (509) 893-8009.

Sincerely,

Patricia C. Johnson-Hughes

for Christopher Swanson
Acting Idaho State Supervisor

cc: IDFG (Horsmon)
GeoEngineers, Inc. (Scott)

References

Dupont, J.M., R.S. Brown, and D.R. Geist. 2007. Unique allacustrine migration patterns of a bull trout population in the Pend Oreille River drainage, Idaho. *North American Journal of American Fisheries Management*, 27(4):1268-1275.

Idaho Department of Environmental Quality (IDEQ). 2018. Idaho's 2016 Integrated Report – Final. Idaho Department of Environmental Quality, Boise, Idaho. 46 pp.
<https://www.deq.idaho.gov/media/60182296/idaho-integrated-report-2016.pdf>

In Litteris

Scott, J. 2019, *in litt*. Email from Jason Scott, Associate Fisheries Scientist (GeoEngineers, Inc., Spokane, Washington) to Sean Sweeney, Biologist (U.S. Fish and Wildlife Service, Spokane, Washington) thru Shane Slate, Project Manager (U.S. Army Corps of Engineers, Coeur d'Alene, Idaho). Subject: Priest Lake Dam BA questions. August 5, 2019.

Stash, S. 2019, *in litt*. Email from Sean Stash, Fisheries Biologist (U.S. Forest Service, Sandpoint, Idaho) to Sean Sweeney, Biologist (U.S. Fish and Wildlife Service, Spokane, Washington). Subject: Priest River bull trout. September 3, 2019.



STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

2110 Ironwood Parkway • Coeur d'Alene, ID 83814 • (208) 769-1422
www.deq.idaho.gov

Brad Little, Governor
John H. Tippetts, Director

October 16, 2019

Steve Klatt
Bonner County
1500 Hwy.2, Suite 101
Sandpoint, ID 83864

RE: Final §401 Water Quality Certification for the Priest Lake Thorofare Project, NWW-2018-00499

Dear Mr. Klatt,

Enclosed is the final water quality certification for the above referenced individual Army Corps of Engineers project, (NWW-2018-00499). No comments were received during the 21-day period that the document was available on our website for public comment. Please make sure that your staff and contracted individuals read the document and are familiar with conditions of the certification (pages 4-8).

If you have questions or concerns, please contact Thomas Herron at (208) 666-4631 or via email at Thomas.herron@deq.idaho.gov.

Sincerely,

A handwritten signature in blue ink, which appears to read "Daniel Redline".

Daniel Redline
Regional Administrator
Coeur d'Alene Regional Office

Enclosure

c: Shane Slate, Army Corps of Engineers – Coeur d'Alene Field Office



Idaho Department of Environmental Quality Final §401 Water Quality Certification

October 16, 2019

404 Permit Application Number: NWW-2018-00499, Bonner County – Priest Lake Thorofare

Applicant: Bonner County

Project Location: Latitude 48°44'23.21" N, Longitude -116°50'51.19" W – Lionhead boat ramp at Priest Lake Park in Bonner County in Sandpoint, ID

Receiving Water Body: Priest Lake

Pursuant to the provisions of Section 401(a)(1) of the Federal Water Pollution Control Act (Clean Water Act), as amended; 33 U.S.C. Section 1341(a)(1); and Idaho Code §§ 39-101 et seq. and 39-3601 et seq., the Idaho Department of Environmental Quality (DEQ) has authority to review activities receiving Section 404 dredge and fill permits and issue water quality certification decisions.

Based upon its review of the joint application for permit, received on August 21, 2019, DEQ certifies that if the permittee complies with the terms and conditions imposed by the permit along with the conditions set forth in this water quality certification, then there is reasonable assurance the activity will comply with the applicable requirements of Sections 301, 302, 303, 306, and 307 of the Clean Water Act, the Idaho Water Quality Standards (WQS) (IDAPA 58.01.02), and other appropriate water quality requirements of state law.

This certification does not constitute authorization of the permitted activities by any other state or federal agency or private person or entity. This certification does not excuse the permit holder from the obligation to obtain any other necessary approvals, authorizations, or permits.

Project Description

This project is designed to improve and expand navigable access between the Upper and Lower Priest lakes by dredging accumulated lakebed material from the Priest Lake Thorofare. The project will deepen the channel by five feet, dredging approximately 12,200 cubic yards of sediment, which will result in improved fish migration passage. Additionally, this project will replace the existing, dilapidated breakwater and will also extend the structure by 225 feet. This project requires the removal of 5,725 cubic yards of sediment for the breakwater footprint and will mitigate for erosion risk from wave action and bank erosion during high flows. The breakwater will be filled with approximately 10,374 cubic yards of stone, gravel and cobble. Construction of a temporary haul road may be required to ford the Thorofare at low water.

Antidegradation Review

The WQS contain an antidegradation policy providing three levels of protection to water bodies in Idaho (IDAPA 58.01.02.051).

- Tier I Protection. The first level of protection applies to all water bodies subject to Clean Water Act jurisdiction and ensures that existing uses of a water body and the level of water quality necessary to protect those existing uses will be maintained and protected (IDAPA 58.01.02.051.01; 58.01.02.052.01). Additionally, a Tier I review is performed for all new or reissued permits or licenses (IDAPA 58.01.02.052.07).
- Tier II Protection. The second level of protection applies to those water bodies considered high quality and ensures that no lowering of water quality will be allowed unless deemed necessary to accommodate important economic or social development (IDAPA 58.01.02.051.02; 58.01.02.052.08).
- Tier III Protection. The third level of protection applies to water bodies that have been designated outstanding resource waters and requires that activities not cause a lowering of water quality (IDAPA 58.01.02.051.03; 58.01.02.052.09).

DEQ is employing a water body by water body approach to implementing Idaho's antidegradation policy. This approach means that any water body fully supporting its beneficial uses will be considered high quality (IDAPA 58.01.02.052.05.a). Any water body not fully supporting its beneficial uses will be provided Tier I protection for that use, unless specific circumstances warranting Tier II protection are met (IDAPA 58.01.02.052.05.c). The most recent federally approved Integrated Report and supporting data are used to determine support status and the tier of protection (IDAPA 58.01.02.052.05).

Pollutants of Concern

The primary pollutant of concern for this project is sediment. As part of the Section 401 water quality certification, DEQ is requiring the applicant comply with various conditions to protect water quality and to meet Idaho WQS, including the water quality criteria applicable to sediment.

Receiving Water Body Level of Protection

This project is located on Priest Lake within the Priest Subbasin assessment unit (AU) ID17010215PN014_04 (Priest Lake Thorofare – Upper Priest Lake to Priest Lake). This AU has designated for cold water aquatic life, salmonid spawning, primary contact recreation, and domestic water supply beneficial uses. In addition to these uses, all waters of the state are protected for agricultural and industrial water supply, wildlife habitat, and aesthetics (IDAPA 58.01.02.100).

This AU is included in Category 3 (Unassessed Waters) of DEQ's 2016 Integrated Report. Therefore, DEQ must provide an appropriate level of protection on a case-by-case basis using information available at this time (IDAPA 58.01.02.052.05.b). Upstream segments of the Hughes Fork River and the Upper Priest River that feed into Upper Priest Lake are both water bodies that fully support aquatic life and contact recreation beneficial uses. Additionally, Caribou Creek,

which feeds directly into the Priest Lake Thorofare above lower Priest Lake is also a fully supporting water body. DEQ expects that lower segments of the assessment unit will retain similar high water quality. As such, DEQ will provide Tier II protection (IDAPA 58.01.02.051.02), in addition to Tier I (IDAPA 58.01.02.052.01), for the cold water aquatic life, salmonid spawning and contact recreation beneficial uses of this AU.

The only pollutant of concern associated with this project is sediment. However, sediment is not relevant to recreational uses since sediment will not degrade water quality necessary to support recreation uses, and it is therefore unnecessary for DEQ to conduct a Tier II analysis.

Protection and Maintenance of Existing Uses (Tier I Protection)

A Tier I review is performed for all new or reissued permits or licenses, applies to all waters subject to the jurisdiction of the Clean Water Act, and requires demonstration that existing uses and the level of water quality necessary to protect existing uses shall be maintained and protected. The numeric and narrative criteria in the WQS are set at levels that ensure protection of existing and designated beneficial uses.

Water bodies not supporting existing or designated beneficial uses must be identified as water quality limited, and a total maximum daily load (TMDL) must be prepared for those pollutants causing impairment. Once a TMDL is developed, discharges of causative pollutants shall be consistent with the allocations in the TMDL (IDAPA 58.01.02.055.05). Prior to the development of the TMDL, the WQS require the application of the antidegradation policy and implementation provisions to maintain and protect uses (IDAPA 58.01.02.055.04). The project will be consistent with the *Addendum – Priest River Subbasin Assessment and Total Maximum Daily Load* (DEQ 2003), which is designed to improve conditions (from sediment contributions) inside the Lower Priest River drainage.

During the construction phase, the applicant will implement, install, maintain, monitor, and adaptively manage best management practices (BMPs) directed toward reducing erosion and minimizing turbidity levels in receiving water bodies downstream of the project. In addition, permanent erosion and sediment controls will be implemented, which will minimize or prevent future sediment contributions from the project area. As long as the project is conducted in accordance with the provisions of the project plans, Section 404 permit, and conditions of this certification, then there is reasonable assurance the project will comply with the state's numeric and narrative criteria. These criteria are set at levels that protect and maintain existing and designated beneficial uses.

This project originally entertained three project alternatives, settling on a rubblemound structure for the Thorofare improvements. This alternative provides for habitat enhancement and does not utilize pile driving (disruptive to fish) while contributing a smaller footprint in the lake. The applicant will utilize the following BMPs to reduce sediment mobilization and further erosion on-site to protect water quality in the receiving waters. A temporary sand berm will be constructed to isolate work areas and divert the channel upstream from the breakwater so that construction and dredging will be conducted in dry conditions. Fish block nets or bubble curtains will be utilized around work areas. The project also allows for continued fish migration during construction. The contractor will be responsible for an approved Spill Prevention, Control and Countermeasure Plan as well as a Dredging and Dredge Material Hauling Plan.

There is no available information indicating the presence of any existing beneficial uses aside from those that are already designated and discussed above; therefore, the permit ensures that the level of water quality necessary to protect both existing and designated uses is maintained and protected in compliance with the Tier I provisions of Idaho's WQS (IDAPA 58.01.02.051.01 and 58.01.02.052.07).

Conditions Necessary to Ensure Compliance with Water Quality Standards or Other Appropriate Water Quality Requirements of State Law

General Conditions

1. This certification is conditioned upon the requirement that any modification (e.g., change in BMPs, work windows, etc.) of the permitted activity shall first be provided to DEQ for review to determine compliance with Idaho WQS and to provide additional certification pursuant to Section 401. Such modifications may not be implemented until DEQ has determined whether additional certification is necessary.
2. DEQ reserves the right to modify, amend, or revoke this certification if DEQ determines that, due to changes in relevant circumstances—including without limitation, changes in project activities, the characteristics of the receiving water bodies, or state WQS—there is no longer reasonable assurance of compliance with WQS or other appropriate requirements of state law.
3. If ownership of the project changes, the certification holder shall notify DEQ, in writing, upon transferring this ownership or responsibility for compliance with these conditions to another person or party. The new owner/operator shall request, in writing, the transfer of this water quality certification to his/her name.
4. A copy of this certification must be kept on the job site and readily available for review by any contractor working on the project and any federal, state, or local government personnel.
5. Project areas shall be clearly identified in the field prior to initiating land-disturbing activities to ensure avoidance of impacts to waters of the state beyond project footprints.
6. The applicant shall provide access to the project site and all mitigation sites upon request by DEQ personnel for site inspections, monitoring, and/or to ensure that conditions of this certification are being met.
7. The applicant is responsible for all work done by contractors and must ensure the contractors are informed of and follow all the conditions described in this certification and the Section 404 permit.
8. If this project disturbs more than 1 acre and there is potential for discharge of stormwater to waters of the state, coverage under the EPA Stormwater Construction General Permit *must* be obtained. More information can be found at <https://www.epa.gov/npdes-permits/stormwater-discharges-construction-activities-region-10>.

Erosion and Sediment Control

9. BMPs for sediment and erosion control suitable to prevent exceedances of state WQS shall be selected and installed before starting construction at the site. One resource that may be used in evaluating appropriate BMPs is DEQ's *Catalog of Stormwater Best Management Practices for Idaho Cities and Counties*, available online at <http://www.deq.idaho.gov/media/494058-entire.pdf>. Other resources may also be used for selecting appropriate BMPs.
10. One of the first construction activities shall be placing permanent and/or temporary erosion and sediment control measures around the perimeter of the project or initial work areas to protect the project water resources.
11. Permanent erosion and sediment control measures shall be installed in a manner that will provide long-term sediment and erosion control to prevent excess sediment from entering waters of the state.
12. Permanent erosion and sediment control measures shall be installed at the earliest practicable time consistent with good construction practices and shall be maintained as necessary throughout project operation.
13. Top elevations of bank stabilization shall be such that adequate freeboard is provided to protect from erosion at 100-year design flood elevation.
14. Structural fill or bank protection shall consist of materials that are placed and maintained to withstand predictable high flows in the waters of the state.
15. A BMP inspection and maintenance plan must be developed and implemented. At a minimum, BMPs must be inspected and maintained daily during project implementation.
16. BMP effectiveness shall be monitored during project implementation. BMPs shall be replaced or augmented if they are not effective.
17. All construction debris shall be properly disposed of so it cannot enter waters of the state or cause water quality degradation.
18. Disturbed areas suitable for vegetation shall be seeded or revegetated to prevent subsequent soil erosion.
19. Maximum fill slopes shall be such that material is structurally stable once placed and does not slough into the stream channel during construction, during periods prior to revegetation, or after vegetation is established.
20. To the extent reasonable and cost-effective, the activity submitted for certification shall be designed to minimize subsequent maintenance.
21. Sediment from disturbed areas or able to be tracked by vehicles onto pavement must not be allowed to leave the site in amounts that would reasonably be expected to enter waters of the state. Placement of clean aggregate at all construction entrances or exits and other BMPs such as truck or wheel washes, if needed, must be used when earth-moving equipment will be leaving the site and traveling on paved surfaces.

Turbidity

22. Sediment resulting from this activity must be mitigated to prevent violations of the turbidity standard as stipulated under the Idaho WQS (IDAPA 58.01.02). *Any violation of this standard must be reported to the DEQ regional office immediately.*
23. All practical BMPs on disturbed banks and within the waters of the state must be implemented to minimize turbidity. Visual observation is acceptable to determine whether BMPs are functioning properly. If a plume is observed, the project may be causing an exceedance of WQS and the permittee must inspect the condition of the projects BMPs. If the BMPs appear to be functioning to their fullest capability, then the permittee must modify the activity or implement additional BMPs (this may also include modifying existing BMPs).
24. Containment measures such as silt curtains, geotextile fabrics, and silt fences must be implemented and properly maintained to minimize instream sediment suspension and resulting turbidity.
25. Monitoring must occur each day during project implementation when project activities may result in turbidity increases above background levels. *A properly and regularly calibrated turbidimeter is required.*

Turbidity Monitoring and Compliance Requirements

To ensure compliance with Idaho's WQS, required monitoring steps shall include the following:

A. Choose and identify the following locations for each crossing:

1. Background location: A relatively undisturbed location unaffected by the construction activity, up-current from the permitted activity; and,
2. Compliance location: A location downcurrent from the permitted activity, within any visible plume, at the distance that corresponds to the size of the waterbody where work is taking place as listed on the table below:

Wetted Stream Width	Compliance Distance
Up to 30 feet	50 feet
>30 feet to 100 feet	100 feet
>100 feet to 200 feet	200 feet
>200 feet	300 feet

B. Conduct Compliance Monitoring with a Turbidimeter

1. Measure turbidity at both background and compliance locations at the frequency directed in the tables below and record the date, time, location, and turbidity measurements in the daily log. The permittee must also record all controls and practices implemented at the start of the work.
2. Turbidity measurements must be representative of stream turbidity when the activity is being conducted. *Measurements cannot be taken during a cessation of activity.*
3. If the project causes turbidity levels to increase above 50 NTU over background, the permittee must implement additional controls and practices, resume work, and

monitor both points again. A description of the additional controls and the date, time, and location where they are implemented must be recorded in the daily log.

Compliance Monitoring With a Turbidimeter

Allowable Exceedance in Turbidity	Action Required at 1st Monitoring Interval	Action Required at 2nd Monitoring Interval
0 to 24 NTU above background	Continue to monitor every 2 hours	Continue to monitor every 2 hours
25 to 49 NTU above background	Continue to monitor every 2 hours	STOP work after 8 hours/24-hour period
25 NTU above background for 10 or more consecutive days	STOP work and follow instructions in B.3. above	
50 NTU or more above background (first occurrence)	STOP work and follow instructions in B.3. above	
50 NTU or more above background (second occurrence)	STOP work and follow instructions in B.3. above and notify DEQ Regional Office	

C. Reporting—Copies of daily logs for turbidity monitoring must be made available to DEQ and other local, state and federal regulatory agencies upon request. The log must include:

1. Background NTUs, compliance point NTUs, comparison of the points in NTUs, and location, time, and date for each reading.
2. A narrative discussing all exceedances, controls applied and their effectiveness, subsequent monitoring, work stoppages, and any other actions taken.

In-water Work

26. Work in open water is to be kept at a minimum and only when necessary. Equipment shall work from an upland site to minimize disturbance of waters of the state. If this is not practicable, appropriate measures must be taken to ensure disturbance to the waters of the state is minimized.
27. Construction affecting the bed or banks shall take place only during periods of low flow.
28. Heavy equipment working in wetlands shall be placed on mats or suitably designed pads to prevent damage to the wetlands.
29. Activities in spawning areas must be avoided to the maximum extent practicable.
30. Work in waters of the state shall be restricted to areas specified in the application.

Management of Hazardous or Deleterious Materials

31. Petroleum products and hazardous, toxic, and/or deleterious materials shall not be stored, disposed of, or accumulated adjacent to or in the immediate vicinity of waters of the state. Adequate measures and controls must be in place to ensure that those materials will not enter waters of the state as a result of high water, precipitation runoff, wind, storage facility failure, accidents in operation, or unauthorized third-party activities.
32. Vegetable-based hydraulic fluid should be used on equipment operating in or directly adjacent to the channel if this fluid is available.

33. Daily inspections of all fluid systems on equipment to be used in or near waters of the state shall be done to ensure no leaks or potential leaks exist prior to equipment use. A log book of these inspections shall be kept on site and provided to DEQ upon request.
34. Equipment and machinery must be removed from the vicinity of the waters of the state prior to refueling, repair, and/or maintenance.
35. Equipment and machinery shall be steam cleaned of oils and grease in an upland location or staging area with appropriate wastewater controls and treatment prior to entering a water of the state. Any wastewater or wash water must not be allowed to enter a water of the state.
36. Emergency spill procedures shall be in place and may include a spill response kit (e.g., oil absorbent booms or other equipment).
37. In accordance with IDAPA 58.01.02.850, in the event of an unauthorized release of hazardous material to state waters or to land such that there is a likelihood that it will enter state waters, the responsible persons in charge must
 - a. Make every reasonable effort to abate and stop a continuing spill.
 - b. Make every reasonable effort to contain spilled material in such a manner that it will not reach surface or ground waters of the state.
 - c. Call 911 if immediate assistance is required to control, contain, or clean up the spill. If no assistance is needed in cleaning up the spill, contact the appropriate DEQ regional office during normal working hours or Idaho State Communications Center after normal working hours (1-800-632-8000). If the spilled volume is above federal reportable quantities, contact the National Response Center (1-800-424-8802).
 - Coeur d'Alene Regional Office: 208-769-1422 / 877-370-0017
 - d. Collect, remove, and dispose of the spilled material in a manner approved by DEQ.

Right to Appeal Final Certification

The final Section 401 Water Quality Certification may be appealed by submitting a petition to initiate a contested case, pursuant to Idaho Code § 39-107(5) and the "Rules of Administrative Procedure before the Board of Environmental Quality" (IDAPA 58.01.23), within 35 days of the date of the final certification.

Questions or comments regarding the actions taken in this certification should be directed to Tom Herron at (208) 666-4631 or at Thomas.herron@deq.idaho.gov.



Daniel Redline

Regional Administrator

Coeur d'Alene Regional Office



State of Idaho

DEPARTMENT OF WATER RESOURCES

Northern Region • 7600 N. Mineral Drive, Suite 100 • Coeur d'Alene, Idaho 83815-7763
Phone: (208) 762-2800 • Fax: (208) 762-2819 • Website: www.idwr.idaho.gov

C.L. "BUTCH" OTTER
Governor

GARY SPACKMAN
Director

August 27, 2019

IDAHO WATER RESOURCE BOARD
P O BOX 83720
BOISE, ID 83720

RE: Joint Application for Permit No. S97-20058
PREIST LAKE/PRIEST RIVER

Dear Mr. Collingwood:

The Idaho Department of Water Resources (IDWR) has reviewed your above referenced application for a permit to alter Priest Lake/Priest River and has prepared a decision as provided for in Section 42-3805, Idaho Code. The conditions set forth in this permit are intended to prevent degradation of water quality, protect fish and wildlife habitat, and protect the long-term stability of the stream channel. If you cannot meet the conditions set forth in the permit, please contact this office for further consideration.

Your project has been determined to meet the Stream Channel Alteration Rules, IDAPA 37.03.07 Minimum Standards (Rule 55). You may consider this letter a permit to construct your project according to your attached application, dated June 11, 2019 including diagrams. Project activities include a scour apron extension, , downstream rock armoring, and tainter gate extensions and strengthening. The project location is within Section 6, Township 59 North, Range 4 West, Boise Meridian, Bonner County, Idaho.

Failure to adhere to the conditions as set forth herein can result in legal action as provided for in Section 42-3809, Idaho Code. This project is subject to the following Minimum Standards, Special and General Conditions.

MINIMUM STANDARDS:

These standards are established in the Administrative Rules of the Idaho Water Resources Board; Stream Channel Alteration Rules, IDAPA 37.03.07 dated July 1, 1993 and are enclosed with this permit.

Rule 56 - Construction Procedures
Rule 57 – Riprap
Rule 62 – Culverts & Bridges
Rule 63 – Removal of Sand & Gravel Deposits

SPECIAL CONDITIONS:

- [1] All construction shall be completed in accordance with the descriptions and methods on the attached application and diagrams. This office must approve any changes prior to construction.**
- [2] All construction activities shall be conducted in such a manner as to minimize turbidity and comply with Idaho water quality standards. Construction shall take place during low flow and in the dry to minimize turbidity and protect water quality.**
- [3] Permittee shall conduct work from the top of the bank. Equipment shall not enter the channel.**
- [4] Woody stream bank vegetation shall be protected to the extent practical during construction.**
- [5] Silt fencing or other erosion/sedimentation control measures shall be installed between any area of earth disturbance and the water. Erosion and sediment control measures shall be installed according to the manufacturer's specifications, during construction, and must be maintained until construction is completed and the disturbed ground is revegetated and stable.**
- [6] All temporary structures, excess excavated material, vegetative or construction debris shall be disposed of out of the stream channel where it cannot reenter the channel. All construction debris shall be removed from the site and disposed of properly.**
- [7] All fuel, oil and other hazardous materials shall be stored and equipment refueled away from the stream channel to ensure that a spill will not enter the waterway. Equipment must be free of fuel and lubricant leaks.**
- [8] Permittee is responsible for all work done by any contractor or sub-contractor and shall ensure any contractor who performs the work is informed of and follows all the terms and conditions of this authorization.**
- [9] IDWR Stream Channel Protection Specialist shall be contacted no less than 3 business days before construction begins by email northerninfo@idwr.idaho.gov or phone (208) 762-2800. Failure to do so may result in annulment of above referenced permit.**
- [10] This permit shall expire December 30, 2022.**

GENERAL CONDITIONS:

- 1. This permit does not constitute any of the following:**
 - a) An easement or right-of-way to trespass or work upon property belonging to others.
 - b) Other approval that may be required by Local, State or Federal Government, unless specifically stated in the special conditions above.
 - c) Responsibility of the IDWR for damage to any properties due to work done.
 - d) Compliance with the Federal Flood Insurance Program, FEMA regulations or approval of the local Planning and Zoning authority.

2. In accordance with Sections 55-2201 - 55-2210, Idaho Code, the applicant and/or contractors must contact Digline statewide phone number 1-800-342-1585 not less than three working days prior to the start of any excavation for this project.
3. The permit holder or operator must have a copy of this permit at the alteration site, available for inspection at all times.
4. The IDWR may cancel this permit at any time that it determines such action is necessary to minimize adverse impact on the stream channel.

Conditions and construction procedures approved under this permit may not coincide with the proposal as submitted. Failure to adhere to conditions as set forth herein can result in legal action as provided for in Section 42-3809, Idaho Code.

If you object to the decision issuing this permit with the above conditions, you have 15 days in which to notify this office in writing that you request a formal hearing on the matter. If an objection has not been received within 15 days, the decision will be final under the provisions of IDAPA 37.03.07 (Rule 70).

Please contact the Northern Region Office At (208) 762-2800 or northerninfo@idwr.idaho.gov if you have any questions regarding this matter.

Sincerely,



Douglas Jones
Northern Regional Manager

cc: Shane Slate, U.S Army Corps of Engineers, CDA Regulatory Office
Tom Herron, Idaho Department of Environmental Quality, CDA
Merritt Horsmon, Idaho Department of Fish and Game, CDA
Mike Ahmer, Idaho Department of Lands, CDA

056. CONSTRUCTION PROCEDURES (RULE 56).

01. Conformance to Procedures. Construction shall be done in accordance with the following procedures unless specific approval of other procedures has been given by the Director. When an applicant desires to proceed in a manner different from the following, such procedures should be described on the application. (7-1-93)

02. Operation of Construction Equipment. No construction equipment shall be operated below the existing water surface without specific approval from the Director except as follows: Fording the stream at one (1) location only will be permitted unless otherwise specified; however, vehicles and equipment will not be permitted to push or pull material along the streambed below the existing water level. Work below the water which is essential for preparation of culvert bedding or approved footing installations shall be permitted to the extent that it does not create unnecessary turbidity or stream channel disturbance. Frequent fording will not be permitted in areas where extensive turbidity will be created. (7-1-93)

03. Temporary Structures. Any temporary crossings, bridge supports, cofferdams, or other structures that will be needed during the period of construction shall be designed to handle high flows that could be anticipated during the construction period. All structures shall be completely removed from the stream channel at the conclusion of construction and the area shall be restored to a natural appearance. (7-1-93)

04. Minimizing Disturbance of Area. Care shall be taken to cause only the minimum necessary disturbance to the natural appearance of the area. Streambank vegetation shall be protected except where its removal is absolutely necessary for completion of the work adjacent to the stream channel. (7-1-93)

05. Disposal of Removed Materials. Any vegetation, debris, or other material removed during construction shall be disposed of at some location out of the stream channel where it cannot reenter the channel during high stream flows. (7-1-93)

06. New Cut of Fill Slopes. All new cut or fill slopes that will not be protected with some form of riprap shall be seeded with grass and planted with native vegetation to prevent erosion (7-1-93)

07. Fill Material. All fill material shall be placed and compacted in horizontal lifts except as provided for in Rule Subsection 060.05 for uncompacted dike and levee construction. Areas to be filled shall be cleared of all vegetation, debris and other materials that would be objectionable in the fill. (7-1-93)

08. Limitations on Construction Period. The Director may limit the period of construction as needed to minimize conflicts with fish migration and spawning, recreation use, and other uses. (7-1-93)

057. DUMPED ROCK RIPRAP (RULE 57).

01. Placement of Riprap. Riprap shall be placed on a granular bedding material or a compact and stable embankment. (7-1-93)

02. Sideslopes of Riprap. Sideslopes of riprap shall not be steeper than 2:1 (2' horizontal to 1' vertical) except at ends of culverts and at bridge approaches where a 1 1/2:1 sideslope is standard. (7-1-93)

03. Minimum Thickness of Riprap. The minimum thickness of the riprap layer shall equal the dimension of the largest size riprap rock used or be eighteen (18) inches, whichever is greater. When riprap will be placed below high water level, the thickness of the layer shall be fifty percent (50%) greater than specified below. (7-1-93)

04. Riprap Protection. Riprap protection must extend at least one (1) foot above the anticipated high water surface elevation in the stream. (7-1-93)

05. Rock Used for Riprap. Rock for riprap shall consist of sound, dense, durable, angular rock fragments, resistant to weathering and free from large quantities of soil, shale, and organic matter. The length of a rock shall not be more than three (3) times its width or thickness. Rounded cobbles, boulders, and streambed gravels are not acceptable as dumped riprap. (7-1-93)

06. Size and Gradation of Riprap. Riprap size and gradation are commonly determined in terms of the weight of riprap rock. The average size of riprap rock shall be at least as large as the maximum size rock that the stream is capable of moving. The maximum size of riprap rock used shall be two (2) to five (5) times larger than the average size. (7-1-93)

07. Methods Used for Determining Gradation of Riprap. There are many methods used for determining the gradation of riprap rock. One of these many acceptable methods is shown in Table 1 below the Far West States (FWS) method shown in APPENDIX A - Table 1A at the end of this chapter. (7-1-93)

GRADATION OF RIPRAP IN POUNDS		
Max. Weight of Stone required (lbs)	Min. and Max. Range in weight of Stones (lbs)	Weight Range 75 percent of Stones (lbs)
150	25 - 150	50 - 150
200	25 - 200	50 - 200
250	25 - 250	50 - 250
400	25 - 400	100 - 400

GRADATION OF RIPRAP IN POUNDS		
Max. Weight of Stone required (lbs)	Min. and Max. Range in weight of Stones (lbs)	Weight Range 75 percent of Stones (lbs)
600	25 - 600	150 - 600
800	25 - 800	200 - 800
1000	50 - 1000	250 - 1000
1300	50 - 1300	325 - 1300
1600	50 - 1600	400 - 1600
2000	75 - 2000	600 - 2000
2700	100 - 2700	800 - 2700

08. Use of Filter Material. A blanket of granular filter material or filter fabric shall be placed between the riprap layer and the bank in all cases where the bank is composed of erodible material that may be washed out from between the riprap rock. Filter material shall consist of a layer of well-graded gravel and coarse sand at least six (6) inches thick. (7-1-93)

09. Toe Protection. Some suitable form of toe protection shall be provided for riprap located on erodible streambed material. (7-1-93)

a. Various acceptable methods of providing toe protection are shown in APPENDIX B at the end of this chapter. (7-1-93)

b. In addition to the approved methods of providing toe protection as shown in APPENDIX B at the end of this chapter, any other reasonable method will be considered by the Director during review of a proposed project. (7-1-93)

10. Extension of Riprap Area. Riprap shall extend far enough upstream and downstream to reach stable areas, unless protected against undermining at ends by the method shown in APPENDIX C, Figure 3 at the end of this chapter. On extremely long riprap sections, it is recommended that similar cutoff sections be used at several intermediate points to reduce the hazard that would be created if failure of the riprap occurred at any one (1) location. (7-1-93)

11. Finished Surface. Placement shall result in a smooth, even finished surface. Compaction is not necessary. (7-1-93)

12. Placement of Riprap. The full course thickness of the riprap shall be placed in one (1) operation. Dumping riprap long distances down the bank or pushing it over the top of the bank with a dozer shall be avoided if possible. Material should be placed with a backhoe, loader, or dragline. Dumping material near its final position on the slope or dumping rock at the toe and bulldozing it up the slope is a very satisfactory method of placement, if approval is obtained for the use of equipment in the channel. (7-1-93)

13. Design Procedure. Design procedure using the Far West States (FWS) method. (7-1-93)

a. The FWS method uses a single equation to deal with variables for riprap. (7-1-93)

$D_{75} = 3.5/CK$ WDS for Channel Banks

where: D_{75} = Size of the rock at seventy five percent (75%) is finer in gradation, in inches.

W	= Specific weight of water, usually 62.4 lbs./cu.ft.
D	= Depth of flow in stream, in feet in flood stage
S	= Channel slope or gradient, in ft/ft.
C	= A coefficient relating to curvature in the stream
K	= A coefficient relating to steepness of bank slopes

b. The coefficient, C, is based on the ratio of the radius of curvature of the stream, (CR), to the water surface width, (WSW), so it is necessary for the user to make field determination of these values. The coefficient varies from 0.6 for a curve ratio of 4 to 6, up to 1.0 for a straight channel. If the computed ratio for a particular project is less than 4, the designer should consider some modification less than 4. (7-1-93)

CR/WSW	C
4 - 6	0.60
6 - 9	0.75
9 - 12	0.90
Straight Channel	1.00

(7-1-93)

c. The coefficient, K, ranges from 0.5 for a 1.5:1 sideslope to 0.87 for 3:1 sideslope. No values are given for steeper or flatter slopes. Slopes steeper than 1.5:1 are not recommended. If slopes flatter than 3:1 are desired, it would be conservative to use the K-value for 3:1 slopes. (7-1-93)

Bankslope	K
1.5:1	0.50
1.75:1	0.63
2.0:1	0.72
2.5:1	0.80
3.0:1	0.87

Table 1A in APPENDIX A, located at the end of this chapter.

062. CULVERTS AND BRIDGES (RULE 62).

01. Culverts and Bridges. Culverts and bridges shall be capable of carrying streamflows and shall not significantly alter conditions upstream or downstream by causing flooding, turbidity, or other problems. The appearance of such installations shall not detract from the natural surroundings of the area. (7-1-93)

02. Location of Culverts and Bridges. Culverts and bridges should be located so that a direct line of approach exists at both the entrance and exit. Abrupt bends at the entrance or exit shall not exist unless suitable erosion protection is provided. (7-1-93)

03. Ideal Gradient. The ideal gradient (bottom slope) is one which is steep enough to prevent silting but flat enough to prevent scouring due to high velocity flows. It is often advisable to make the gradient of a culvert coincide with the average streambed gradient. (7-1-93)

a. Where a culvert is installed on a slope steeper than twenty percent (20%), provisions to anchor the culvert in position will be required. Such provisions shall be included in the application and may involve the use of collars, headwall structures, etc. Smooth concrete pipe having no protruding bell joints or other irregularities shall have such anchoring provisions if the gradient exceeds ten percent (10%). (7-1-93)

04. Size of Culvert or Bridge Opening. The size of the culvert or bridge opening shall be such that it is capable of passing design flows without overtopping the streambank or causing flooding or other damage. (7-1-93)

a. Design flows shall be based upon the following minimum criteria: (7-1-93)

Drainage Area	Design Flow Frequency
Less than 50 sq. mi.	25 Years
Over 50 sq. mi. or more	50 years or greatest flow of record, whichever is more

b. For culverts and bridges located on U.S. Forest Service or other federal lands, the sizing should comply with the Forest Practices Act as adopted by the federal agencies or the Department of Lands. (7-1-93)

c. For culverts or bridges located in a community qualifying for the national flood issuance program, the minimum size culvert shall accommodate the one hundred (100) year design flow frequency. (7-1-93)

d. If the culvert or bridge design is impractical for the site, the crossing may be designed with additional flow capacity outside the actual crossing structure, provided there is no increase in the Base Flood Elevation. (NOTE: When flow data on a particular stream is unavailable, it is almost always safe to maintain the existing gradient and cross-section area present in the existing stream channel. Comparing the proposed crossing size with others upstream or downstream is also a valuable means of obtaining information regarding the size needed for a proposed crossing.) (7-1-93)

e. Minimum clearance shall be at least one (1) foot at all bridges. This may need to be increased substantially in the areas where ice passage or debris may be a problem. Minimum culvert sizes required for stream crossings: (7-1-93)

i. Eighteen (18) inch diameter for culverts up to seventy (70) feet long; (7-1-93)

ii. Twenty-four (24) inch diameter for all culverts over seventy (70) feet long. (7-1-93)

f. In streams where fish passage is of concern as determined by the director, an applicant shall comply with the following provisions and/or other approved criteria to ensure that passage will not be prevented by a proposed crossing. (7-1-93)

g. Minimum water depth shall be approximately eight (8) inches for salmon and steelhead and at least three (3) inches in all other cases. (7-1-93)

h. Maximum flow velocities for streams shall not exceed those shown in Figure 17 in APPENDIX N, located at the end of this chapter, for more than a forty-eight (48) hour period. The curve used will depend on the type of fish to be passed. (7-1-93)

i. Where it is not feasible to adjust the size or slope to obtain permissible velocities, the following precautions may be utilized to achieve the desired situation. (7-1-93)

j. Baffles downstream or inside the culvert may be utilized to increase depth and reduce velocity. Design criteria may be obtained from the Idaho Fish and Game Department. (7-1-93)

k. Where multiple openings for flow are provided, baffles or other measures used in one (1) opening only shall be adequate provided that the opening is designed to carry the main flow during low-flow periods. (7-1-93)

05. Construction of Crossings. When crossings are constructed in erodible material, upstream and downstream ends shall be protected from erosive damage through the use of such methods as dumped rock riprap, headwall structures, etc., and such protection shall extend below the erodible streambed and into the banks at least two (2) feet unless some other provisions are made to prevent undermining. (7-1-93)

a. Where fish passage must be provided, upstream drops at the entrance to a culvert will not be permitted and a maximum drop of one (1) foot will be permitted at the downstream end if an adequate jumping pool is maintained below the drop. (7-1-93)

b. Downstream control structures such as are shown in Figure 18 in APPENDIX O, located at the end of this chapter, can be used to reduce downstream erosion and improve fish passage. They may be constructed with gabions, pilings and rock drop structures. (7-1-93)

06. Multiple Openings. Where a multiple opening will consist of two (2) or more separate culvert structures, they shall be spaced far enough apart to allow proper compaction of the fill between the individual structures. The minimum spacing in all situations shall be one (1) foot. In areas where fish passage must be provided, only one (1) opening shall be constructed to carry all low flows. Low flow baffles may be required to facilitate fish passage. (7-1-93)

07. Areas to be Filled. All areas to be filled shall be cleared of vegetation, topsoil, and other unsuitable material prior to placing fill. Material cleared from the site shall be disposed of above the high water line of the stream. Fill material shall be reasonably well-graded and compacted and shall not contain large quantities of silt, sand, organic matter, or debris. In locations where silty or sandy material must be utilized for fill material, it will be necessary to construct impervious sections both upstream and downstream to prevent the erodible sand or silt from being carried away (see Figure 19, APPENDIX P, located at the end of this chapter), Sideslopes for fills shall not exceed one and one half to one (1.5:1). Minimum cover over all culvert pipes and arches shall be one (1) foot. (7-1-93)

08. Installation of Pipe and Arch Culvert. All pipe and arch culverts shall be installed in accordance with manufacturer's recommendations. (7-1-93)

a. The culvert shall be designed so that headwaters will not rise above the top of the culvert entrance unless a headworks is provided. (7-1-93)

063. REMOVAL OF SAND AND GRAVEL DEPOSITS (RULE 63).

01. Removal of Sand and Gravel. This work consists of removal of sand and gravel deposits from within a stream channel. The following conditions shall be adhered to unless other methods have been specified in detail on the application and approved by the Director. (7-1-93)

02. Removal Below Water Surface. Sand and gravel must not be removed below the water surface existing at the time of the work. Where work involves clearing a new channel for flow, removal of material below water level will be permitted to allow this flow to occur; however, this must not be done until all other work in the new channel has been completed. (7-1-93)

03. Buffer Zone. A buffer zone of undisturbed streambed material at least five (5) feet in width or as otherwise specified by the Director shall be maintained between the work area and the existing stream. The applicant shall exercise reasonable precautions to ensure that turbidity is kept to a minimum and does not exceed state water quality standards. (7-1-93)

04. Movement of Equipment. Equipment may cross the existing stream in one (1) location only, but shall not push or pull material along the streambed while crossing the existing stream. (7-1-93)

05. Disturbing Natural Appearance of Area. Work must be done in a manner that will least disturb the natural appearance of the area. Sand and gravel shall be removed in a manner that will not leave unsightly pits or other completely unnatural features at the conclusion of the project. (7-1-93)

APPENDIX B – GEOTECHNICAL REPORT

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1. Geotechnical Data Report

Revised Geotechnical Data Report

Priest Lake Outlet Dam
Bonner County, Idaho

for
Mott MacDonald, LLC

February 17, 2023



523 East Second Avenue
Spokane, Washington
509.363.3125

Revised Geotechnical Data Report

Priest Lake Outlet Dam Bonner County, Idaho

File No. 22593-001-04

February 17, 2023

Prepared for:

Mott MacDonald, LLC
110 James Street, Suite 101
Edmonds, Washington 98020

Attention: Shane Phillips, PE, Vice President

Prepared by:

GeoEngineers, Inc.
523 East Second Avenue
Spokane, Washington 99202
509.363.3125

Lyle J. Stone, PE
Associate Geotechnical Engineer

SST:LJS:tt:tlm

Disclaimer: Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

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1.0 INTRODUCTION

This revised data report presents the subsurface information used in design of the Priest Lake Outlet Dam project in Bonner County, Idaho. The results of our geotechnical analysis and design recommendations are provided in a 90-percent report (April 27, 2020). The Outlet Dam is located at the south end of Priest Lake in Bonner County, Idaho as shown on Figure 1, Vicinity Map.

The existing dam was built around 1978 and consists of an approximate 225-foot-long, cast-in-place concrete gravity structure at the outlet of the lake. Lake levels and downstream flows are managed via a series of tainter gates that can be operated independently to adjust lake levels and outlet flows. A sheet pile cut-off wall was installed along the upstream toe of the dam, extending about 20 feet below the dam. The south abutment of the dam is located adjacent to a steep undisturbed slope. The north abutment is located along a relatively flat bench. Several residential properties are located to the north and east of the north abutment. The approximate location of the Outlet Dam relative to existing site features is shown on Figure 2, Site Plan.

2.0 SITE CONDITIONS

2.1. Geologic Setting

Priest Lake is situated within the Priest River crystalline complex, which consists of mountainous terrain west of the Purcell Trench of north Idaho and east of the Okanogan Highlands of north-central Washington. The north-south trending mountain valley that contains Priest Lake is drained by the Priest River, which generally flows south to its confluence with the Pend Oreille River near Priest River, Idaho.

Priest Lake roughly trends north to south and is approximately 23 miles in length. It consists of upper and lower lake portions connected by a narrow waterway known as the Thorofare. Priest Lake is about 2,442 +/- feet in elevation (relative to the North American Vertical Datum of 1988 [NAVD88] datum). Note that all elevations in this report are referenced to the NAVD88 datum unless stated otherwise. Elevation increases sharply to both the east and west of Priest Lake, rising to more than 6,000 feet in elevation along adjacent ridges and mountain crests.

The Priest River crystalline complex forms the outermost portion of North American basement rock, and therefore sits slightly east of the pre-Permian (older than about 299 million years ago [MA]) edge of the North American craton and east of a zone of exotic terrains that accreted to the North American margin during a period of convergence in the Jurassic (about 145 to 201 MA), Triassic (about 201 to 252 MA) and Permian (about 252 to 299 MA) periods (Rehrig et al. 1987). The period of compression (and associated thrust faulting) was followed by a period of regional east-west extension during the Cretaceous (about 66 to 145 MA) and early Tertiary (about 2.5 to 66 MA) periods. Crustal extension was accompanied by low-angle detachment faulting that resulted in the formation of the Priest River crystalline complex (Rehrig et al. 1987), as well as the Okanogan and Kettle Metamorphic Core Complexes to the west. Priest Lake is situated between two of these detachment faults, the Newport Fault to the west and the Purcell Trench fault system to the east (Rehrig et al. 1987; Doughty and Price 1999).

Basement rocks near Priest Lake largely consist of uplifted Precambrian (greater than about 570 MA) metamorphic rocks of the Prichard Formation of the lower Belt Supergroup. These rocks primarily consist

of argillite, siltite, and quartzite and were intruded by granitic rocks during the Cenozoic (less than about 65 MA and Cretaceous (about 65 to 146 MA).

The topography of the area was modified by Pleistocene (about 11,700 years to 2.5 MA) glacial and interglacial processes, which scoured the basin that formed Priest Lake and resulted in the deposition of abundant sedimentary deposits in lowland areas surrounding Priest Lake. During the height of the most recent glaciation (about 15,000 years ago) much of the Pend Oreille River valley and Purcell Trench was covered by the Pend Oreille lobe and Purcell Trench Lobe, respectively, of the Cordilleran ice sheet (Kahle et al. 2003). Associated deposits frequently consist of till (unsorted, unstratified mixtures of clay, silt, sand, and gravel deposited at the glacier base), glaciolacustrine sediment (clay and silt deposited within glacial lake environments), and outwash deposits (stratified sand and gravel deposited by glacial meltwater). Where overridden by alpine or continental glaciers, these sediments can be dense to very dense.

Recent alluvial deposits generally are associated with channel and overbank deposits from the modern Priest River and its tributaries. These sediments generally consist of stratified silt, sand, and gravel, with minor clay. This is consistent with the soils observed in our exploration which is provided in Appendix A, Field Explorations and Laboratory Testing.

2.2. Surface Conditions

2.2.1. Original (2020) Surface Conditions

The Outlet Dam is located entirely within the channel of the Priest River as it exits Priest Lake. The channel is about 200 feet wide and flows to the west. Plans of the structure are presented in Appendix B, 1978 Plans for Existing Dam. The north abutment of the Outlet Dam connects to a relatively flat area that, based on surface topography, appears to be an alluvial plain. The south abutment of the Outlet Dam connects to an existing relatively steep slope along the riverbank. About 800 feet downstream from the dam, the high canyon walls narrow as Priest River turns and flows south.

There is evidence of recent sloughs on the slope near the south abutment. During a site visit in August 2018, we observed a larger slough downstream of the dam. This slough appeared to be shallow. Debris consisted of weathered glacial soil and organic matter. The soil exposed by the slough consisted of relatively firm and intact fine-grained glacial till. We understand that a smaller slough also occurred just upstream of the south dam abutment. This slough was repaired with smaller (6-inch-minus) angular rock. Some minor sloughing was also observed upstream of the north abutment. This sloughing was limited and appeared to be related to foot traffic from the bank down to the river.

We noted that material exposed within the river channel consisted of gravel and cobbles at the surface with some sand in isolated bars. There are some larger rocks placed at the toe of the dam for scour protection. There are also larger angular non-native rocks within the channel downstream of the dam. We understand that these rocks were riprap placed at the downstream toe of the dam as part of the dam construction; and were dislodged and deposited in their current location during a scour event that occurred in 1979, shortly after the dam was first put into operation. The scour hole that was created by this event appears to be filled, or partially filled, with large riprap.

2.2.2. Interim (2022) Surface Conditions

GeoEngineers, Inc. (GeoEngineers), Mott MacDonald, LLC (Mott), and David Evan and Associates, Inc (DEA) personnel visited the site December 6, 2022 to evaluate the surface conditions at the site as left after previous phases of construction. Steel plates and sheet piles driven vertically separating the north and south work phases were left in place. A second row of sheet piles, generally about 10 feet south of the main row of sheets is also located west of the apron. West of the sheet piling, a large pile of gravel was left in place, reaching about 4 to 8 feet above dam apron elevation. The pocket created between the two rows of steel plates and sheet piles was partially filled with full supersacks. Several additional super sacks are left south of the sheet piling as well. A concrete ecology block is located immediately west of the original downstream apron, near the north end of the southern work zone. Subgrade under this portion of the existing apron was not observable.

A dewatering sump consisting of 3-foot-diameter corrugated plastic pipe has been left in place, near the north-central portion of the main southern work phase area, but south of the sheet piling. The sump was sloped at about 45 degrees relative to vertical, sloping downward to the south. Several feet of the sump pipe was open, but the bottom was filled with sediment. The depth of the sump pipe could not be determined.

2.3. Subsurface Conditions

2.3.1. Exploration Summary

Our understanding of the subsurface conditions is based on our review of data from previous geotechnical studies, as well as one recently completed boring for the current project. More detail about our exploration program is provided in Appendix A, Field Explorations and Laboratory Testing. The approximate locations of our explorations are shown on Figure 2.

2.3.1.1. Previous Explorations

Subsurface explorations at the site were originally completed around 1977 as part of design of the current dam. Three borings, drill hole No. 1 (DH No. 1), drill hole No. 2 (DH No. 2), and drill hole No. 4 (DH No. 4), were advanced to depths of about 50 feet below ground surface (bgs). No drill hole No. 3 was reported. The approximate locations of the borings are presented on Sheet No. 97-2020-1. DH No. 1 was drilled near the north dam abutment, DH No. 2 was drilled near the south dam abutment, and DH No. 4 was drilled in the middle of the river channel about 130 feet downstream from the dam. Details regarding the drilling method were not available. Results of laboratory testing of soil samples (if conducted) also were not available. Logs of the borings are presented on Sheet No. 97-2020-3 of the 1978 plan set for the existing dam. The approximate locations of the previous borings are shown on Figure 2. Copies of the relevant plan sheets are included in Appendix B.

On January 28, 2020, during construction of the north work phase area during the first construction season (2020/2021), shortly after installation of the first section of precast apron extension keyway, we observed excavation of two test pits along the keyway alignment. Observed subsurface conditions consisted of about 1½ to 3 feet of loose silty fine to medium sand overlying low-plasticity silt. This was consistent with the soils in DH No. 1 which were described as “Fine Clay Silt with Sand Lenses”.

2.3.1.2. Recent Explorations

Subsurface conditions were also explored by GeoEngineers on September 25, 2018 by drilling one boring (B-1) to a depth of about 101½ feet bgs near the north dam abutment. The approximate location of boring B-1 relative to existing site features is shown on Figure 2.

Representative soil samples from boring B-1 were returned to our laboratory for examination and testing. Detailed descriptions of our site exploration and laboratory testing programs for the site along with the exploration log and laboratory test results are presented in Appendix A.

2.3.1.3. Exploration Elevations

Based on the topographic details included in plan sheet 97-2020-3, the approximate elevations of the previous borings are presented in Table 1. Recent boring B-1 was surveyed in the field and the ground surface elevation at the boring location also is presented in Table 1.

TABLE 1. BORING AND DAM ELEVATION SUMMARY

Location	Estimated Elevation (ft) (Local Datum/Gauge Height)	Estimated Elevation (ft) (NGVD 1929 datum)	Estimated Elevation (ft) (NAVD 1988 datum)
B-1	7.7	2,442.3 ¹	2,446.3
DH No. 1	-3	2,432 ²	2,436
DH No. 2	-3	2,432 ²	2,436
DH No. 4	0	2,435 ²	2,439
Top of Dam (walkway)	7.90	2,442.54 ¹	2446.51
Current Summer Lake Level	3.0	2,437.64	2,441.61
Proposed Summer Lake Level	3.5	2,438.14	2,442.11
Current Top of Gate	3.15	2,437.79 ²	2441.76
Proposed Top of Gate	3.65	2,438.29	2,442.26
Bottom of Dam	-7.85	2,426.79 ²	2430.76

Notes:

¹ Based on survey of boring location referenced to site brass benchmark (see Appendix A for details).

² Based on the assumption that local ground surface elevations presented in the 1978 plans are referenced to the gauge datum at the dam of 2,434.64 (National Geodetic Vertical Datum [NGVD] 1929) = 0.0 (Lake Datum). Approximate ground surface elevations were rounded to the nearest foot.

2.3.2. Observed and Reported Soil Conditions

The 1978 boring logs indicate that subsurface conditions near the dam consist of interbedded layers of soft to medium stiff clay and silt, and loose silty sand. Specifically, the log for boring DH No. 2 indicates an approximate 10-foot-thick layer of silty fine sand from a depth of about 7 to 17 feet bgs (about Elevation 2,429 to Elevation 2,419). A lower layer of silty sand also was identified in each of the previous borings between depths of about 30 to 45 feet bgs (approximate Elevation 2,406 to Elevation 2,391), ranging in thickness from about 5 feet in DH No. 1 to about 10 feet in DH No. 2 and DH No. 4.

The results of our recent boring indicate that below an approximate 4½-foot-thick layer of surficial gravel fill, subsurface conditions at the location of boring B-1 consist predominantly of soft to very stiff non-plastic silt with variable sand content. Zones of lean clay were encountered between a depth of about 20 to 24 feet bgs, 60 to 73 feet bgs, and 84 to 94 feet bgs.

We did not encounter any interbedded layers of sand as were reported in the previous explorations. However, using visual-manual methods in the field, some of the silt samples were initially characterized as silty sand, as some individual silt particles were distinguishable by the naked eye. Based on these observations of the soil samples, it could be possible that some of these samples were mischaracterized as containing more sand than they actually do. It is unclear from our review of the available historic information if laboratory analysis was used to verify the soil classifications presented on the previous logs. Therefore, it is also unclear if the apparent difference in observed and reported soil conditions is based on an actual difference in the soil conditions or from differences in observation and sampling methods.

Alluvium is often variable and can contain interbedded layers of different materials including relatively thin or thick layers of fine-grained soil (silts and clays) interbedded with sand layers. Although not observed or reported in the subsurface explorations, alluvium can also contain layers of gravel or coarse sands.

Glacial soil was not observed or reported in the explorations. Our geologic reconnaissance of surface geology indicates that the hillside near the south abutment likely consists of dense glacial soils. We anticipate that glacial soils are present at depth below the alluvium near the south abutment although the depth and full extent are unknown.

2.3.3. Groundwater Conditions

We encountered groundwater in boring B-1 at a depth of about 15½ feet bgs at the time of drilling (about Elevation 2,430.8 feet). Groundwater elevations observed at the time of drilling might not reflect static groundwater conditions due to soil disturbance caused by the drilling process, and the time required to establish static conditions in fine-grained soil. We surveyed the lake level at the time of drilling at about Elevation 2,441.9, and the river level just downstream of the dam at Elevation 2,435.7.

Groundwater levels are expected to fluctuate as a result of season, precipitation, and water levels within Priest Lake. During the recreational season (late June through September) the lake level is maintained at a gauge elevation of about 3 feet (approximately Elevation 2441.6 +/-). Seasonal lake levels typically fluctuate between a gauge height of less than 1 foot between November and February; increasing to about 3 to 5 feet during spring runoff, before maintaining relatively constant recreation season levels.

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1. Temporary Shoring and Dewatering

3.1.1. General

Construction of dam retrofit features will require excavation below existing grade and will require excavation into the riverbed. Some degree of dewatering of the river and riverbed soils in the south work phase area will be required to complete construction of dam retrofit features.

Excavation, shoring, surface water bypass, and dewatering are interrelated; the design and implementation of these elements must be coordinated and must consider the over-all construction staging to ensure a consistent and compatible approach. The contractor performing the work is responsible for designing and installing construction shoring and for controlling surface water and groundwater encountered. The contract documents must specify that the contractor is responsible for selecting excavation and dewatering methods, monitoring the excavations for safety, and providing shoring, as required, to protect personnel and structures. We recommend that we be retained to review the proposed shoring and dewatering plan before construction.

The combined system must be designed by a licensed and qualified engineer using appropriate and accepted methods of design and analysis. In our opinion the analytical methods presented in *Army TM 5-18-5, Dewatering and Groundwater Control*; United States Army Corps of Engineers (USACE), *Working in the Dry: Cofferdams, In-River Construction*, and the USACE; USACE EM 1110-2-2504, *Design of Sheet Pile Walls*; and United States Steel (USS) *Steel Sheet Piling Design Manual*, are examples of acceptable methods that could be used.

All excavations deeper than 5 feet must be shored or laid back at a stable slope if workers are required to enter the excavation. Shoring and temporary slope inclinations must conform to the provisions of Occupational Safety and Health Administration (OSHA) 1926 Subpart P, Excavations, and other OSHA regulations. Regardless of the soil type encountered in the excavation, shoring, trench boxes, or sloped sidewalls will be required under OSHA if an excavation is deeper than 5 feet.

3.1.2. Assumed Design Profile

We evaluated the final dam condition using a subsurface profile developed from the 1977 logs. The 1977 boring logs indicate subsurface conditions near the dam consist of interbed layers of soft to medium stiff clay and silt with lenses of silty sand, while subsurface conditions in boring B-1 consist of soft to very stiff non-plastic silt with variable sand content. We used the layering identified in the 1977 logs due to their proximity to the dam, near/in channel location, and the higher sand content implied in the older logs. Modeling the higher sand content in the units predicted increased seepage under the dam and was, therefore, conservative for the dam analysis. In addition, a relatively high hydraulic conductivity anisotropy ratio was assumed, which is common in alluvial deposits and supported by the available subsurface information.

Our model included three soil units within the alluvium: an upper unit described as a silty fine sand to sandy silt, a middle unit of silty clay to clayey silt, and a lower unit of silty sand. The silty fine sand/sandy silt unit included material described as “Fine Clay Silt with Sand Lenses”, “Fine Silty Sand”, and “Clay Silt with Small Sand Lenses”. The silty clay/clayey silt unit included material described as “Alternate Zones of Clay & Silt”, “Clay Silt”, “Silty Clay”, and “Sandy Clay Silt”. The silty sand unit included material described as “Silty Sand”, “Silty Sand with Clay Lenses”, and “Alternate Zones of Clay, Silt & Sand”.

This layering was selected for the analysis of the completed dam structure and might not be appropriate or sufficiently conservative for analysis of shoring or dewatering. The shoring and dewatering designer must make their own determination of the critical design case with regard to soil layering.

Alluvial deposits are inherently variable. The contractor must be prepared for variations in material layering and consistency. The contractor must account for this variability through robust design and/or contingency planning.

3.1.3. Excavation Shoring

3.1.3.1. General

There are two general methods for providing worker protection for temporary excavations: (1) passive shield systems; and (2) positive shoring systems. Shields are systems such as trench boxes that are placed in an excavation to protect workers from cave-ins. Positive shoring systems are structures that are designed to provide lateral support to the sides of the excavation and prevent cave-ins.

With shield systems, the excavation is completed before the shield is in place and the shield is removed before the excavation is backfilled. The excavation sides are unsupported and can be prone to sloughing during construction. Even if the sides of the excavation do not slough, the sidewalls may squeeze and move laterally towards the trench. The potential for movement is typically limited to areas directly adjacent to the excavation within a distance equal to the depth of the excavation. **We recommend that trench boxes or other passive shield systems only be allowed where there are no existing structures or settlement sensitive areas adjacent to the excavation within a distance equal to 1.25 times the excavation depth.**

Positive shoring systems such as sheet piles could be used to support the walls of the temporary excavations. A sheet pile shoring system will provide the advantage of cutting off some of the groundwater flow into the excavation reducing the amount of dewatering that is required. Slide-rail shoring systems are not considered a positive shoring system as the bottom of the excavation must often be over cut to advance the system, and installation of this type of system would likely require first dewatering in order to install the shoring below the static groundwater level.

3.1.3.2. Preliminary Shoring Design Recommendations

The soil pressures against a shoring wall are dependent on the type of wall, the soil retained, the method of construction, and the extent of dewatering. For preliminary budgeting and planning purposes, we suggest that loads against a shoring system be estimated using the soil properties in Table 2 below. These values are based on conditions encountered in the explorations completed for this project, review of other explorations completed at the site, our observations of previous phases, and our experience. These values are for preliminary planning purposes. Soil and water pressures used in final design must be determined by a licensed and qualified engineer and be based on the specific shoring system that will be constructed. The shoring designer must also confirm that the soil conditions observed during construction are consistent with the soil conditions assumed during design.

TABLE 2. PRELIMINARY SOIL PARAMETERS FOR SHORING AND DEWATERING DESIGN

Soil Type ¹	Friction Angle (degrees)	Cohesion (psf)	Total Saturated Unit Weight (pcf)
Fine Silty Sand/Sandy Silt	30 – 34	0	115
Silty Clay/Clayey Silt (effective stress)	27 – 31	0	105
Silty Clay/Clayey Silt (total stress)	0	350 – 800	105

Soil Type ¹	Friction Angle (degrees)	Cohesion (psf)	Total Saturated Unit Weight (pcf)
Silty Sand	31 – 35	0	121
Rip Rap	35 – 39	0	137
Filter Sand	32 – 36	0	126
Crushed Rock/Gravel	34 – 38	0	142

Notes:

¹ See boring logs for description of soil types and approximate locations.

psf – pounds per square foot.

pcf – pounds per cubic foot.

Shoring systems should be designed to withstand anticipated surcharge loads from construction equipment, traffic, soil stockpiles, or other sources. Construction surcharge loads should be evaluated on a case-by-case basis. At a minimum, we recommend that a construction surcharged load equal to 250 psf surface load be included in shoring design.

We recommend that all shoring be designed to limit lateral deflections to no more than 2 inches. Tighter tolerances could be required adjacent to movement sensitive improvements such as the dam structures. The shoring monitoring plan must include establishing monitoring points on the shoring and on adjacent structures. The shoring designer must determine what level of movement is acceptable for the shoring during construction and the appropriate tolerances and action levels. Unless otherwise stated in writing, the contractor should assume that no measurable movement (within standard survey tolerances) of adjacent structures is permitted.

3.1.4. Dewatering

3.1.4.1. General

Excavation depths close to 10 feet below wintertime lake water levels are necessary to install/construct the apron extension keyway and adjacent aggregate backfill. Excavation this far below the phreatic surface without any groundwater control could lead to significant subgrade softening due to upward seepage pressures while the excavation is open. Additionally, additional unwanted soil transport (piping) could result from inadequate dewatering or groundwater cutoff. Accordingly, dewatering plans, including groundwater cutoff elements, well points, and surface water control should be designed to prevent soil transport and detrimental softening of exposed subgrade soils.

There are generally two ways to approach a combined shoring and dewatering system. The dewatering system can either be open to the surrounding groundwater table or localized to the excavation. In the case of an open dewatering system, the groundwater is drawn down over a large area and the shoring system retains primarily unsaturated soil. In the case of a localized dewatering system, the groundwater is only significantly lowered within the limits of the excavation and the shoring system must retain both the saturated soil and the hydrostatic pressure from the surrounding groundwater.

Localized dewatering systems require a relatively watertight shoring system (such as sheet piles) that extend below the base of the excavation to either fully or partially cutoff groundwater flow. By partially cutting off groundwater flow, the majority of inflow into the excavation is limited to the seepage that enters through the base of the excavation. A localized dewatering system creates an imbalance in the hydrostatic pressures inside to outside of the excavation and can result in “quick” or boiling sand conditions in the

excavation base. This condition must be considered in the design. Methods to counteract this include: (1) extending the sheets further below the base of the excavation to reduce the groundwater gradient; or (2) installing deeper dewatering wells in the interior of the excavation to relieve excess water pressure.

Heave of the excavation subgrade must also be considered in the design. This condition is more prone to occur with braced sheet pile shoring in silt deposits but could also occur under other conditions as well. Heave may be more pronounced if a less permeable stratum is underlain by a more permeable stratum (e.g., silt or silty sand over sand) near the anticipated bottom of excavation.

Shoring and dewatering design must consider and include calculations evaluating the exit gradients and uplift pressures within the excavation.

3.1.4.2. Preliminary Dewatering Design Parameters

The table below summarizes the saturated hydraulic conductivity ranges for use in estimating dewatering volumes and flow rates. These values were developed based on review of textural descriptions from original 1978 Idaho Department of Water Resources (IDWR) boring logs, and typical published hydraulic conductivity ranges presented in Fundamentals of Groundwater (Schwartz 2002). We did not complete laboratory or field testing to evaluate soil hydraulic conductivity directly.

TABLE 3. PRELIMINARY HYDRAULIC CONDUCTIVITY SUMMARY

Soil Unit	Horizontal Hydraulic Conductivity (ft/day)	Estimated Anisotropy Ratio (K_v/K_h)
Fine Silty Sand/Sandy Silt	1 – 10	0.05
Silty Clay/Clayey Silt	0.005 – 1	0.05
Silty Sand	5 – 15	0.1
Rip Rap	300 – 1,000	1
Filter Sand	10 – 200	1
Crushed Rock/Gravel	40 – 400	1

We recommend that a range of permeability values be considered for any dewatering or seepage analysis. We also recommend that the seepage analysis consider variations in thickness of layers and the presence or absence of individual layers. We also recommend analyses consider critical combinations of high and low permeability of different units when evaluating the potential for heave and piping. These values are preliminary and for budgeting purposes. If more accurate estimates of dewatering flows are critical to the safety and function of the proposed shoring and dewatering system, we recommend that the contractor conduct a full-scale pumping test prior to the start of excavation.

4.0 LIMITATIONS

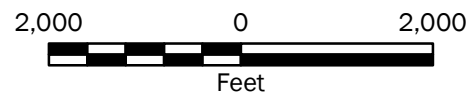
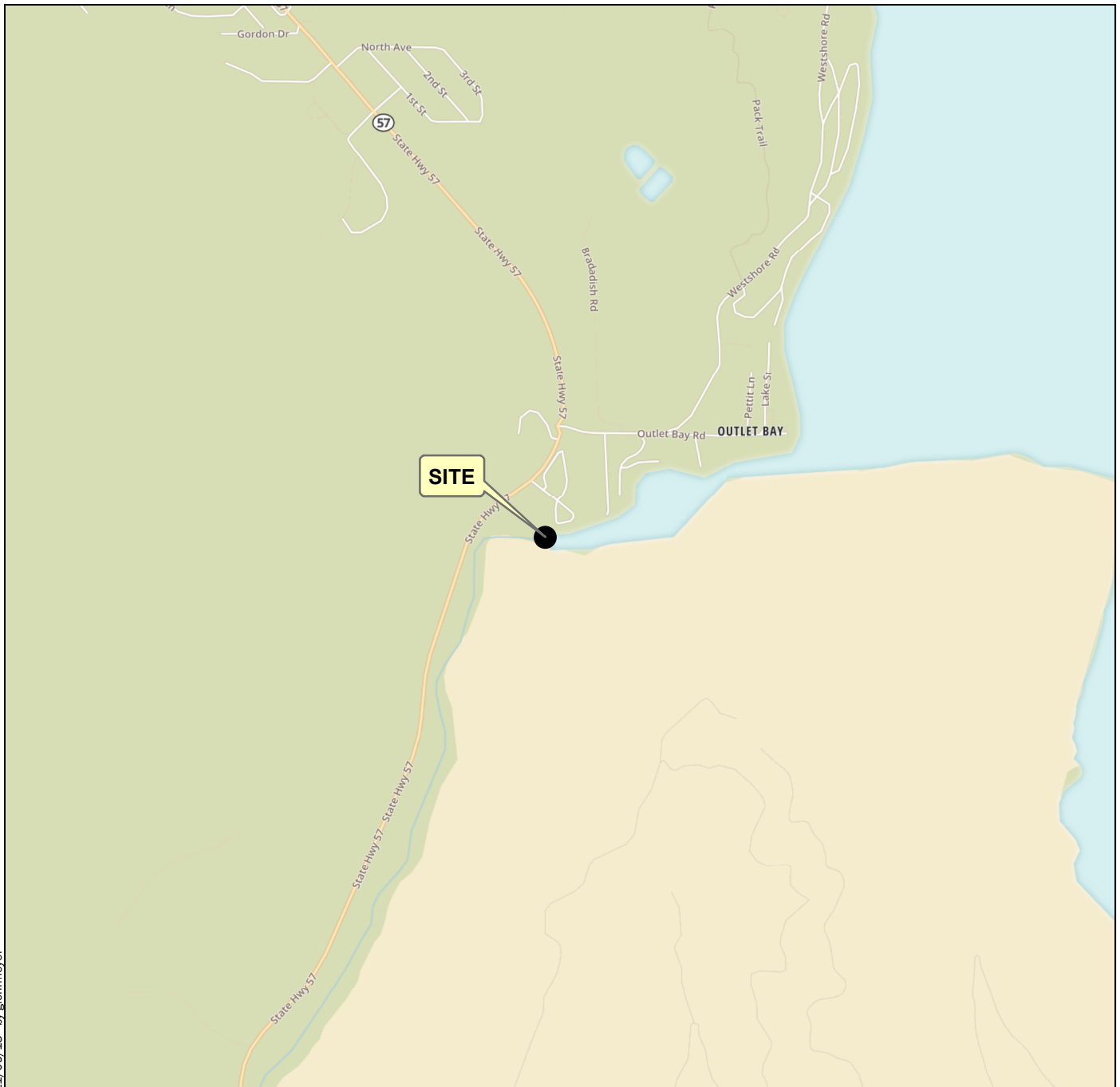
We have prepared this report for the exclusive use of Mott MacDonald, Inc. Mott may distribute copies of this report to Idaho Water Resources Board (IWRB), IWRB's authorized staff, and regulatory agencies, as may be required for the project.

Within the limitations of scope, schedule, and budget, our services have been executed in accordance with generally accepted practices in the field of geotechnical engineering in this area at the time this report was prepared. The conclusions, recommendations, and opinions presented in this report are based on our professional knowledge, judgment, and experience. No warranty or other conditions, express, or implied, should be understood.

Please refer to Appendix C titled “Report Limitations and Guidelines for Use” for additional information pertaining to use of this report.

5.0 REFERENCES

- Doughty, P. T. and Price, R. A. 1999. Tectonic evolution of the Priest River complex, northern Idaho and Washington: A reappraisal of the Newport Fault with insights on metamorphic core complex formation. *Tectonics*, Volume 18, No. 3, pp. 375-392.
- Kahle, S. C., Longpré, C. I., Smith, R. R., Sumioka, S. S., Watkins, A. M., and Kresch, D. L. 2003. Water resources of the ground-water system in the unconsolidated deposits of the Colville River Watershed, Stevens County, Washington: U.S. Geological Survey Water-Resources Investigations Report 03-4128, 76 p.
- Rehrig, W. A., Reynolds, S. J, and R. L. Armstrong. 1987. A tectonic and geochronologic overview of the Priest River Crystalline Complex, Northeastern Washington and Northern Idaho. *Washington Division of Geology and Earth Resources Bulletin 77*, p. 1 to 14.
- Schwartz, Frank W, Zhang, Hubao. 2002. *Fundamentals of Groundwater*. Wiley. December 10, 2002.



Vicinity Map

Priest Lake Outlet Dam
Bonner County, Idaho



Figure 1

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

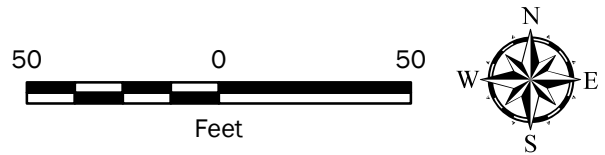
Data Source: Mapbox Open Street Map, 2016

Projection: NAD 1983 UTM Zone 11N



Legend

- Boring Number and Approximate Location (GeoEngineers 2018)
- Boring Number and Approximate Location (IDWR 1977)



Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: ESRI

Projection: NAD 1983 UTM Zone 11N

Site Plan

Priest Lake Outlet Dam
Bonner County, Idaho



Figure 2

APPENDIX A
Field Explorations and Laboratory Testing

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APPENDIX A

FIELD EXPLORATIONS AND LABORATORY TESTING

Field Explorations

Soil and groundwater conditions at the Priest Lake Dam were explored on September 25, 2018, by drilling one boring (B-1) at the approximate location shown on Figure 2, Site Plan. The boring was advanced to depth of about 101½ feet below ground surface (bgs) using a truck-mounted, CME-75 drill rig under subcontract to GeoEngineers. The boring was initially advanced to a depth of about 20 feet bgs using hollow-stem auger drilling methods. After advancing the boring below the groundwater table, the auger casing was left in place and the boring was advanced to its final depth using mud rotary drilling methods.

Samples of soil encountered in the boring were obtained at approximate 5-foot-depth intervals using a 2-inch, outside-diameter, standard split-spoon sampler. The sampler was driven into the soil using a 140-pound automatic hammer, falling 30 inches on each blow. The rated hammer efficiency as provided by the driller was 74 percent. The number of blows required to drive the sampler each of three, 6-inch increments of penetration were recorded in the field. The blow counts for the standard split-spoon sampler represent the ASTM International (ASTM) D 1586-08A Standard Penetration Test (SPT) N-value.

The boring was continuously monitored by our field engineer who examined and classified the soil encountered, maintained a detailed log of the exploration showing stratigraphic changes and other pertinent information, obtained representative soil samples, and observed groundwater conditions. Soil encountered in the explorations was classified in the field in general accordance with ASTM D 2488, the Standard Practice for the Classification of Soils (Visual-Manual Procedure), which is described in Figure A-1, Key to Exploration Logs. A log of the boring is presented in Figure A-2, Log of Boring B-1. The log is based on interpretation of the field and laboratory data, and indicates the depth at which subsurface materials or their characteristics change, although these changes might actually be gradual.

The exploration location was selected based on coordination with Mott MacDonald, Inc. The boring location was subsequently measured in the field by taping from existing site features. The boring location also was recorded in the field using a hand-held global positioning system (GPS) device. The ground surface elevation was measured in the field by GeoEngineers' field engineer using an optical level. An existing site benchmark was used as the elevation reference. The benchmark was labeled "IDWR 1979" and had an elevation of "2449.66 FT M.S.L." stamped on it. We assume the elevation is referenced to the NGVD 1929 vertical datum. Exploration locations and elevations should be considered accurate to the degree implied by the method used.
















Laboratory Testing

Soil samples obtained from the boring were returned to our laboratory for further examination and testing. Representative soil samples were selected for laboratory tests to evaluate geotechnical engineering characteristics of the site soil and to confirm or revise our field classification. The laboratory testing program was completed in general accordance with applicable ASTM standards and is summarized in Table A-1, Summary of Laboratory Testing.

TABLE A-1. SUMMARY OF LABORATORY TESTING

Standard Test Method for:	Test Method Designation	Total Tests Performed	Results Location
Laboratory Determination of Water (Moisture) Content of Soil	ASTM D 2216	11	Presented on the boring log "Moisture Content, %" column at respective sample depths.
Laboratory grain-size analysis	ASTM D 422	2	Presented in Figure A-3, Sieve Analysis Results. Moisture content and percent passing the No. 200 sieve also presented on the boring log "Fines Content" column at respective sample depths.
Percent Passing the U.S. No. 200 Sieve	ASTM D 1140	7	Presented on the boring log "Fines Content" column at respective sample depths.
Atterberg Limits Determinations	ASTM D 4318	8	Presented in Figures A-4 and A-5, Atterberg Limits Test Results. Liquid limit and plasticity index also presented on the log "Remarks" column at respective sample depths.
Ductile Iron Pipe Research Association (DIPRA) 10 Point Soil Evaluation Procedure	ANSI/ANSW C105/A21.5	5	Presented in Figure A-6, DIPRA Test Results.

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
		CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND
FINE GRAINED SOILS	SILTS AND CLAYS	CLEAN SANDS (LITTLE OR NO FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SC	CLAYEY SANDS, SAND - CLAY MIXTURES
		CLEAN SANDS (LITTLE OR NO FINES)		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		LIQUID LIMIT LESS THAN 50		OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
		LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
HIGHLY ORGANIC SOILS	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		CH	INORGANIC CLAYS OF HIGH PLASTICITY
		LIQUID LIMIT GREATER THAN 50		OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY
		LIQUID LIMIT GREATER THAN 50		PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

Sampler Symbol Descriptions

	2.4-inch I.D. split barrel
	Standard Penetration Test (SPT)
	Shelby tube
	Piston
	Direct-Push
	Bulk or grab
	Continuous Coring

Blow count is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

"P" indicates sampler pushed using the weight of the drill rig.

"WOH" indicates sampler pushed using the weight of the hammer.

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS		TYPICAL DESCRIPTIONS
GRAPH	LETTER	
	AC	Asphalt Concrete
	CC	Cement Concrete
	CR	Crushed Rock/Quarry Spalls
	SOD	Sod/Forest Duff
	TS	Topsoil

Groundwater Contact



Measured groundwater level in exploration, well, or piezometer



Measured free product in well or piezometer

Graphic Log Contact

Distinct contact between soil strata

Approximate contact between soil strata

Material Description Contact

Contact between geologic units

Contact between soil of the same geologic unit

Laboratory / Field Tests

%F	Percent fines
%G	Percent gravel
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DD	Dry density
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
Mohs	Mohs hardness scale
OC	Organic content
PM	Permeability or hydraulic conductivity
PI	Plasticity index
PP	Pocket penetrometer
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
VS	Vane shear

Sheen Classification

NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen

Key to Exploration Logs



Figure A-1

Start Drilled	9/25/2018	End 9/25/2018	Total Depth (ft)	101.5	Logged By Checked By	JJB DRL	Driller	Haztech	Drilling Method	Hollow-stem Auger/Mud Rotary
Surface Elevation (ft) Vertical Datum	2442.3 NGVD29		Hammer Data		Autohammer 140 (lbs) / 30 (in) Drop		Drilling Equipment		Truck Mounted CME-75	
Easting (X) Northing (Y)	2344840 249055		System Datum		ID State Plane West NAD83		See "Remarks" section for groundwater observed			
Notes: Lat = 48.4907°, Long = -116.904° (WGS84). Hammer efficiency = 74%										

Elevation (feet)	Depth (feet)	FIELD DATA				Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing						
2440	0	8	23		1		TS	Approximately 4 inches of brown silty fine to medium sand with organic matter (roots) and occasional cobbles (medium dense, moist) (topsoil)			Started boring using hollow-stem auger drilling method
							GM	Brown fine to coarse gravel with silt, sand and cobbles (medium dense, moist) (fill)			
2435	5	6	4		2		ML	Gray sandy silt with gravel and occasional cobbles (soft to medium stiff, moist)			Non-plastic Groundwater at 15½ feet below ground surface during drilling
2430	10	4	7		3						
		8	5		4		ML	Gray silt (soft to medium stiff, wet)			LL = 32; PI = 9 Switched to mud rotary drilling at 20 feet below ground surface
2425	15	16	4		5 AL; %F				44.6	95	
		0			6						Non-plastic
2420	20	14	5		7 AL, SA		CL	Gray lean clay (medium stiff, wet)	34.6	97	
2415	25	18	2		8 AL; %F		ML	Gray silt with sand (soft, wet)	38.6	79	* Sampler on gravel, blowcount overstated
		24			9						
2410	30	2	6 *		10		ML	Gray silt (soft, wet)			Non-plastic
		18	2		11 AL; %F				38.9	99	
35											

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring B-1



Project: Priest Lake Outlet Dam
Project Location: Bonner County, Idaho
Project Number: 22593-001-04

Figure A-2
Sheet 1 of 3

Date: 2/17/23 Path: P:\22593-001\GINT\22593-001-04.GPJ DBLibrary\Library\GEOENGINEERS_DF_STD_US_JUNE_2017\GLB\GEB8_GEOTECH_STANDARD_%F_NO_GW

Elevation (feet)	Depth (feet)	FIELD DATA				Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing						
2405	35	18	6		12 %F			Becomes medium stiff to stiff	38.1	100	Non-plastic
2400	40	16	9		13 AL, SA				38.6	97	
2395	45	12	20		14 %F				34.1	72	
2390	50	15	18		15 AL; %F		ML	Gray sandy silt (stiff to very stiff, wet)	33.4	63	
2385	55	16	11		16						
2380	60	14	21		17		ML/CL	Gray silt with clay lenses (very stiff, wet)			
2375	65	15	14		18						
2370	70	18	10		19 AL		CL	Gray lean clay (stiff, wet)	58.7		
	75	17	20		20 %F		ML	Gray silt (very stiff, wet)	37.5	88	

Log of Boring B-1 (continued)



Project: Priest Lake Outlet Dam
Project Location: Bonner County, Idaho
Project Number: 22593-001-04

Figure A-2
Sheet 2 of 3

Date: 2/17/23 Path: P:\22\22593001\GINT\22593001.GINT\22593001.GPJ DBLibrary\Library\GEOTECH\STANDARD_SF_NO_GW

Elevation (feet)	Depth (feet)	FIELD DATA				Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing						
2385											
	80	19	8		21						
2380											
	85	16	27		22		ML/CL	Gray silt with clay lenses (very stiff, wet)			
2375											
	90	22	9		23 AL		CL	Gray lean clay (stiff, wet)	42.5		LL = 42; PI = 19
2370											
	95	17	23		24		ML	Gray silt (very stiff, wet)			
2365											
							ML	Gray silt with sand (very stiff, wet)			
	100	12	32		25						

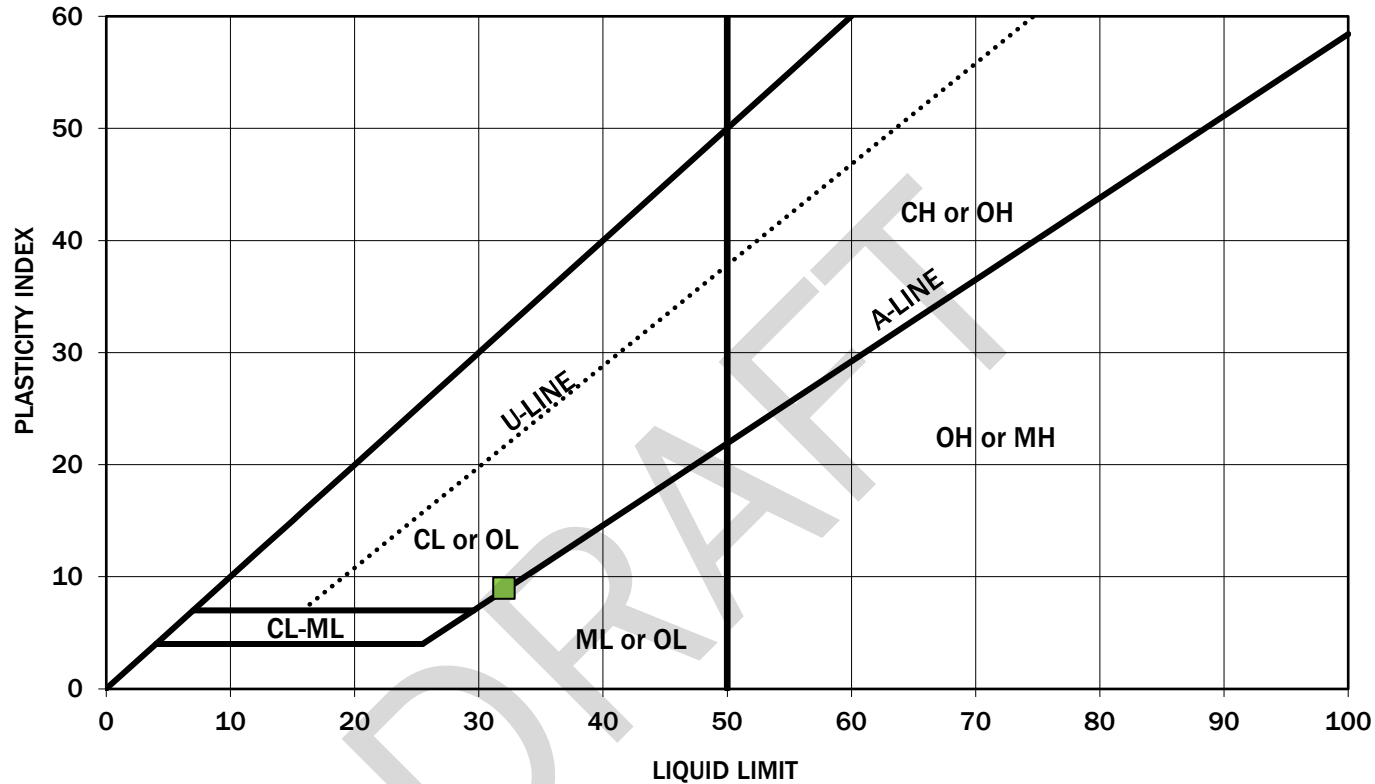
Log of Boring B-1 (continued)



Project: Priest Lake Outlet Dam
 Project Location: Bonner County, Idaho
 Project Number: 22593-001-04

Figure A-2
 Sheet 3 of 3

PLASTICITY CHART



Symbol	Boring Number	Depth (feet)	Moisture Content (%)	Liquid Limit (%)	Plasticity Index (%)	Soil Description
◆	B-1	15	45	n/a	n/a	Nonplastic (NP)
■	B-1	20	35	32	9	Lean Clay (CL)
▲	B-1	25	39	n/a	n/a	Nonplastic (NP)
●	B-1	32	39	n/a	n/a	Nonplastic (NP)

Note: This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations, or generated by separate operations or processes.

The liquid limit and plasticity index were obtained in general accordance with ASTM D 4318.

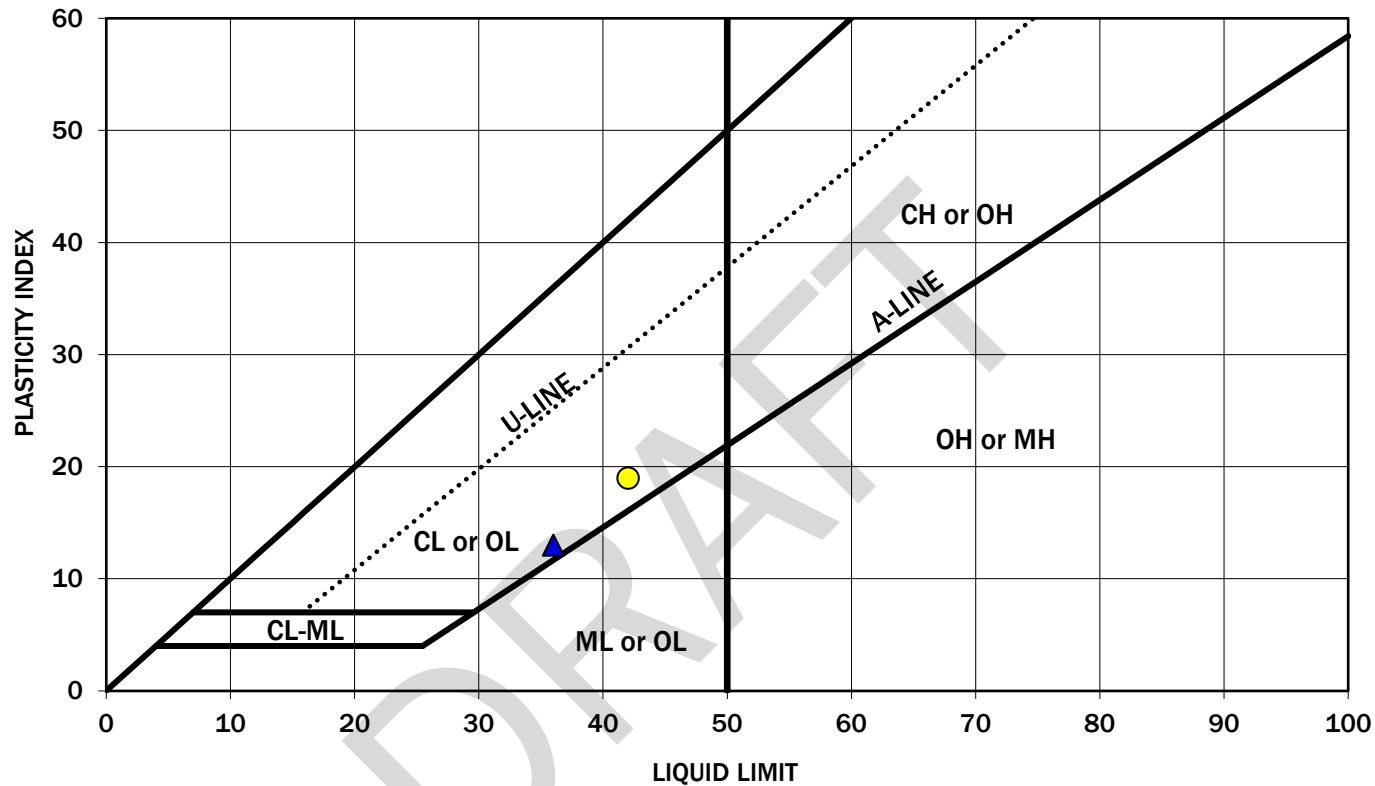
Atterberg Limits Test Results

Priest Lake Outlet Dam
Bonner County, Idaho



Figure A-4

PLASTICITY CHART



Symbol	Boring Number	Depth (feet)	Moisture Content (%)	Liquid Limit (%)	Plasticity Index (%)	Soil Description
◆	B-1	40	39	n/a	n/a	Nonplastic (NP)
■	B-1	50	33	n/a	n/a	Nonplastic (NP)
▲	B-1	70	59	36	13	Lean clay (CL)
●	B-1	90	43	42	19	Lean clay (CL)

Note: This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations, or generated by separate operations or processes.

The liquid limit and plasticity index were obtained in general accordance with ASTM D 4318.

Atterberg Limits Test Results

Priest Lake Outlet Dam
Bonner County, Idaho



Figure A-5

Job Name:	Priest Lake Dam	Job #:	22593-001-01	
Date:	1/4/19	Tested by:	MLC	
Boring #:	B-1			DIPRA Pts.
Sample #:	5	Resistivity :	4800	0
Depth:	15-16.5	pH :	8.9	3
Soil Description:	Silt (ML)	Redox Potential :	163.9	0
		Sulfides :	Negative	0
		Moisture :	Poor	2
		Total DIPRA Points:		5
Boring #:	B-1			DIPRA Pts.
Sample #:	7	Resistivity :	5100	0
Depth:	20-21.5	pH :	8.4	0
Soil Description:	Silt (ML)	Redox Potential :	234.3	0
		Sulfides :	Negative	0
		Moisture :	Poor	2
		Total DIPRA Points:		2
Boring #:	B-1			DIPRA Pts.
Sample #:	8	Resistivity :	5400	0
Depth:	25-26.5	pH :	8.2	0
Soil Description:	Silt (ML)	Redox Potential :	237.6	0
		Sulfides :	Negative	0
		Moisture :	Poor	2
		Total DIPRA Points:		2
Boring #:	B-1			DIPRA Pts.
Sample #:	11	Resistivity :	5200	0
Depth:	31.5-33	pH :	8.1	0
Soil Description:	Silt (ML)	Redox Potential :	261.8	0
		Sulfides :	Negative	0
		Moisture :	Poor	2
		Total DIPRA Points:		2
Boring #:	B-1			DIPRA Pts.
Sample #:	12	Resistivity :	6000	0
Depth:	35-36.5	pH :	8.1	0
Soil Description:	Silt (ML)	Redox Potential :	288.2	0
		Sulfides :	Negative	0
		Moisture :	Poor	2
		Total DIPRA Points:		2
Boring #:				DIPRA Pts.
Sample #:		Resistivity :		
Depth:		pH :		
Soil Description:		Redox Potential :		
		Sulfides :		
		Moisture :		
		Total DIPRA Points:		

DIPRA Test Results

Priest Lake Outlet Dam
Bonner County, Idaho



Figure A-6

APPENDIX B
1978 Plans for Existing Dam

DRAFT

IDAHO DEPARTMENT OF WATER RESOURCES

BOISE, IDAHO

1978

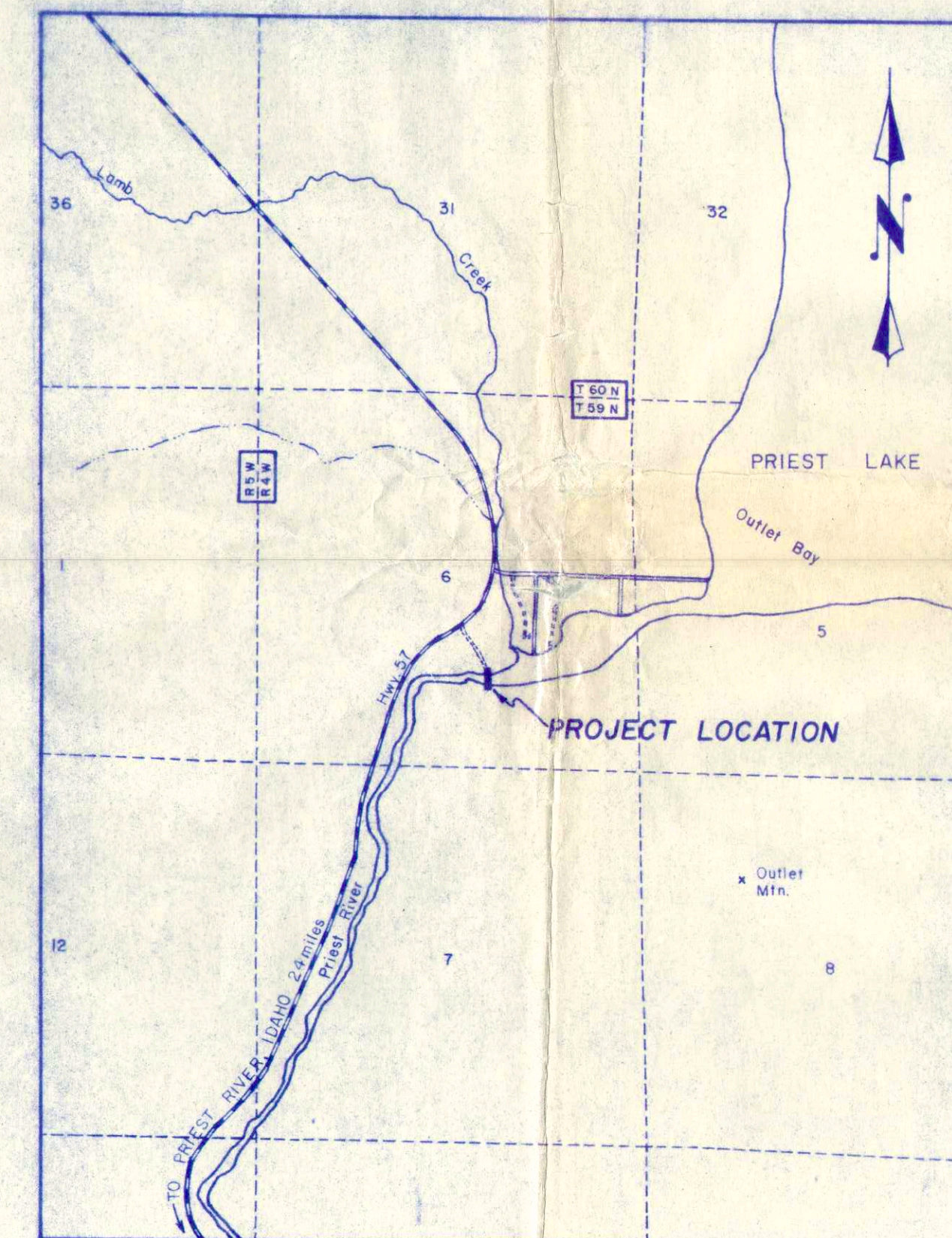
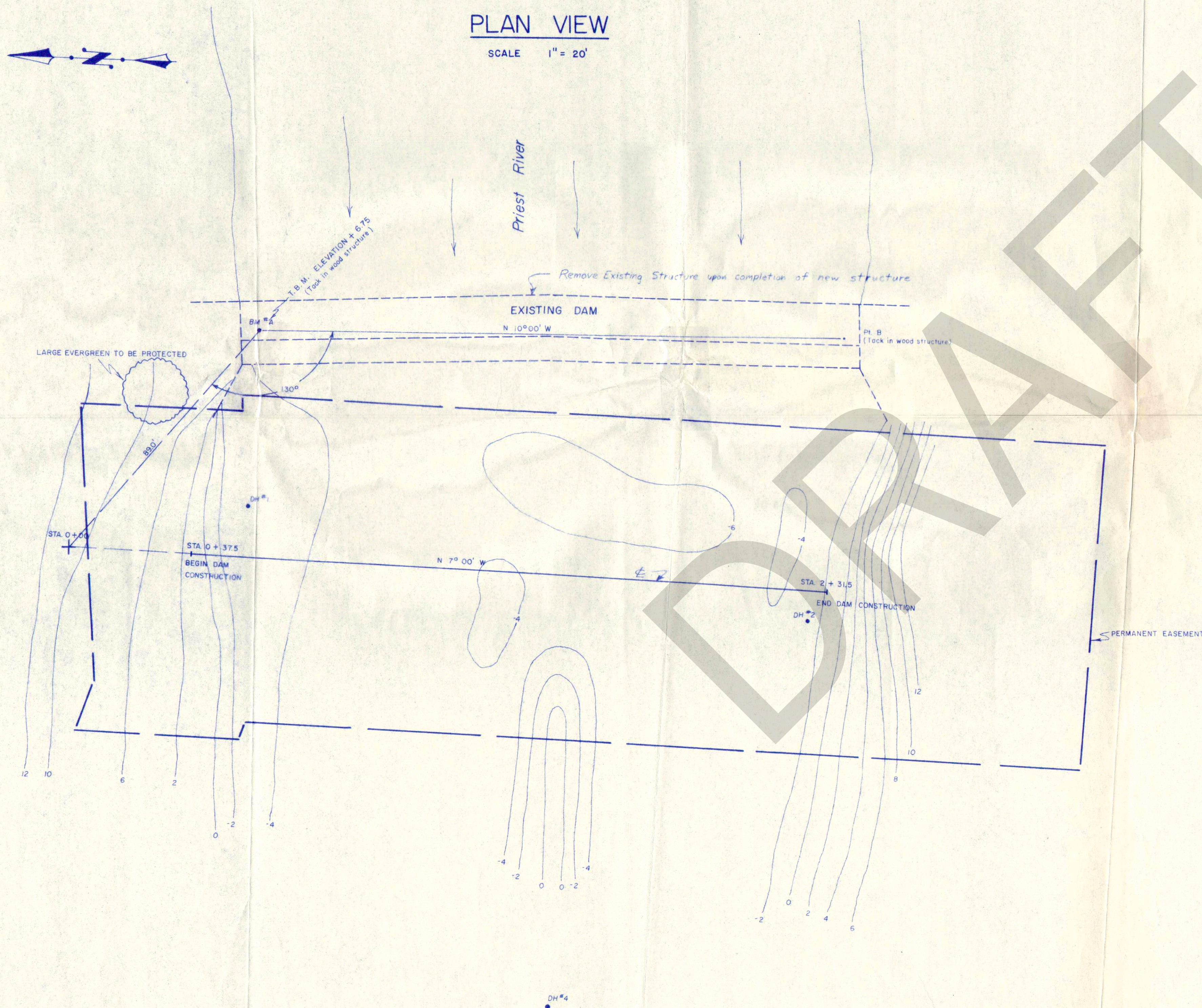
PLANS FOR REPLACEMENT OF CONTROL STRUCTURE

PRIEST LAKE OUTLET

BONNER COUNTY, IDAHO

PLAN VIEW

SCALE 1" = 20'



PROJECT LOCATION MAP

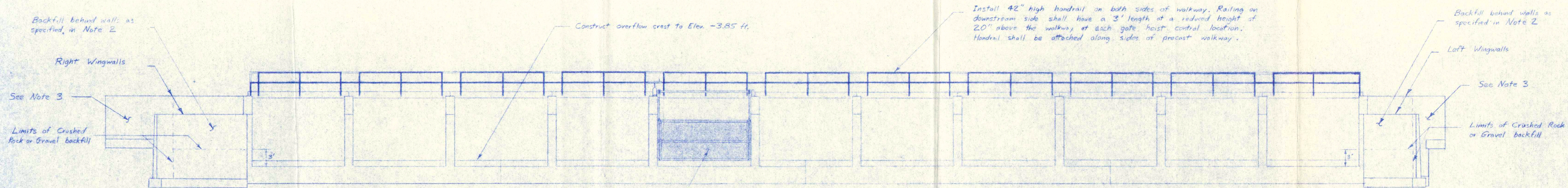
SCALE 1" = 2000'

IDAHO DEPARTMENT OF WATER RESOURCES

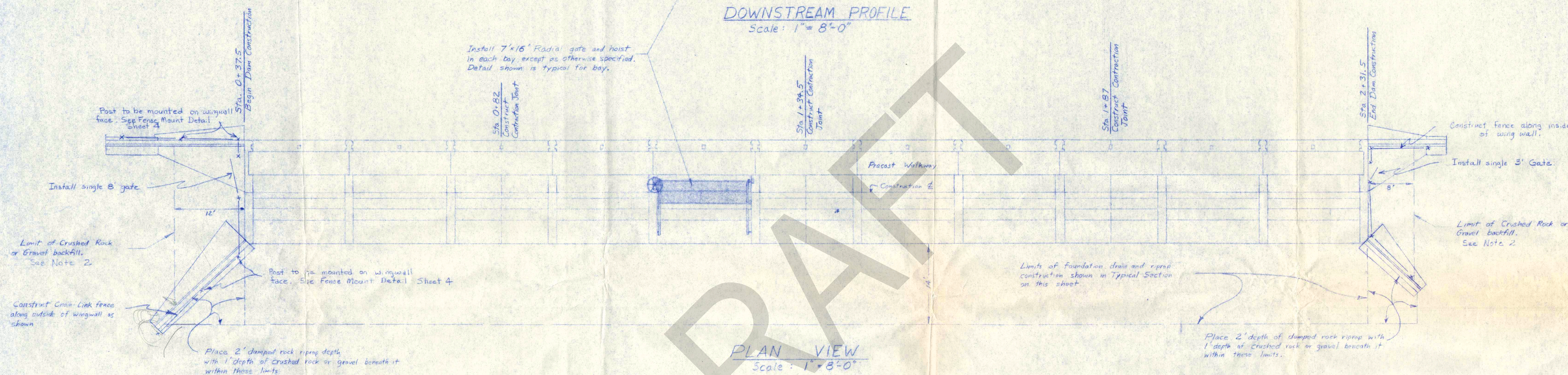
SCALE: 25' = 1" DATE: May 1978 APPROVED BY: William R. Gault DRAWN BY: R.C.P.B. REVISED:

PRIEST LAKE OUTLET — TITLE PAGE

DRAWING NUMBER 97-2020-1

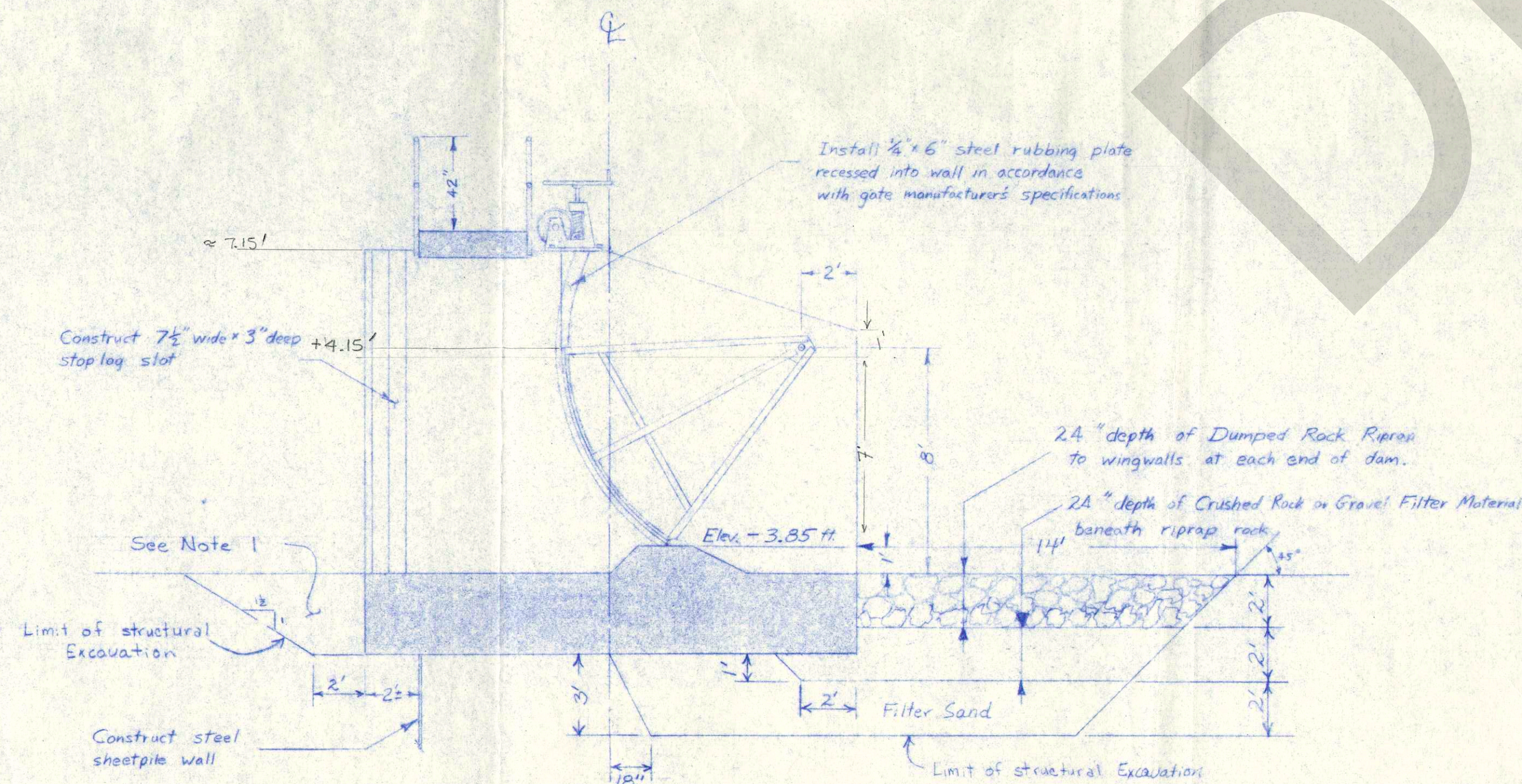


DOWNSTREAM PROFILE
Scale: 1" = 8'-0"



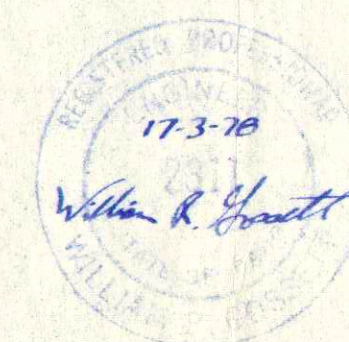
PLAN VIEW
Scale: 1" = 8'-0"

- NOTES**
1. Place compacted backfill, Class II compaction.
 2. Place compacted backfill with no more than 5% passing a No. 200 sieve above level of crushed rock or gravel to top of wingwalls. Class I compaction. Limits of fill extend vertically from crushed rock or gravel as shown.
 3. Place Class I compacted impervious backfill behind walls near abutment and along water side of upstream walls.



TYPICAL SECTION
Scale: 1" = 4'-0"

APPROVED
IDAHO DEPARTMENT OF WATER RESOURCES
3/20/78
DATE FOR INSTRUMENT, RESOURCES ADMIN. DIVISION

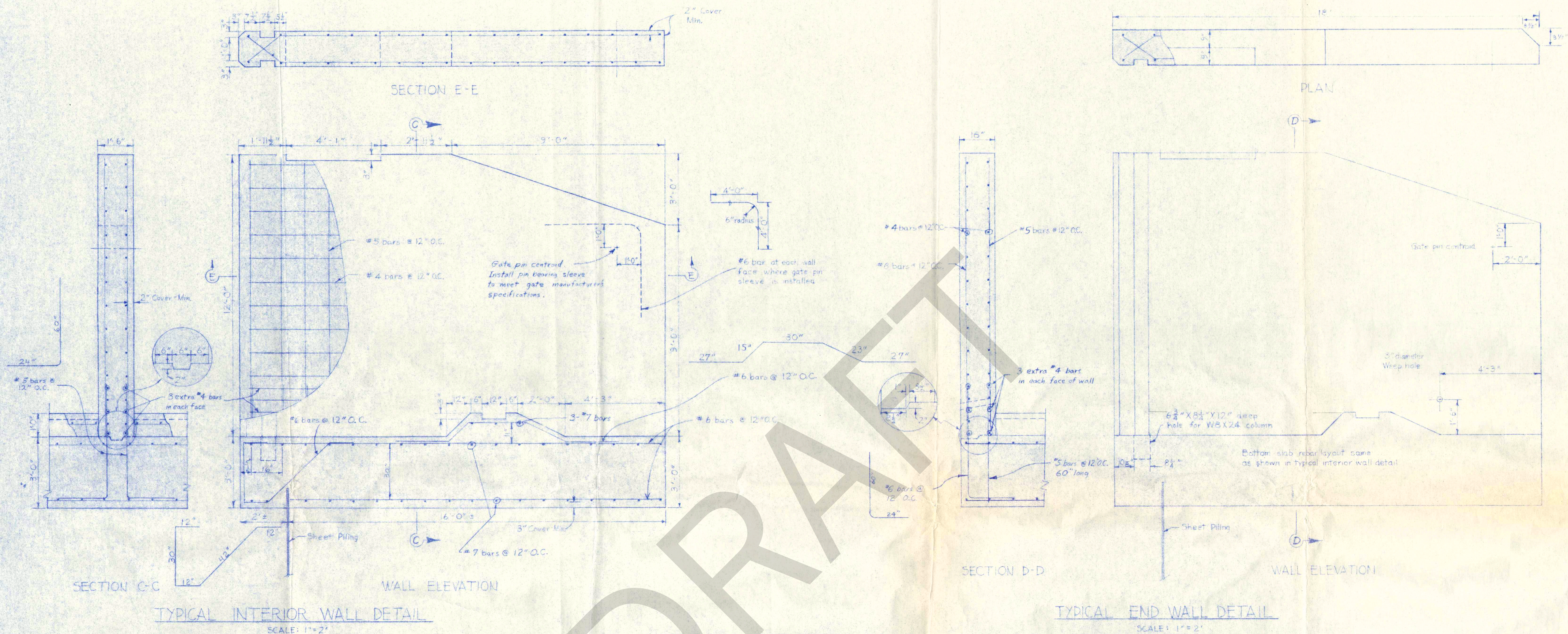


IDAHO DEPARTMENT OF WATER RESOURCES

SCALE: AS SHOWN
DATE: 17 Mar 1978
APPROVED BY: [Signature]
DRAWN BY: W.R.G.
REVISED

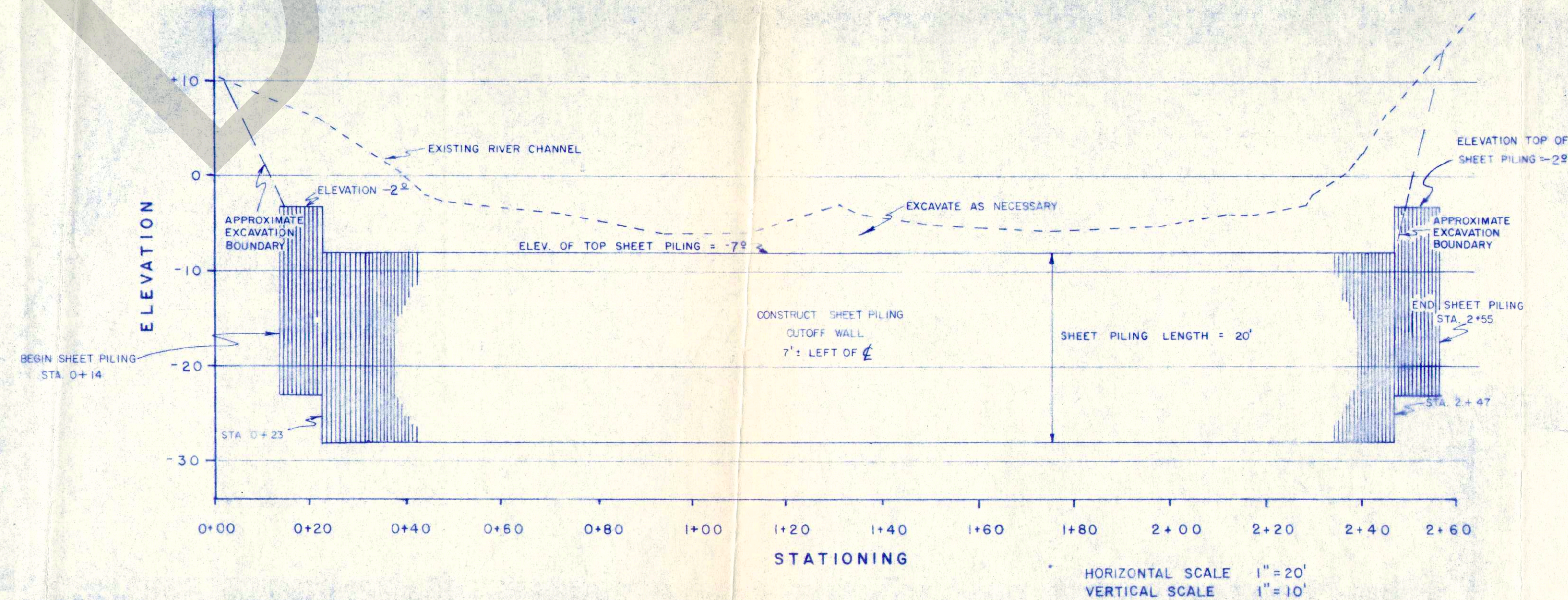
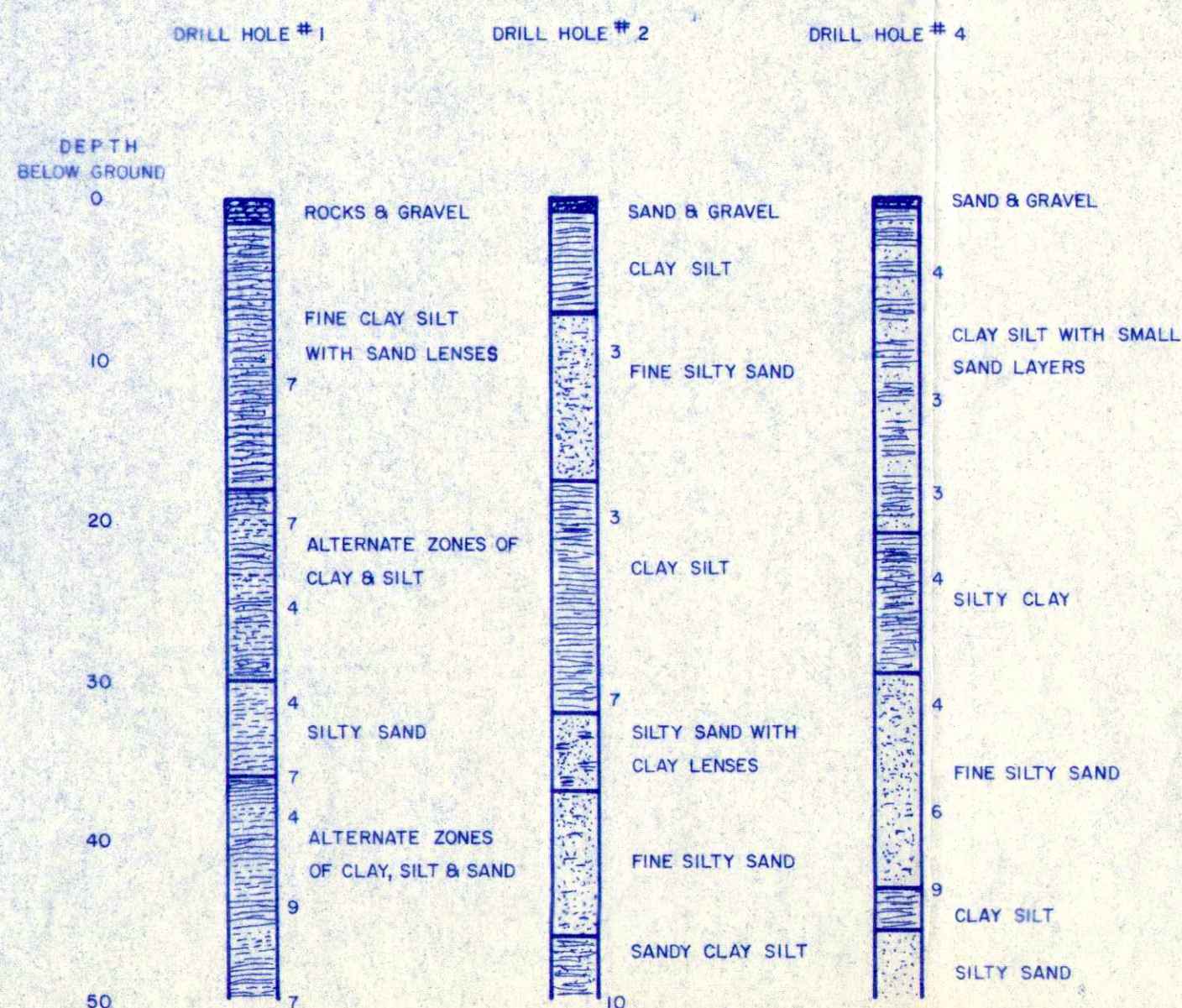
PRIEST LAKE OUTLET — PLAN & PROFILE

DRAWING NUMBER
97-2020-2



DRILL LOGS - PRIEST LAKE DAM

DESCRIPTION OF MATERIAL & SPLIT SPOON BLOW COUNT PER 6" ADDITIONAL INFORMATION AVAILABLE FROM DEPT OF WATER RESOURCES.

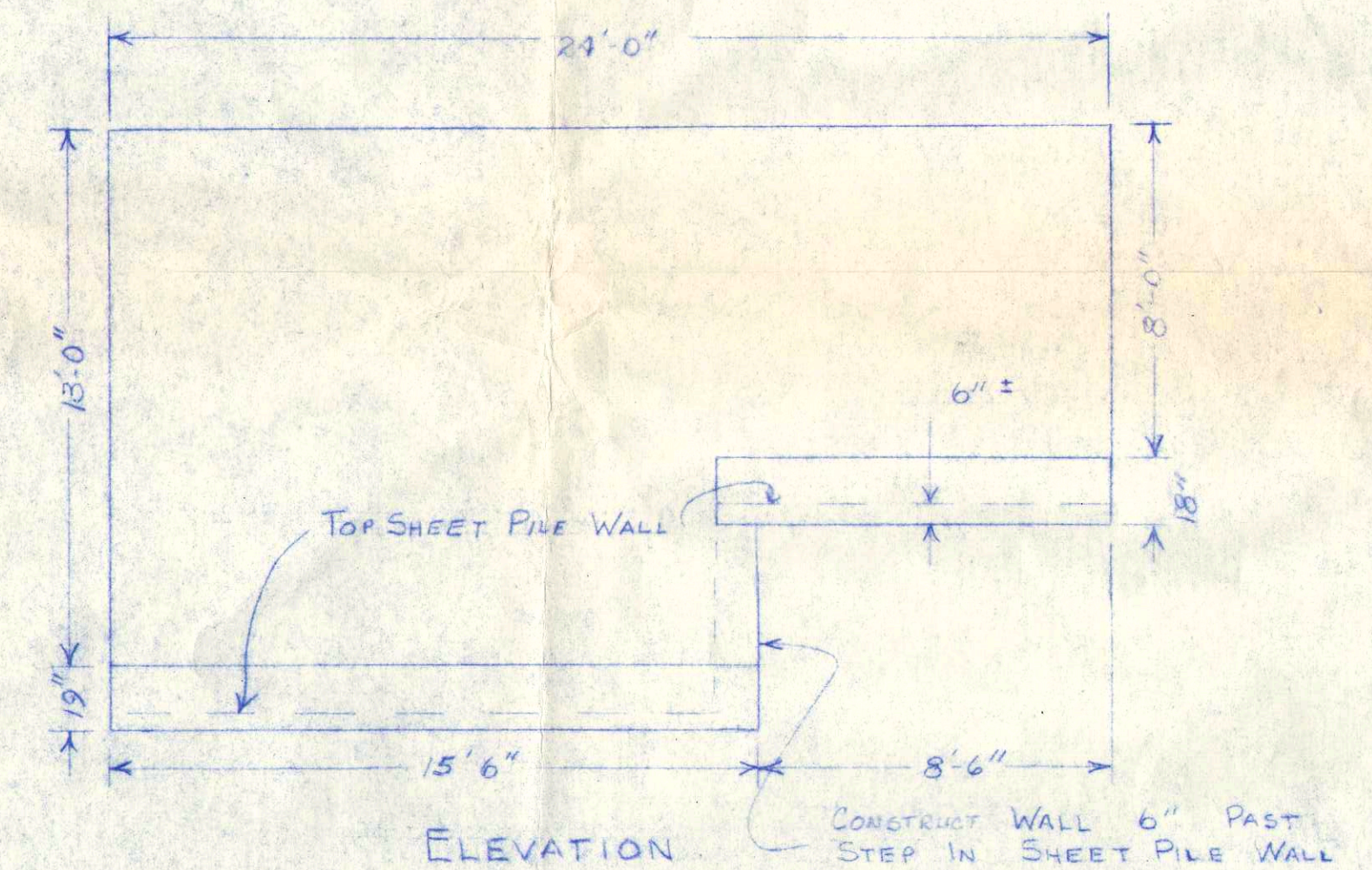
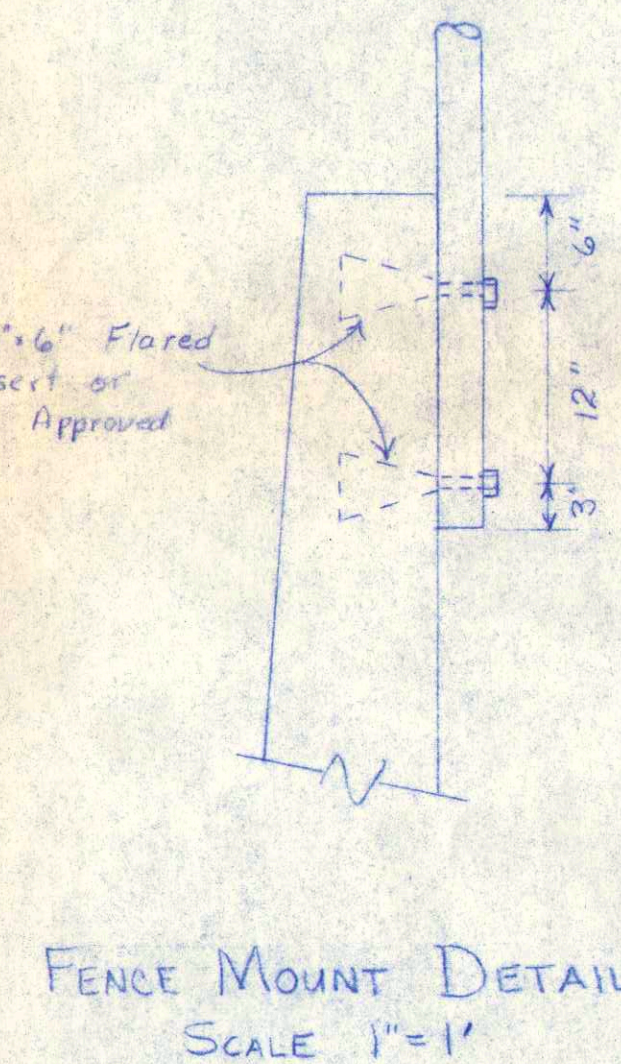
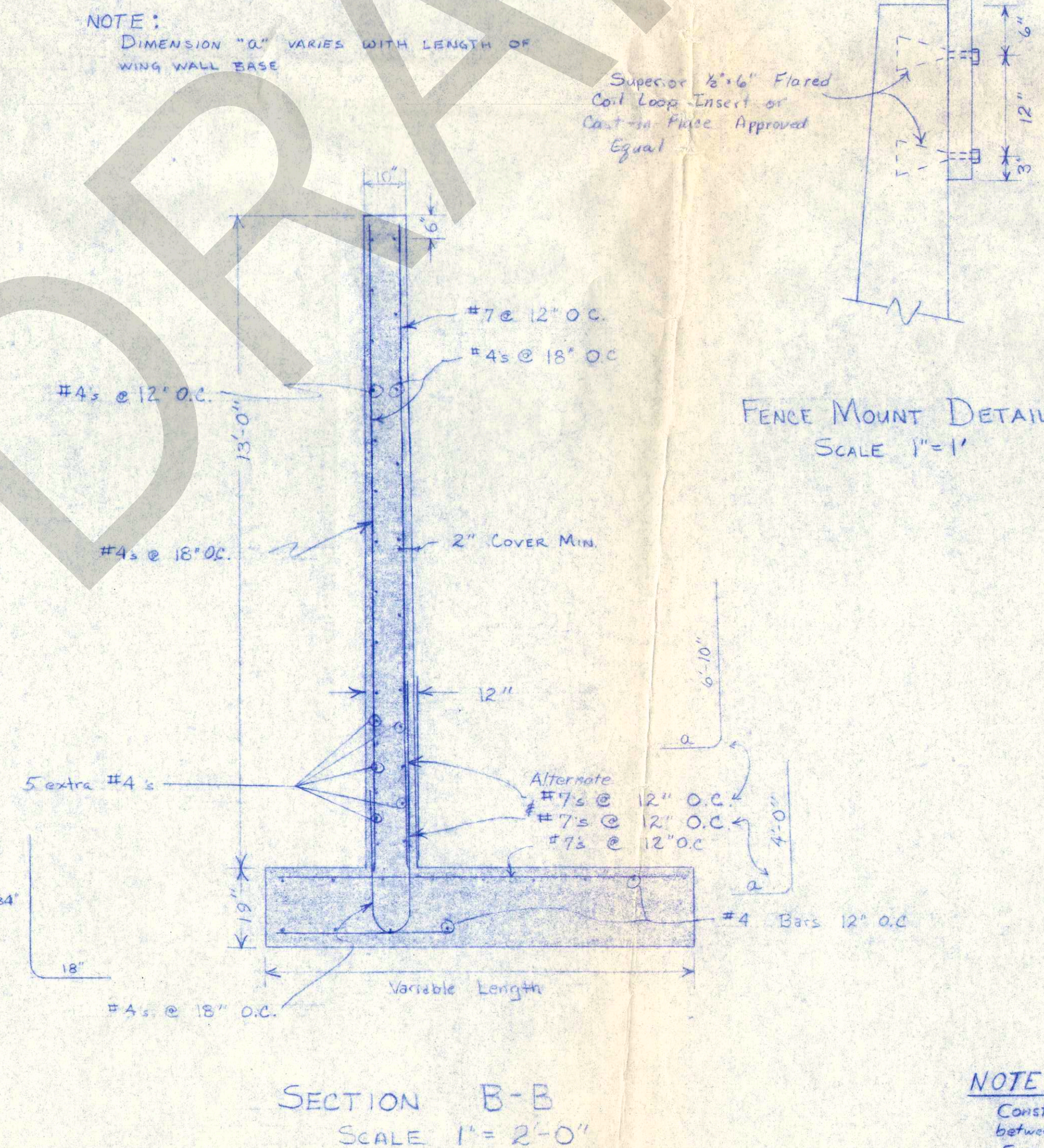
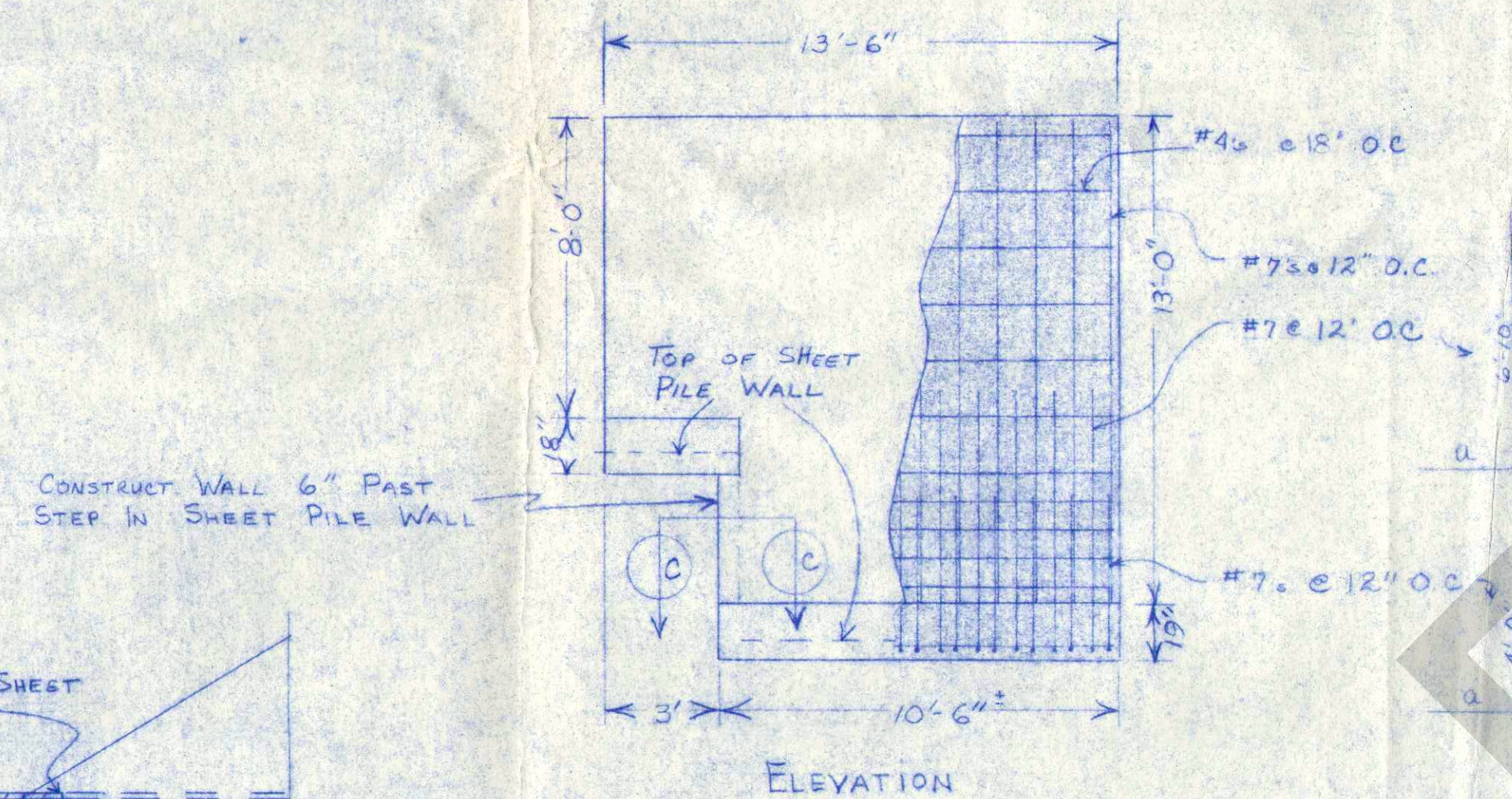
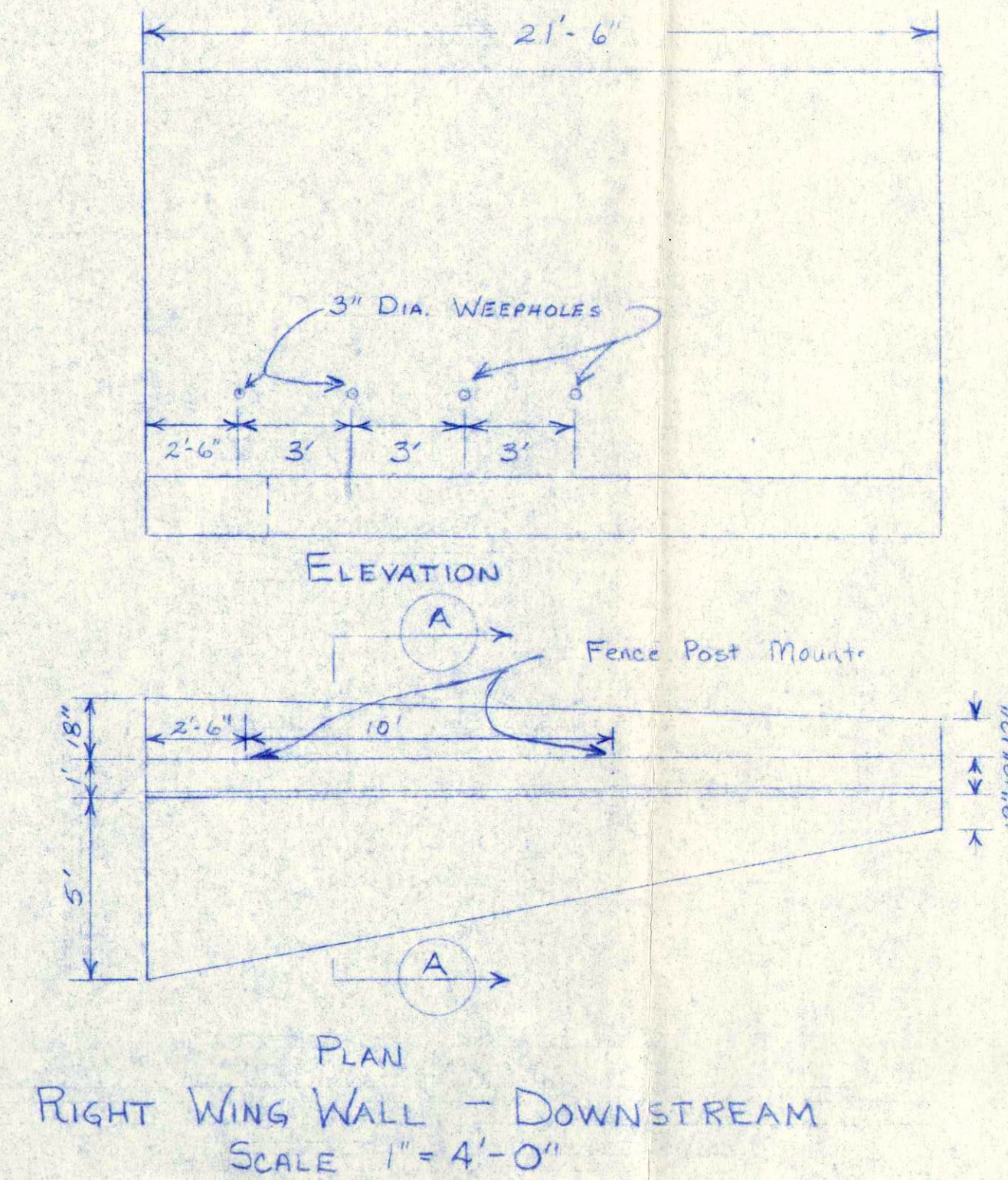
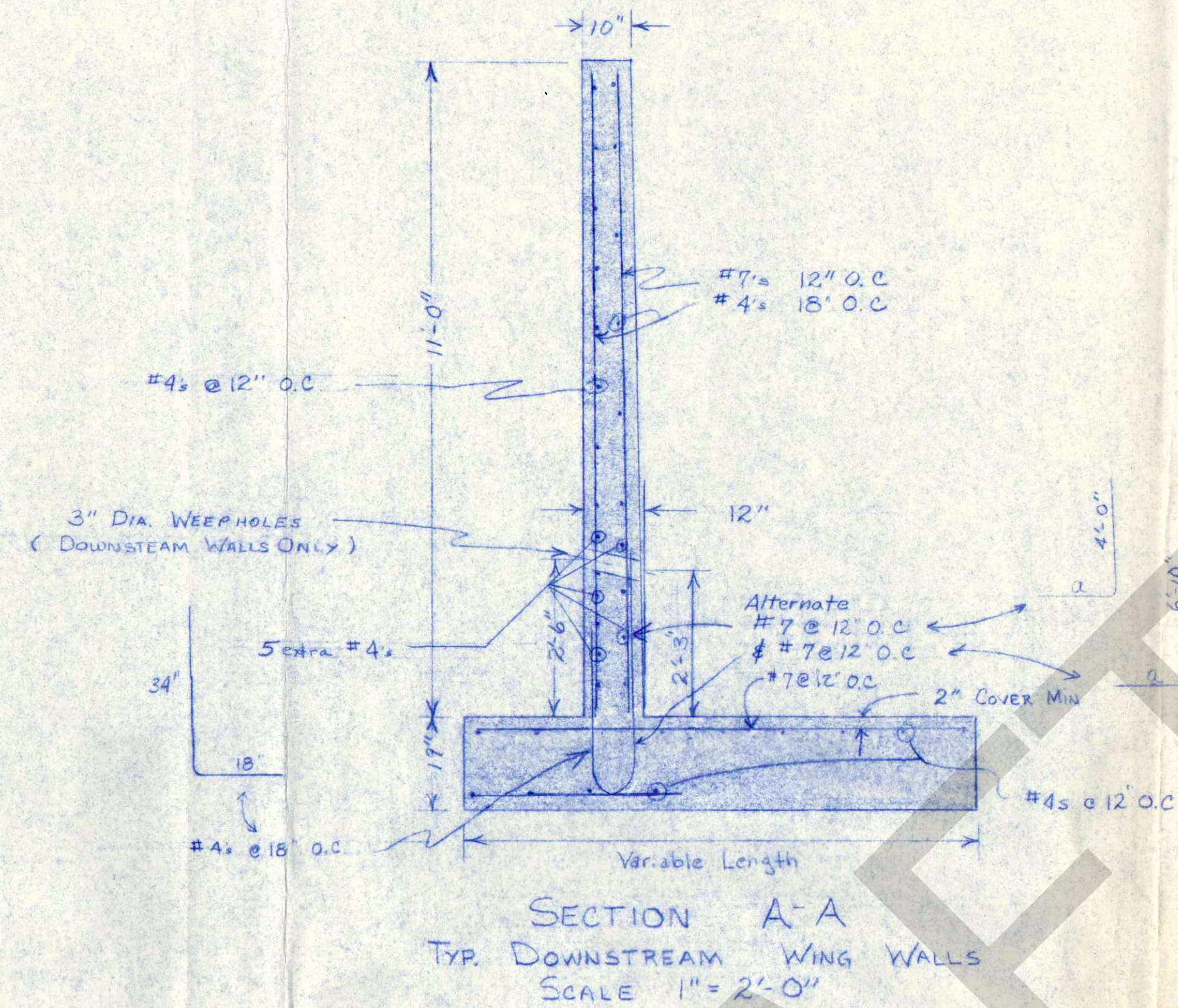
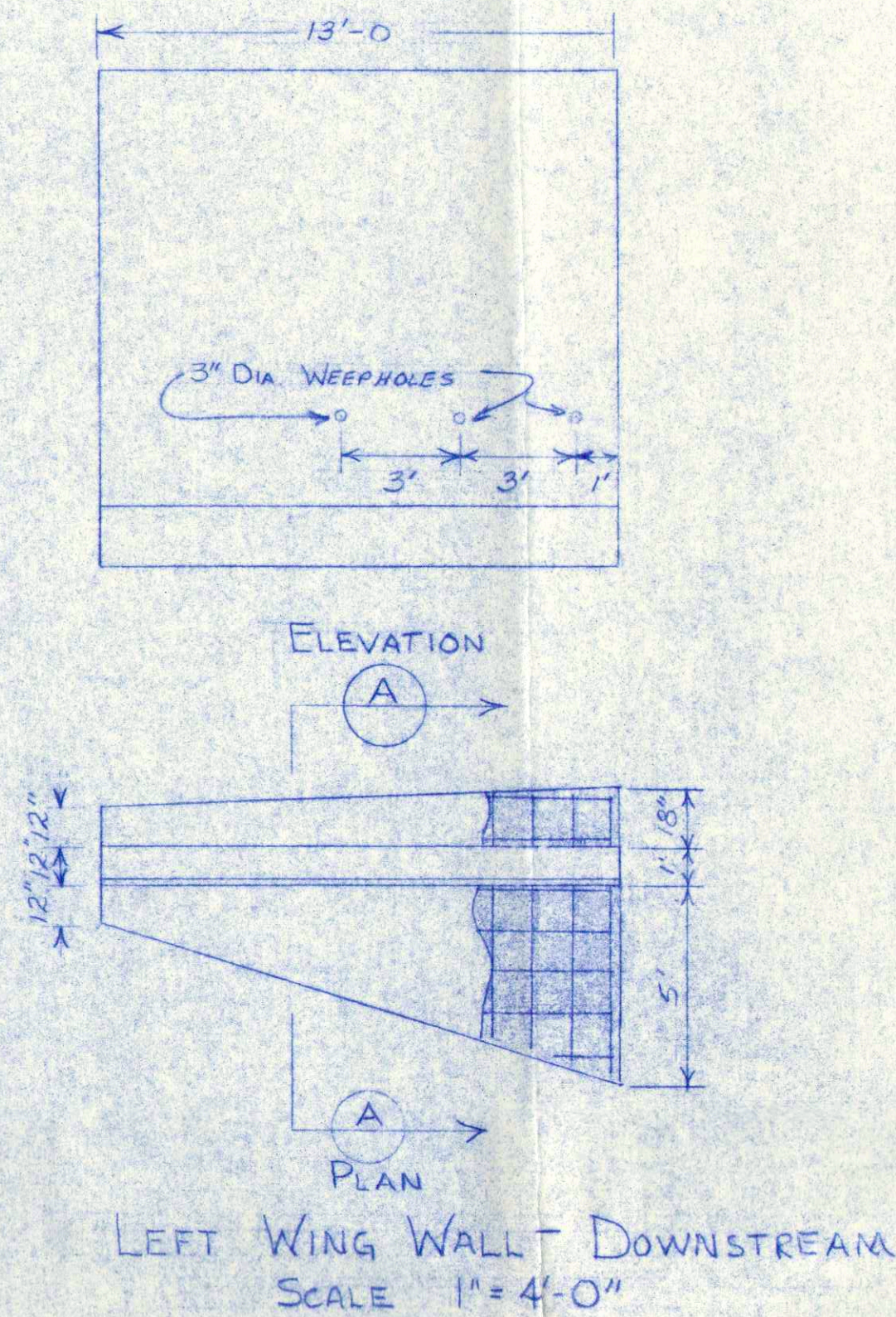


IDAHO DEPARTMENT OF WATER RESOURCES

SCALE: 1"=20' DATE: 11/17/24 APPROVED BY: 3/26/24

PRIEST LAKE OUTLET - STRUCTURAL DETAIL

DRAWING NUMBER 97-2020-3

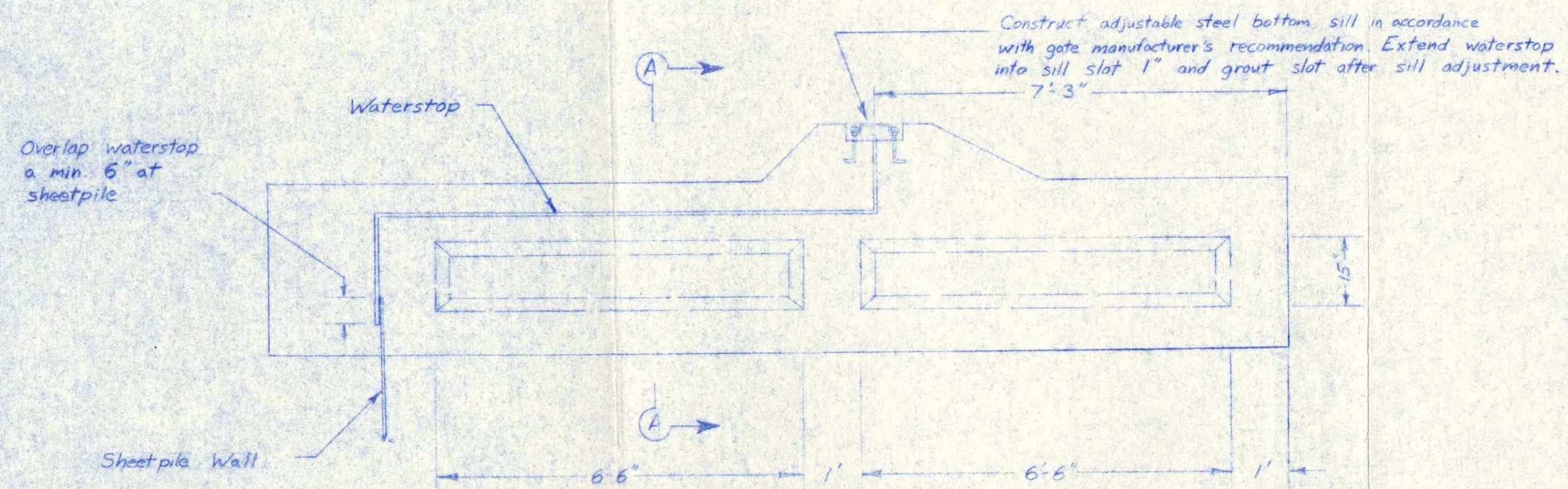


APPROVED
IDAHO DEPARTMENT OF WATER RESOURCES
2/20/78
DATE: 2/20/78
ADMINISTRATOR: RESOURCES ADMIN. DIVISION

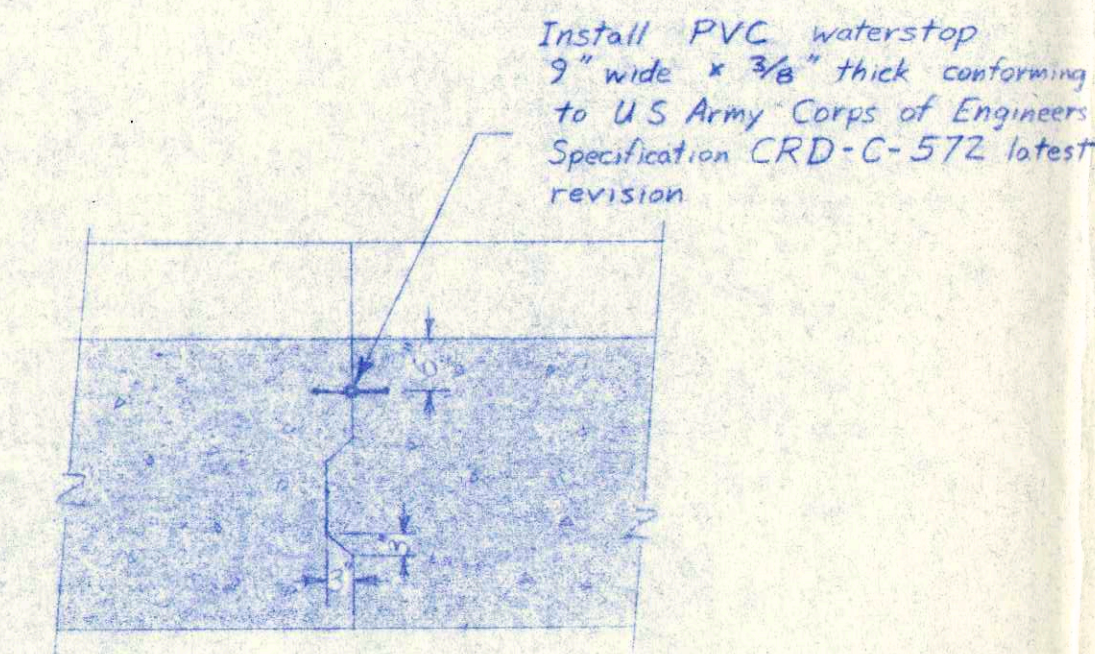
REGISTERED PROFESSIONAL ENGINEER
17-3-78
WILLIAM R. GOSS

IDAHO DEPARTMENT OF WATER RESOURCES	
PRIEST LAKE OUTLET - WINGWALLS	
DRAWN BY: J.B.	APPROVED: [Signature]
SCALE: AS SHOWN	
DATE: 17 Feb 78	
SHEET NO. 4	

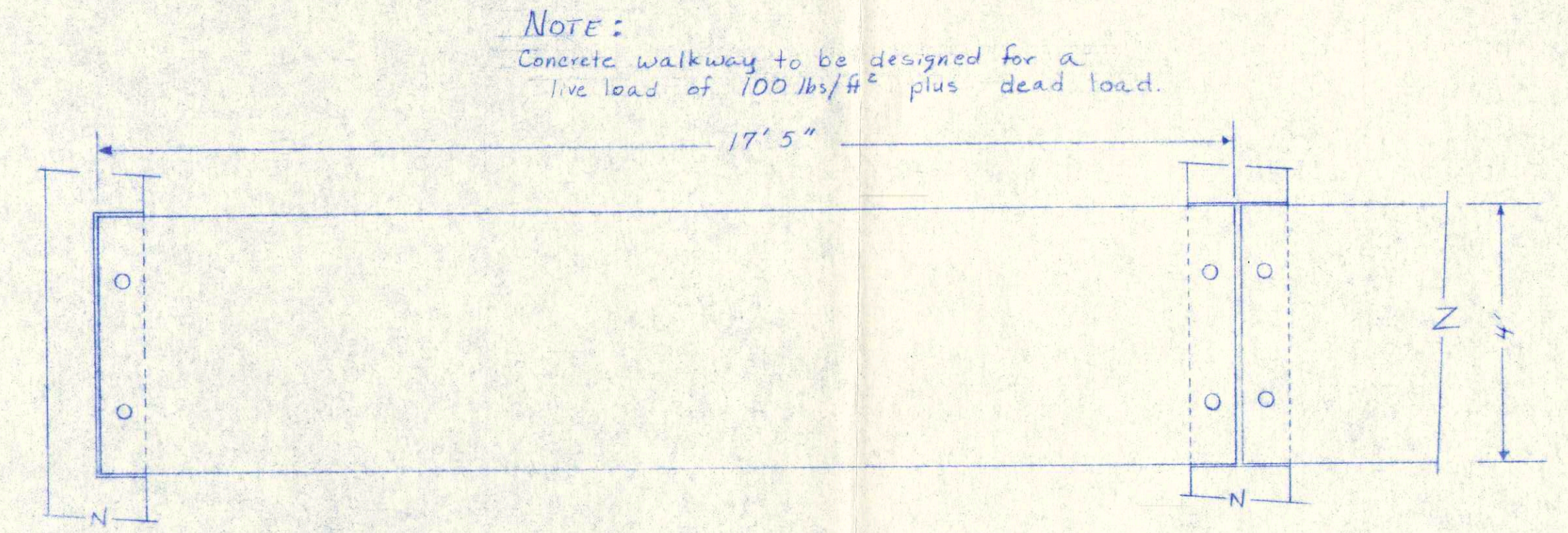
NOTE:
Construct Expansion Joint at each contact between wingwalls and dam end wall. See Typical Detail on Sheet 5.



CONTRACTION JOINT DETAIL
Scale: 1" = 2'-0"

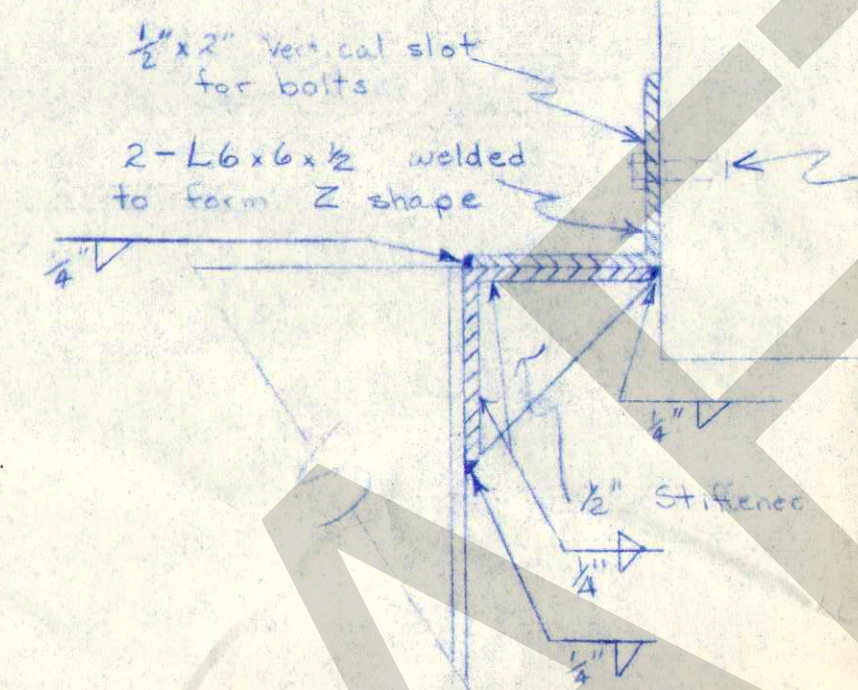


SECTION A-A



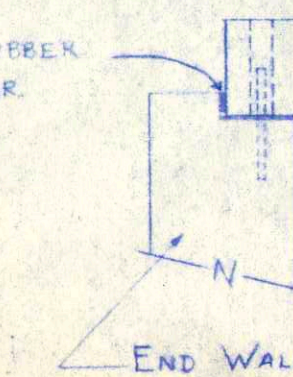
PLAN
Scale 1" = 2'-0"

BOLT INSERTS OR WELD PLATES SHALL BE INSTALLED ALONG BOTH SIDES TO ACCOMMODATE HANDRAILING. HANDRAIL DESIGN SHALL BE APPROVED BY OWNER PRIOR TO CONSTRUCTION.

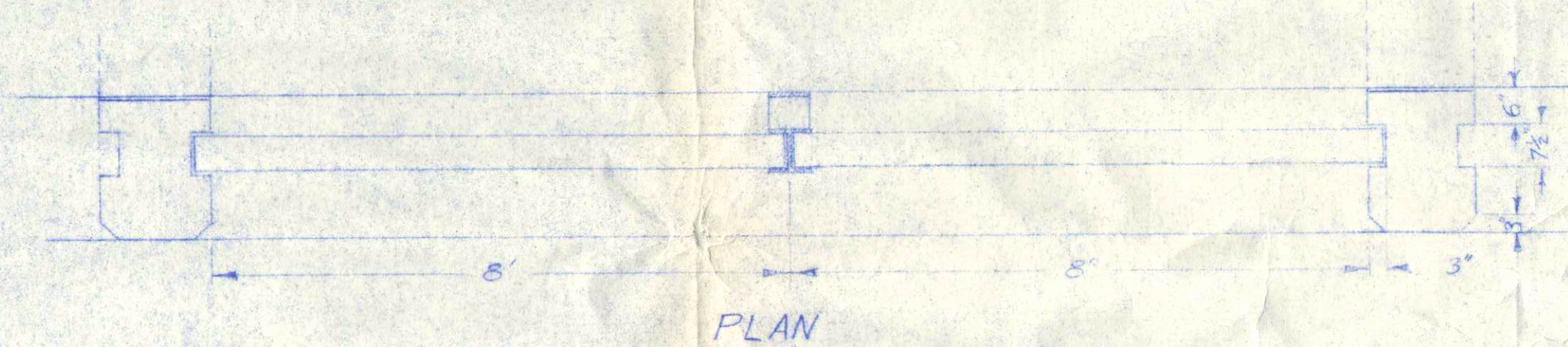
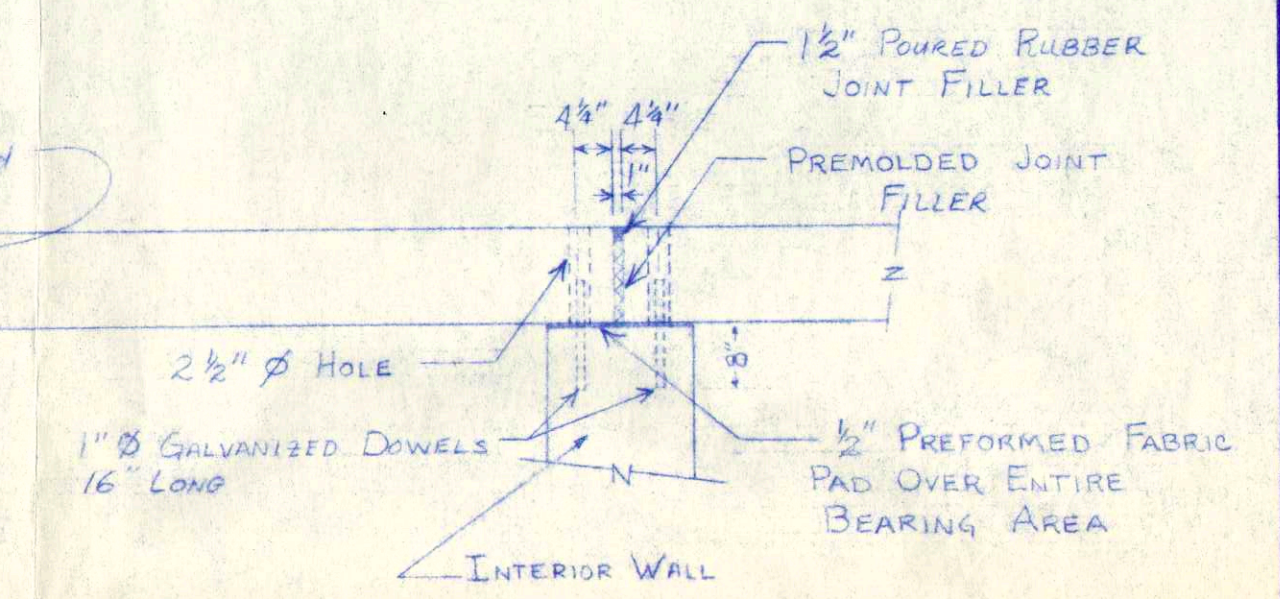


BRACKET DETAIL
Scale 1" = 1'

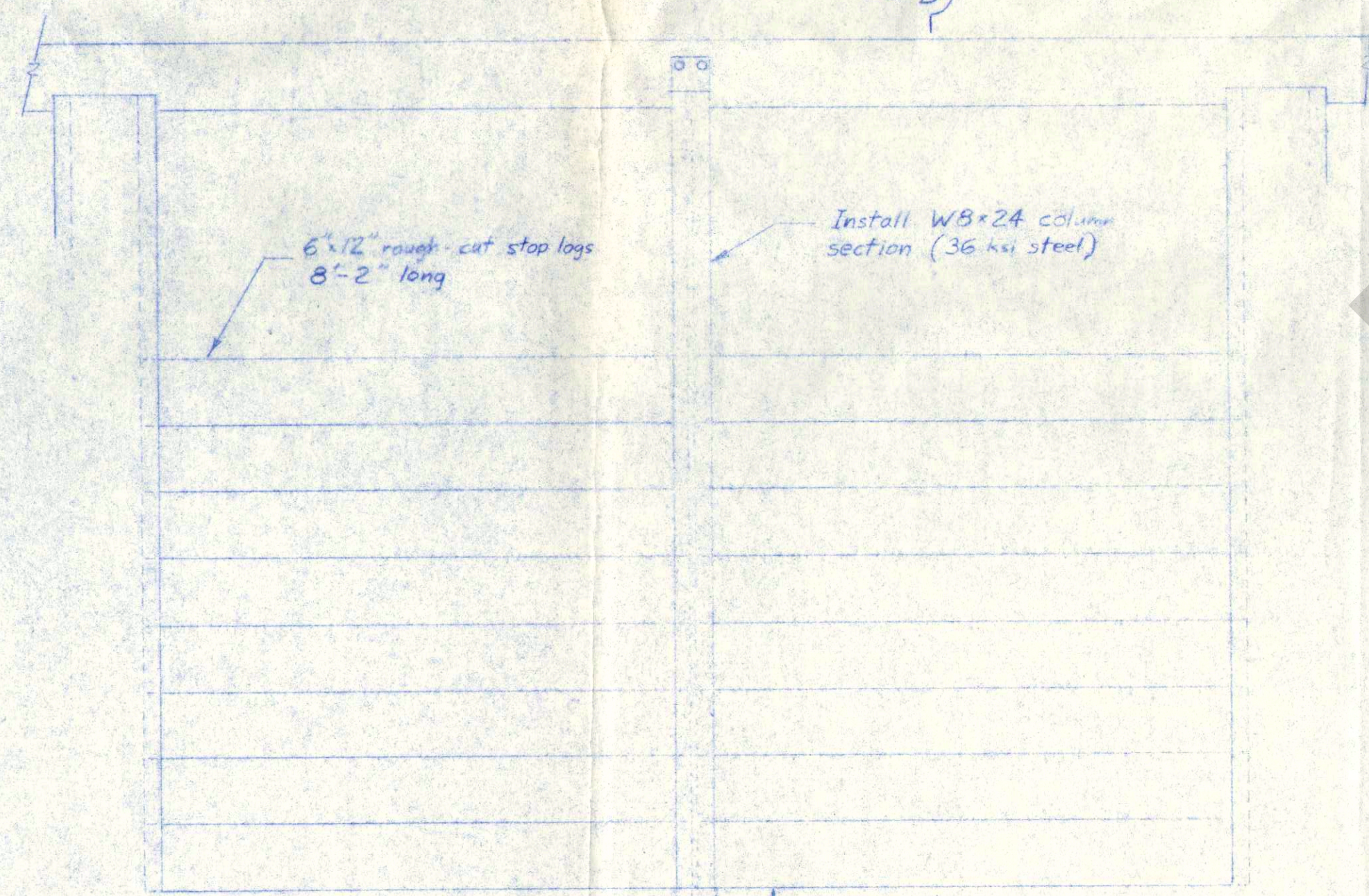
2-1/2" x 4" Superior Straight Coil Loop Inserts or Cast-in-Place approved equal on upstream side of walkway



PROFILE
Scale 1" = 2'-0"

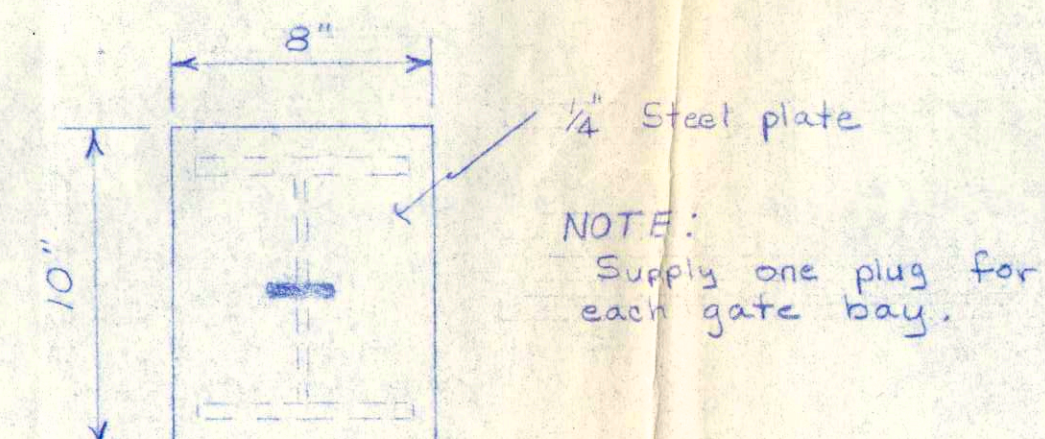


PLAN

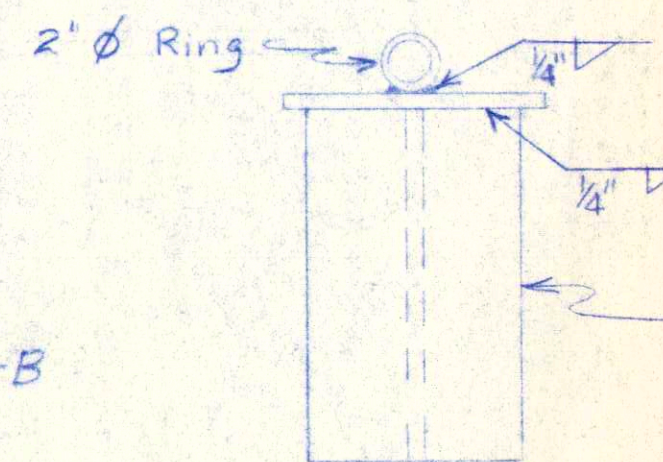


PROFILE

STOP LOG SECTION DETAIL
Scale: 1" = 2'-0"

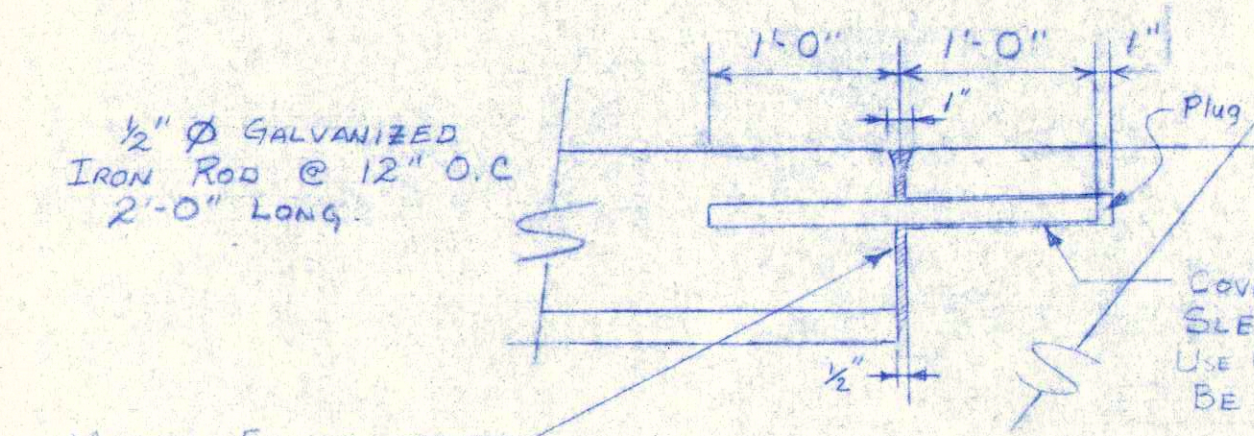


TOP VIEW



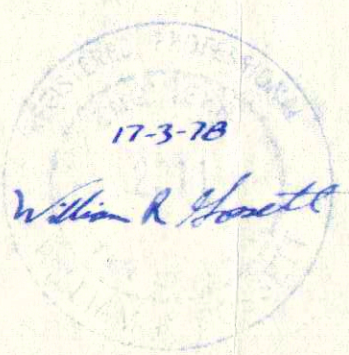
ELEVATION

PLUG DETAIL
Scale 1" = 1'



TYP. EXPANSION JOINT
No SCALE

NOTE:
ALIGN DOWELS PARALLEL TO WING WALLS



IDaho DEPARTMENT OF WATER RESOURCES	
PRIEST LAKE OUTLET — MISC. DETAILS	
Drawn By: W.G., K.H.	Approved: W. Shaeffer
SCALE: AS SHOWN	SHEET No. 5
DATE: 17 May 1978	97-2020

APPENDIX C

Report Limitations and Guidelines for Use

DRAFT

APPENDIX C

REPORT LIMITATIONS AND GUIDELINES FOR USE¹

This appendix provides information to help you manage your risks with respect to the use of this report.

Read These Provisions Closely

It is important to recognize that the geoscience practices (geotechnical engineering, geology and environmental science) rely on professional judgment and opinion to a greater extent than other engineering and natural science disciplines, where more precise and/or readily observable data may exist. To help clients better understand how this difference pertains to our services, GeoEngineers includes the following explanatory “limitations” provisions in its reports. Please confer with GeoEngineers if you need to know more how these “Report Limitations and Guidelines for Use” apply to your project or site.

Geotechnical Services are Performed for Specific Purposes, Persons and Projects

This report has been prepared for Mott MacDonald, Inc. and for the Priest Lake Outlet Dam project specifically identified in the report. The information contained herein is not applicable to other sites or projects.

GeoEngineers structures its services to meet the specific needs of its clients. No party other than the party to whom this report is addressed may rely on the product of our services unless we agree to such reliance in advance and in writing. Within the limitations of the agreed scope of services for the Project, and its schedule and budget, our services have been executed in accordance with our Agreement with Mott MacDonald dated August 1, 2018 and generally accepted geotechnical practices in this area at the time this report was prepared. We do not authorize, and will not be responsible for, the use of this report for any purposes or projects other than those identified in the report.

A Geotechnical Engineering or Geologic Report is based on a Unique Set of Project-Specific Factors

This report has been prepared for Mott MacDonald for the Priest Lake Outlet Dam project located in Bonner County, Idaho. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, it is important not to rely on this report if it was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

For example, changes that can affect the applicability of this report include those that affect:

- the function of the proposed structure;

¹ Developed based on material provided by GBA, GeoProfessional Business Association; www.geoprofessional.org.

- elevation, configuration, location, orientation or weight of the proposed structure;
- composition of the design team; or
- project ownership.

If changes occur after the date of this report, GeoEngineers cannot be responsible for any consequences of such changes in relation to this report unless we have been given the opportunity to review our interpretations and recommendations. Based on that review, we can provide written modifications or confirmation, as appropriate.

Environmental Concerns are Not Covered

Unless environmental services were specifically included in our scope of services, this report does not provide any environmental findings, conclusions, or recommendations, including but not limited to, the likelihood of encountering underground storage tanks or regulated contaminants.

Subsurface Conditions Can Change

This geotechnical or geologic report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by man-made events such as construction on or adjacent to the site, new information or technology that becomes available subsequent to the report date, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. If more than a few months have passed since issuance of our report or work product, or if any of the described events may have occurred, please contact GeoEngineers before applying this report for its intended purpose so that we may evaluate whether changed conditions affect the continued reliability or applicability of our conclusions and recommendations.

Geotechnical and Geologic Findings are Professional Opinions

Our interpretations of subsurface conditions are based on field observations from widely spaced sampling locations at the site. Site exploration identifies the specific subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied its professional judgment to render an informed opinion about subsurface conditions at other locations. Actual subsurface conditions may differ, sometimes significantly, from the opinions presented in this report. Our report, conclusions and interpretations are not a warranty of the actual subsurface conditions.

Geotechnical Engineering Report Recommendations are Not Final

We have developed the following recommendations based on data gathered from subsurface investigation(s). These investigations sample just a small percentage of a site to create a snapshot of the subsurface conditions elsewhere on the site. Such sampling on its own cannot provide a complete and accurate view of subsurface conditions for the entire site. Therefore, the recommendations included in this report are preliminary and should not be considered final. GeoEngineers' recommendations can be finalized only by observing actual subsurface conditions revealed during construction. GeoEngineers cannot assume responsibility or liability for the recommendations in this report if we do not perform construction observation.

We recommend that you allow sufficient monitoring, testing and consultation during construction by GeoEngineers to confirm that the conditions encountered are consistent with those indicated by the explorations, to provide recommendations for design changes if the conditions revealed during the work differ from those anticipated, and to evaluate whether earthwork activities are completed in accordance with our recommendations. Retaining GeoEngineers for construction observation for this project is the most effective means of managing the risks associated with unanticipated conditions. If another party performs field observation and confirms our expectations, the other party must take full responsibility for both the observations and recommendations. Please note, however, that another party would lack our project-specific knowledge and resources.

A Geotechnical Engineering or Geologic Report Could Be Subject to Misinterpretation

Misinterpretation of this report by members of the design team or by contractors can result in costly problems. GeoEngineers can help reduce the risks of misinterpretation by conferring with appropriate members of the design team after submitting the report, reviewing pertinent elements of the design team's plans and specifications, participating in pre-bid and preconstruction conferences, and providing construction observation.

Do Not Redraw the Exploration Logs

Geotechnical engineers and geologists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. The logs included in a geotechnical engineering or geologic report should never be redrawn for inclusion in architectural or other design drawings. Photographic or electronic reproduction is acceptable, but separating logs from the report can create a risk of misinterpretation.

Give Contractors a Complete Report and Guidance

To help reduce the risk of problems associated with unanticipated subsurface conditions, GeoEngineers recommends giving contractors the complete geotechnical engineering or geologic report, including these "Report Limitations and Guidelines for Use." When providing the report, you should preface it with a clearly written letter of transmittal that:

- advises contractors that the report was not prepared for purposes of bid development and that its accuracy is limited; and
- encourages contractors to conduct additional study to obtain the specific types of information they need or prefer.

Contractors are Responsible for Site Safety on Their Own Construction Projects

Our geotechnical recommendations are not intended to direct the contractor's procedures, methods, schedule or management of the work site. The contractor is solely responsible for job site safety and for managing construction operations to minimize risks to on-site personnel and adjacent properties.

Biological Pollutants

GeoEngineers' Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants, and no conclusions or inferences should be drawn regarding Biological Pollutants as

they may relate to this project. The term “Biological Pollutants” includes, but is not limited to, molds, fungi, spores, bacteria and viruses, and/or any of their byproducts.

A Client that desires these specialized services is advised to obtain them from a consultant who offers services in this specialized field.

Information Provided by Others

GeoEngineers has relied upon certain data or information provided or compiled by others in the performance of our services. Although we use sources that we reasonably believe to be trustworthy, GeoEngineers cannot warrant or guarantee the accuracy or completeness of information provided or compiled by others.

DRAFT

APPENDIX C – STOCKPILING AREAS

CONTENTS

1. Jackpine Gravel Pit Stockpiling Area
2. Coolin IDL Stockpiling Area
3. Priest Lake Lumber Co. Stockpiling Area



**PRIEST LAKE LUMBER CO.
STOCKPILING AREA**



Coolin IDL Office
Stockpiling Area

Cavanaugh
Bay Road

**COOLIN IDL OFFICE
STOCKPIILING AREA**



PRIEST
LAKE

OUTLET
DAM



JACKPINE GRAVEL PIT STOCKPILING AREA



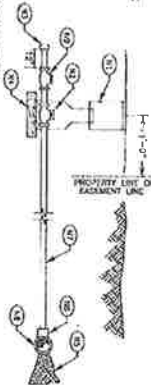
APPENDIX D – EXISTING UTILITY DRAWINGS

CONTENTS

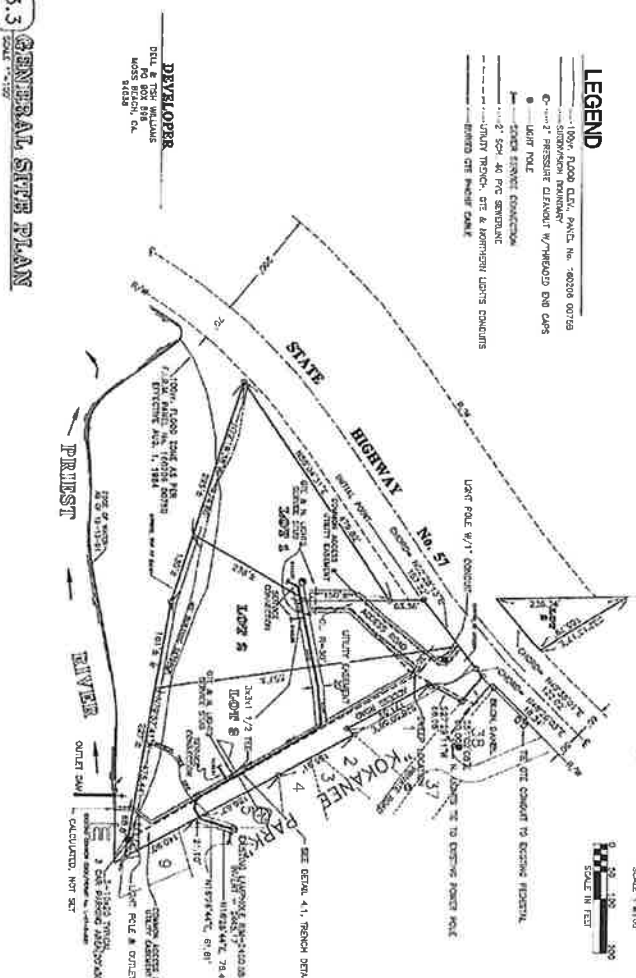
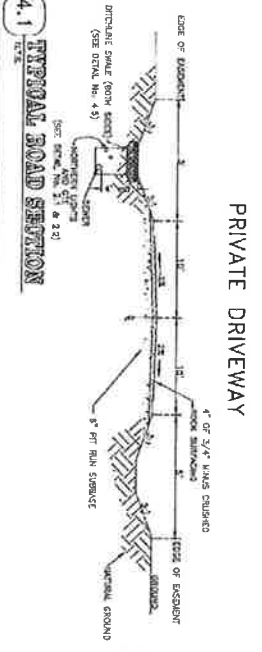
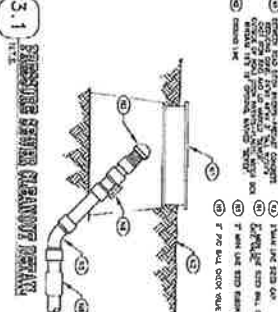
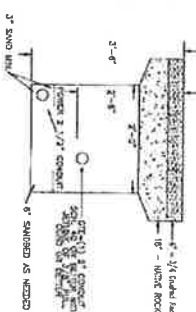
1. Existing Utility Drawings

SECTION 6, TWP. 39N., R. 4W., B.M. BONNER COUNTY, IDAHO

- [illegible]



NOTE: SEWER CONNECTION SHALL BE LOCATED APPROXIMATELY 5' FROM THE SIDE LOT LINE UNLESS INDICATED OTHERWISE ON THE GENERAL LAYOUT.

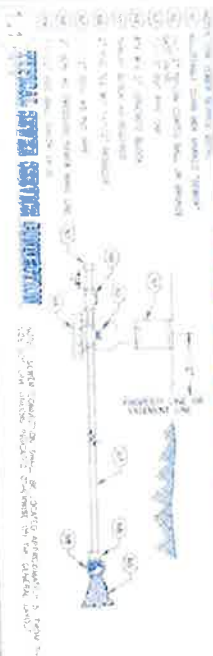


3 SPECIFICATIONS

THESE RESULTS, WHICH INDICATE THAT THERE IS NO SIGNIFICANT DIFFERENCE BETWEEN THE TWO GROUPS OF STUDENTS IN THE KNOWLEDGE OF THE FACTS OF THE CASE, ARE OF COURSE OF INTEREST IN VIEW OF THE FACT THAT THE STUDENTS OF THE GROUP WHICH WAS EXPOSED TO THE FILM, WERE NOT INFORMED OF THE FACTS OF THE CASE PRIOR TO THE FILM, AND THAT THE FILM WAS SHOWN TO THEM AFTER THE FILM HAD BEEN SHOWN TO THE OTHER GROUP. THE RESULTS OF THE FILM, THEREFORE, ARE OF INTEREST IN VIEW OF THE FACT THAT THE FILM WAS SHOWN TO THEM AFTER THE FILM HAD BEEN SHOWN TO THE OTHER GROUP.

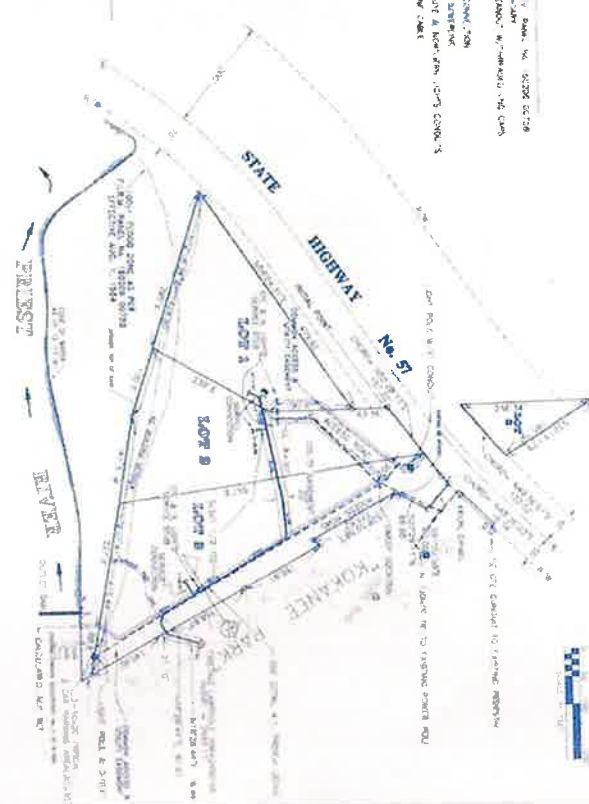
FINAL CONSTRUCTION PLAN FOR "LAMB CREEK ESTATES"

SECTION 6, TWP. 59N., R. 4W., BM. BONNER COUNTY, IDAHO



LEGEND

- 1. LOT 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.



GENERAL SITE PLAN

PRIVATE DRIVEWAY

SEWER TREATMENT PLANT

SEWER SYSTEM

SEWER TREATMENT PLANT

SEWER SYSTEM

SEWER TREATMENT PLANT

FINAL CONSTRUCTION PLAN
"LAMB CREEK ESTATES"
BONNER COUNTY, IDAHO



James A. Sewell and Associates
CONSULTING ENGINEERS
NEWPORT, WASHINGTON, 99156
(509) 447-3626



APPENDIX E – WATER LEVEL & FLOW DATA

CONTENTS

1. Water Level & Flow Data

Project: Priest Lake Water Management Project Outlet Dam Improvements (Update 2023)

Subject: Appendix E Flow & WL Data

Date: March 09, 2023

1 Available Data

The US Geologic Survey (USGS) collects discharge and water level data at various gages in the Priest River Basin, including the lake and river downstream of the Outlet Dam. The types of data and length of data records for each gage are summarized in the figure below.

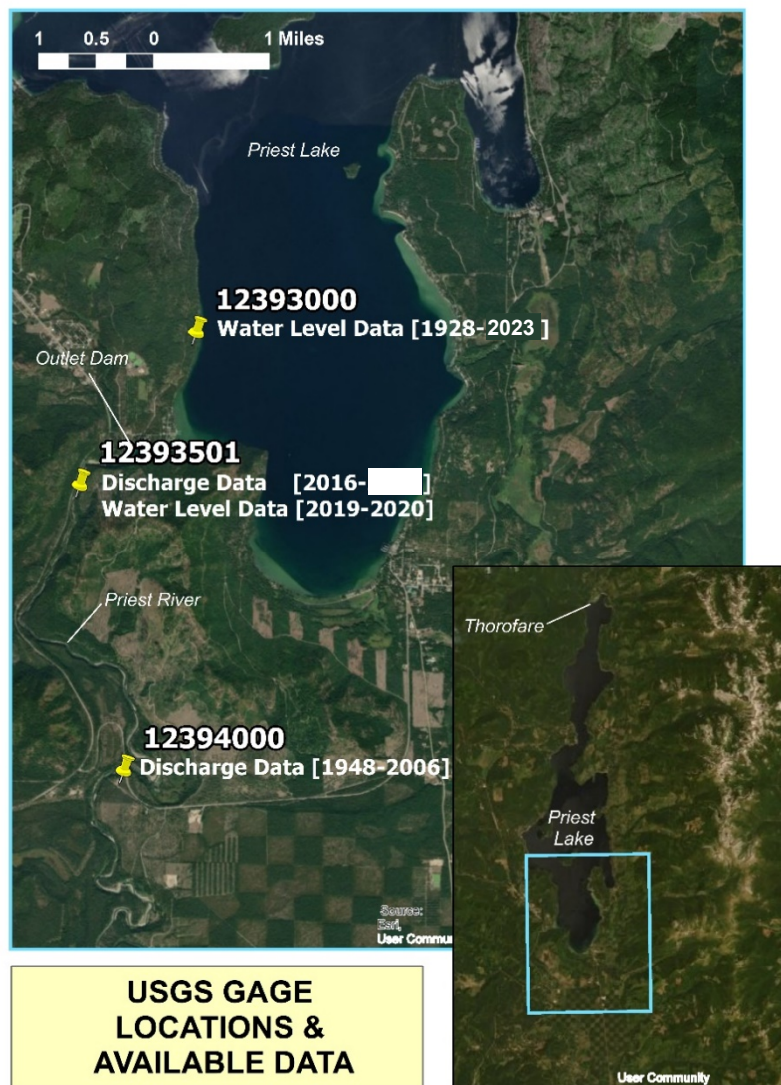


Figure 1. USGS Gages and Data Availability

2 Water Levels

USGS gage #12393000 provides a continuous data record of lake levels in Priest Lake relative to Lake Datum. The figure below summarizes daily statistics for water levels in Priest Lake for the full recorded period (1928-2023). The figure below shows the minimum, average, and maximum observed water levels for each day of the year during this time period.

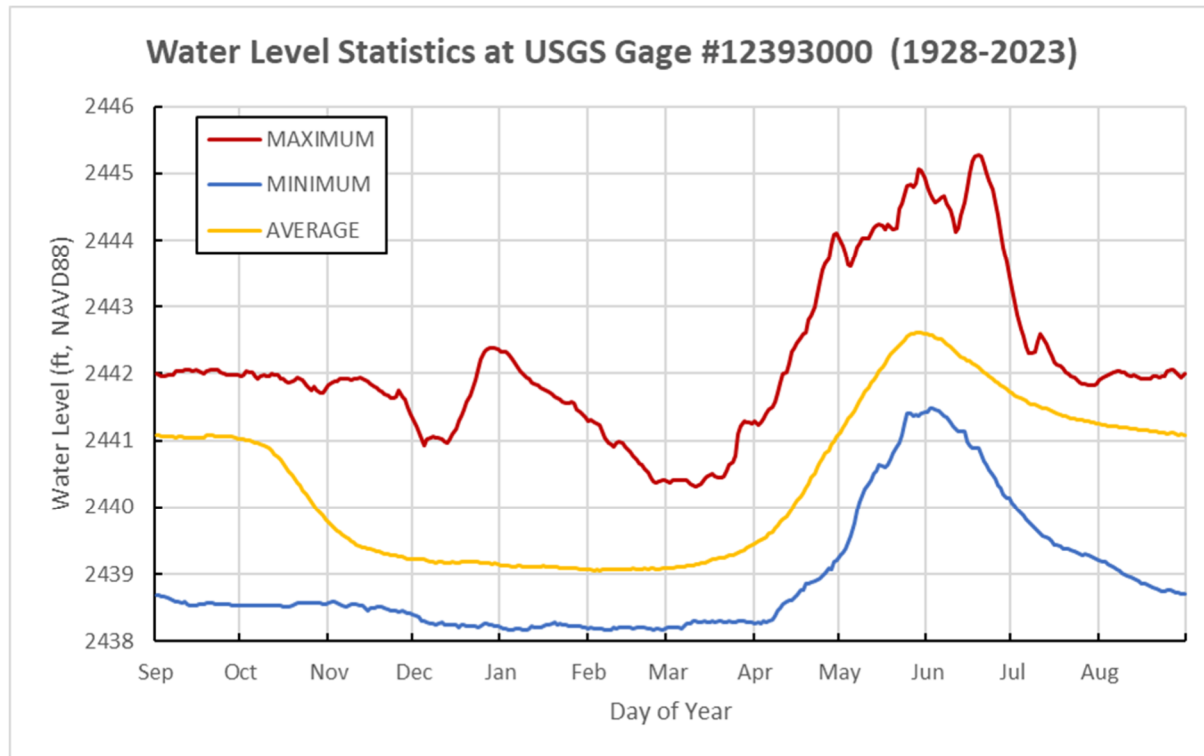


Figure 2. Daily Priest Lake water level statistics (Lake Datum = 2438.61ft NAVD88).

Table 1. Monthly Priest Lake water level statistics from USGS Gage #12393000.

MONTHLY LAKE WL STATISTICS FOR PERIOD 1928-2023 DATA FROM USGS GAGE #12393000 (FT, NAVD88)							
	Nov.	Dec.	Jan.	Feb.	Mar.	Nov. - March	
Min. WL	2438.4	2438.2	2438.2	2438.2	2438.2	Min observed:	2438.2
Avg. WL	2439.4	2439.2	2439.1	2439.1	2439.2	Avg observed:	2439.2
Max. WL	2441.9	2442.4	2442.3	2441.3	2441.3	Max observed:	2442.4

3 Priest River Discharge

- There is a longstanding data record at USGS Gage #12394000, about 2.6 miles south of the Priest Lake Outlet Dam (approximately 4 miles downstream, along Priest River). The figure shows the minimum, average, and maximum observed discharge rates for each day of the year during this time period.

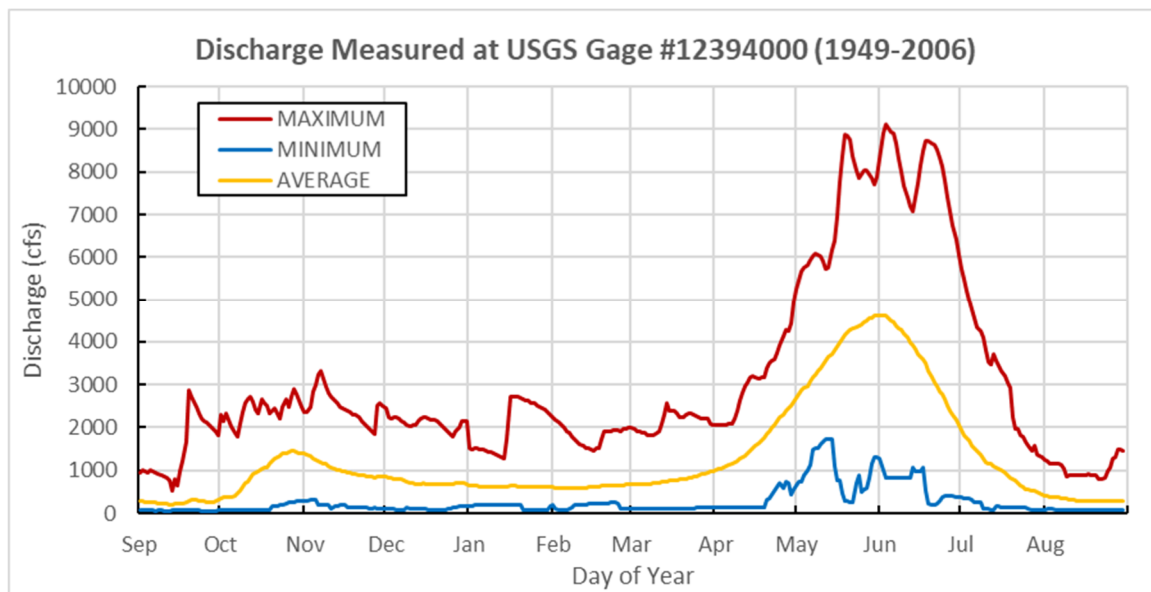


Figure 3. Daily Priest River water level statistics based on daily averaged values.

- In 2016, a new gage was installed just downstream of the Outlet Dam which is more representative of flows at the structure. Data from 2017-2022 is shown in Figure 4, below.

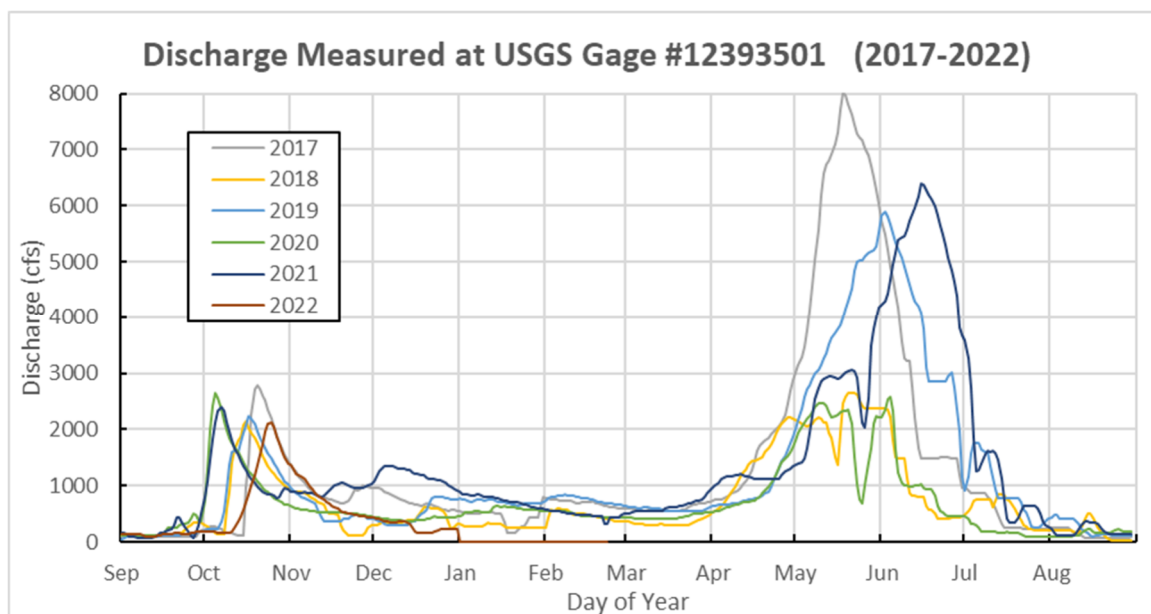


Figure 4. Daily Priest Lake discharge measurements, just downstream of the Outlet Dam. Only a few years of recent data is available at this Gage.

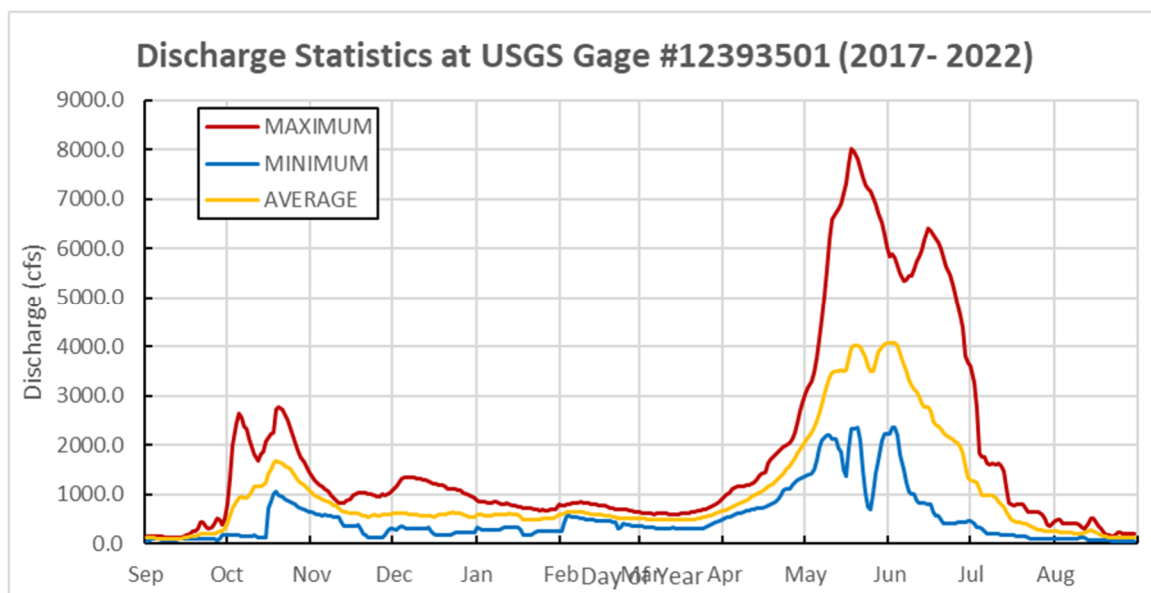


Figure 5. Daily Priest Lake discharge statistics based on daily averaged values. Only a few years of recent data is available at this Gage.

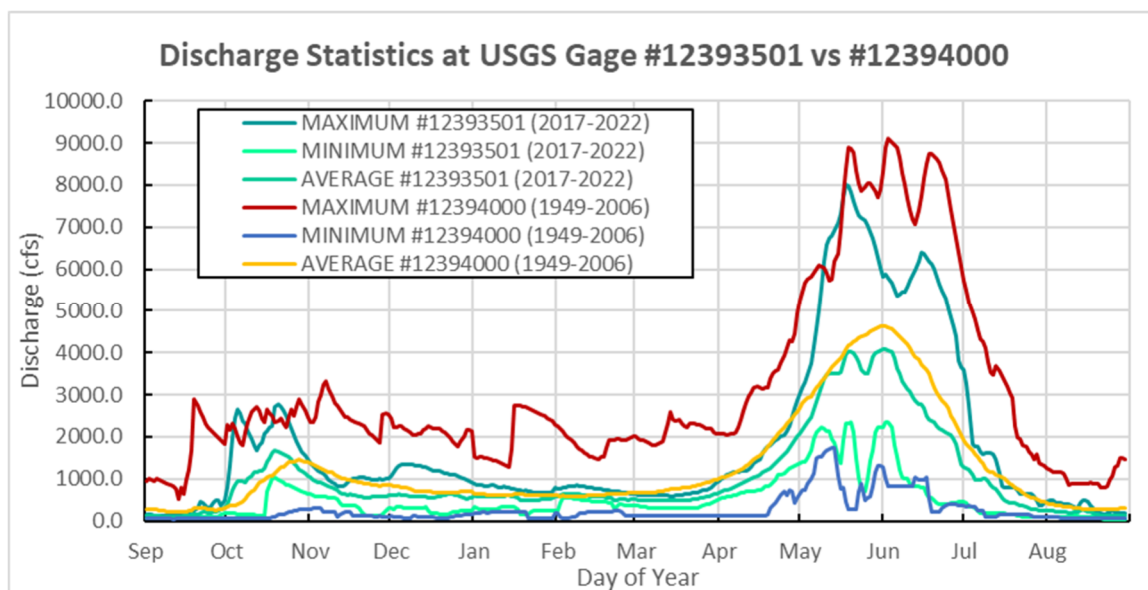


Figure 6. Comparison of Priest Lake discharge statistics based on daily averaged values from USGS Gage #12393501 (2017-2022) vs #12394000 (1949-2006).

4 Design Flow Rates During Construction

- The Lake drawdown period is typically started during the first week in October. The duration of lake drawdown varies from year to year; but, historically, flow discharge through the Outlet Dam and lake water levels are regulated through the month of October and typically drawdown is completed by the first to second week in November.
- Based on the USGS data at Gage #12394000 on Priest River, two annual exceedance probability plots were developed using Bulletin 17C guidelines to estimate the 2-year, 5-year, and 10-year peak flow event at Gage #12394000 (see Figure 7 and Figure 8).
- The estimated 2-year, 5-year, and 10-year peak flow events were estimated for two periods of the Construction Window:
 - November 1st – December 14th – this period is characterized by higher discharge rates due to remnant effects of lake drawdown.
 - December 15th – March 15th – this period is characterized by lower discharge rates.

Table 2. Estimated Outlet Dam Peak Flow Rates

	2-YEAR	5-YEAR	10-YEAR
NOVEMBER 1 TO DECEMBER 14:	1,450 CFS	1,970 CFS	2,307 CFS
DECEMBER 15 TO MARCH 15:	917 CFS	1400 CFS	1760 CFS

- Figure 6 shows discharge statistics data from the more recent Gage #12393501 to be similar trend to the discharge statistics of Gage #12394000, indicating that data from Gage #12394000 provided a good reference to the direct discharge from Priest Lake despite being located further downstream.
- Therefore, the longstanding record at Gage #12394000 was selected as the more reliable data for developing the estimated Outlet Dam peak flow rates for flood events at longer return events.
- Figure 7 and Figure 8 show the computed peak flow frequency curves for Priest River fitted against USGS observed data, with majority of USGS data points falling within the desired confidence interval of the computed curve.

Note: For construction of the project, IWRB will operate the dam to fully complete the lake drawdown and complete gate regulated flow by October 31, resulting in a “run of the river” flow condition for the Priest Lake system starting on November 1.

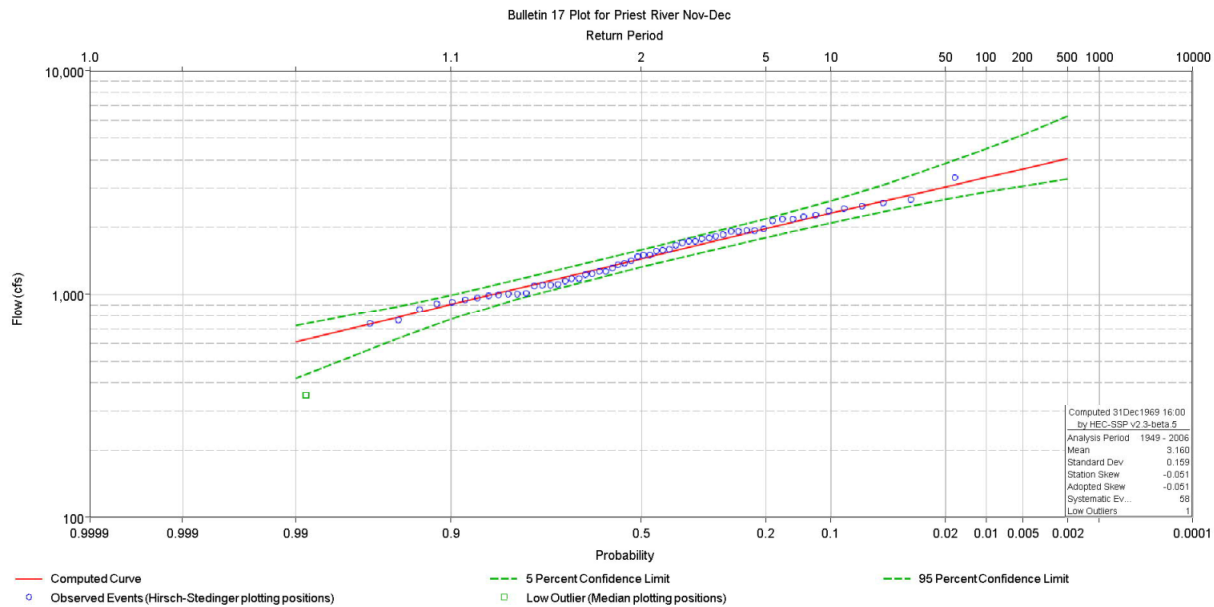


Figure 7. Annual Exceedance Probability Plot for USGS Gage #12394000 using Peak Flow Data Set from Full Period of Recorded Data (1949-2006) for Construction Window November 1st – December 14th

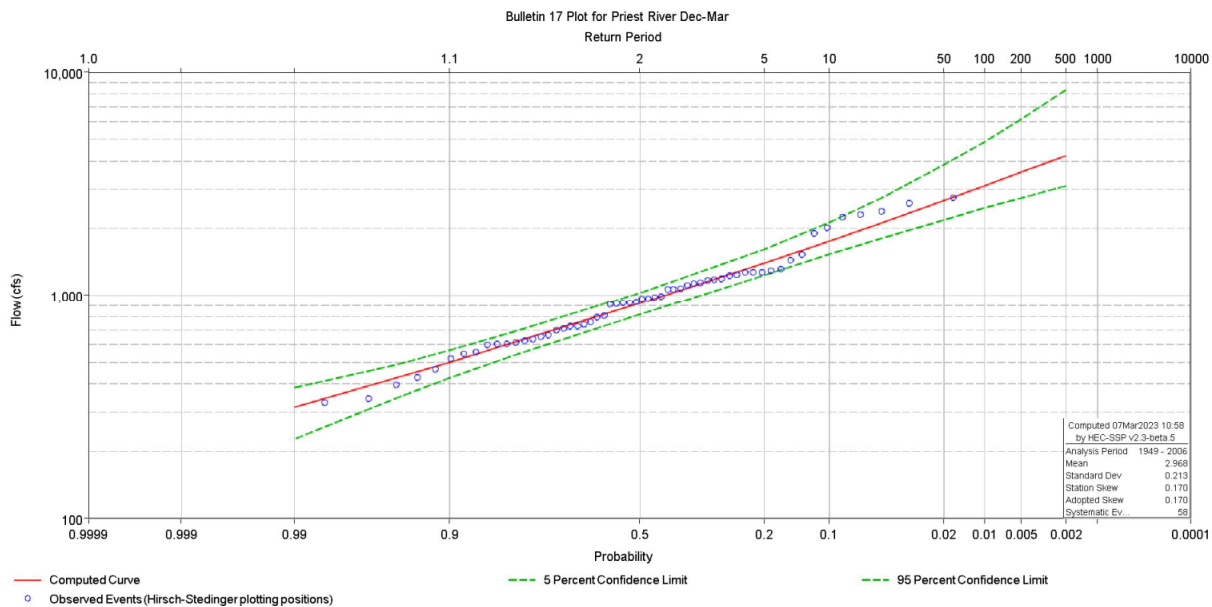


Figure 8. Annual Exceedance Probability Plot for USGS Gage #12394000 using Peak Flow Data Set from Full Period of Recorded Data (1949-2006) for Construction Window December 15th – March 15th

APPENDIX F - ORIGINAL CONSTRUCTION PLANS

CONTENTS

1. Original Dam Construction Plans (1978)

IDAHO DEPARTMENT OF WATER RESOURCES

BOISE, IDAHO

1978

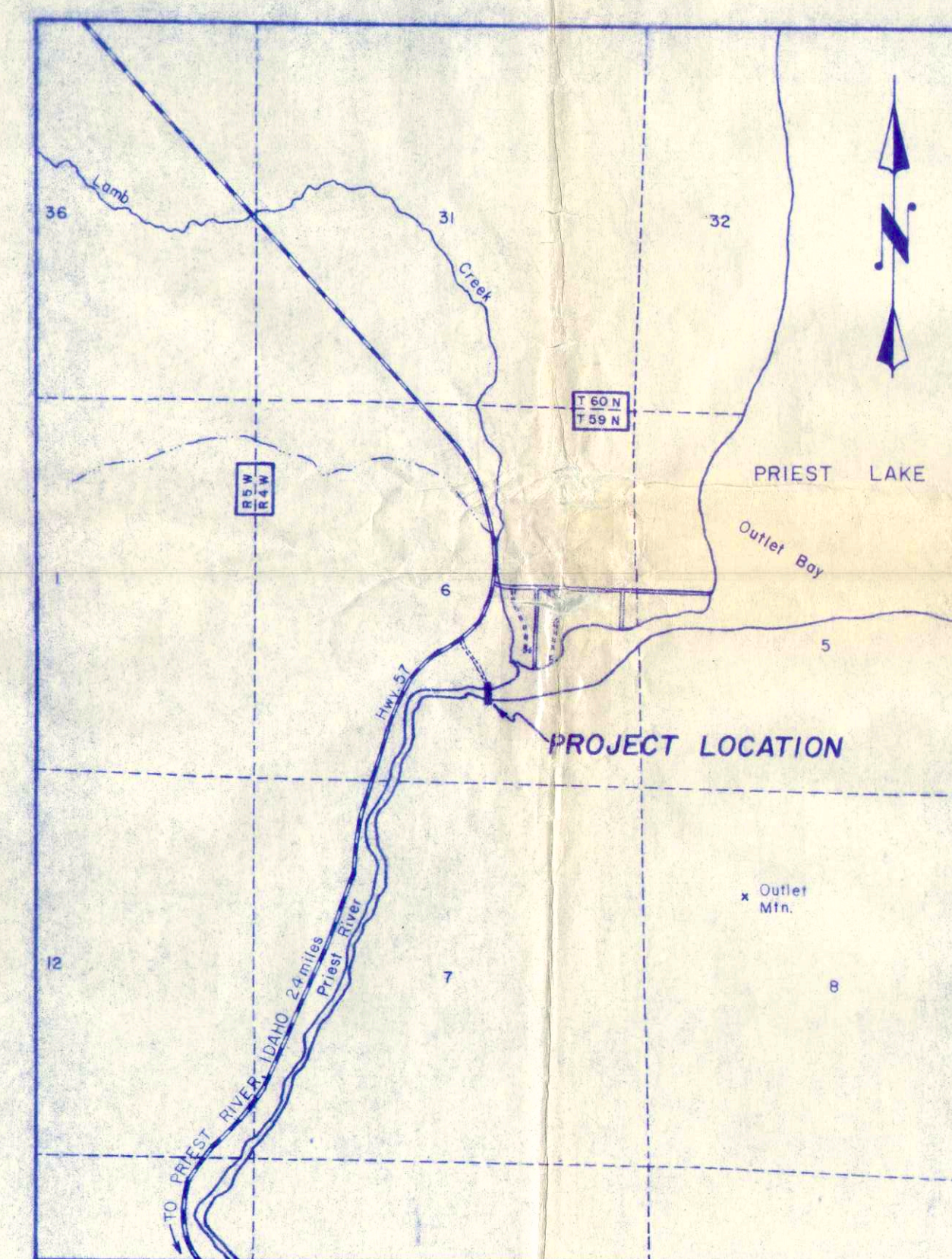
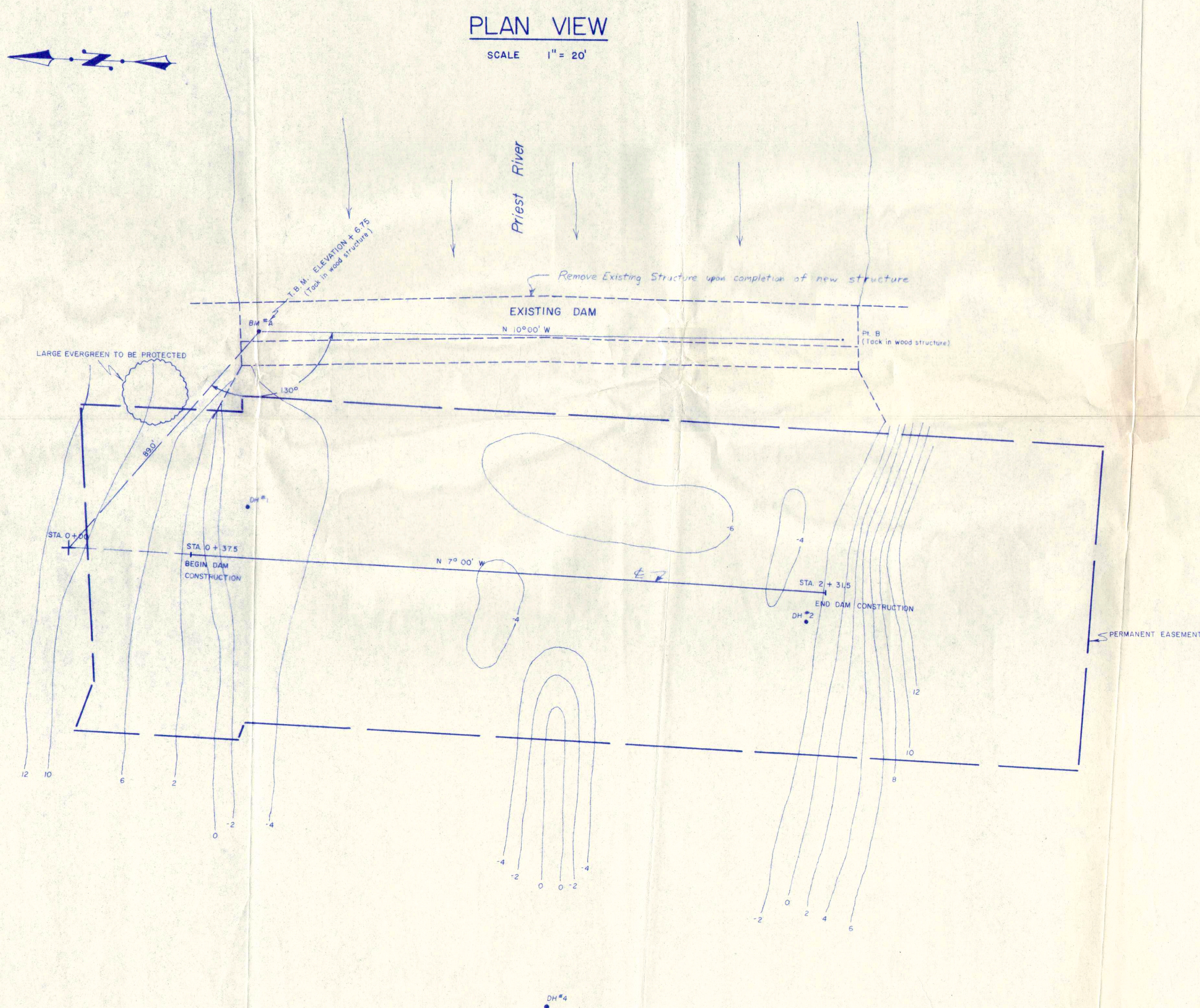
PLANS FOR REPLACEMENT OF CONTROL STRUCTURE

PRIEST LAKE OUTLET

BONNER COUNTY, IDAHO

PLAN VIEW

SCALE 1" = 20'



PROJECT LOCATION MAP

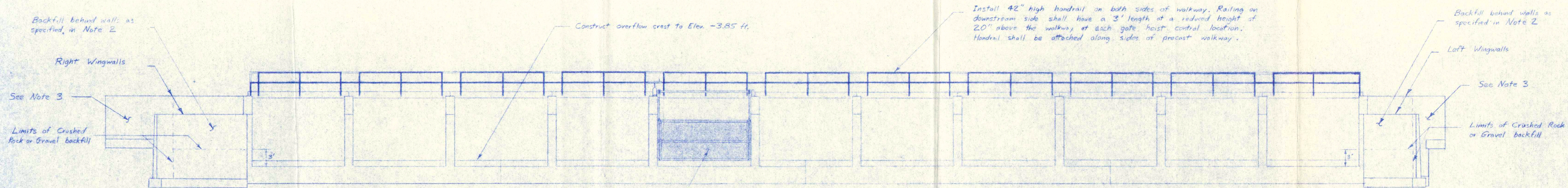
SCALE 1" = 2000'

IDAHO DEPARTMENT OF WATER RESOURCES

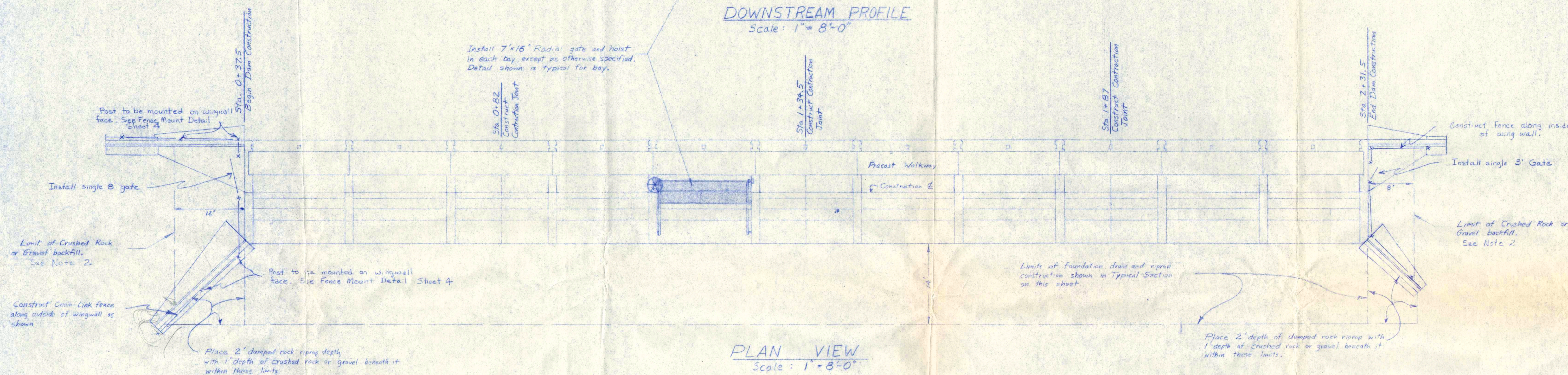
SCALE: 25' = 1" DATE: May 1978 APPROVED BY: [Signature] DRAWN BY: R.C.P.B. REVISED:

PRIEST LAKE OUTLET — TITLE PAGE

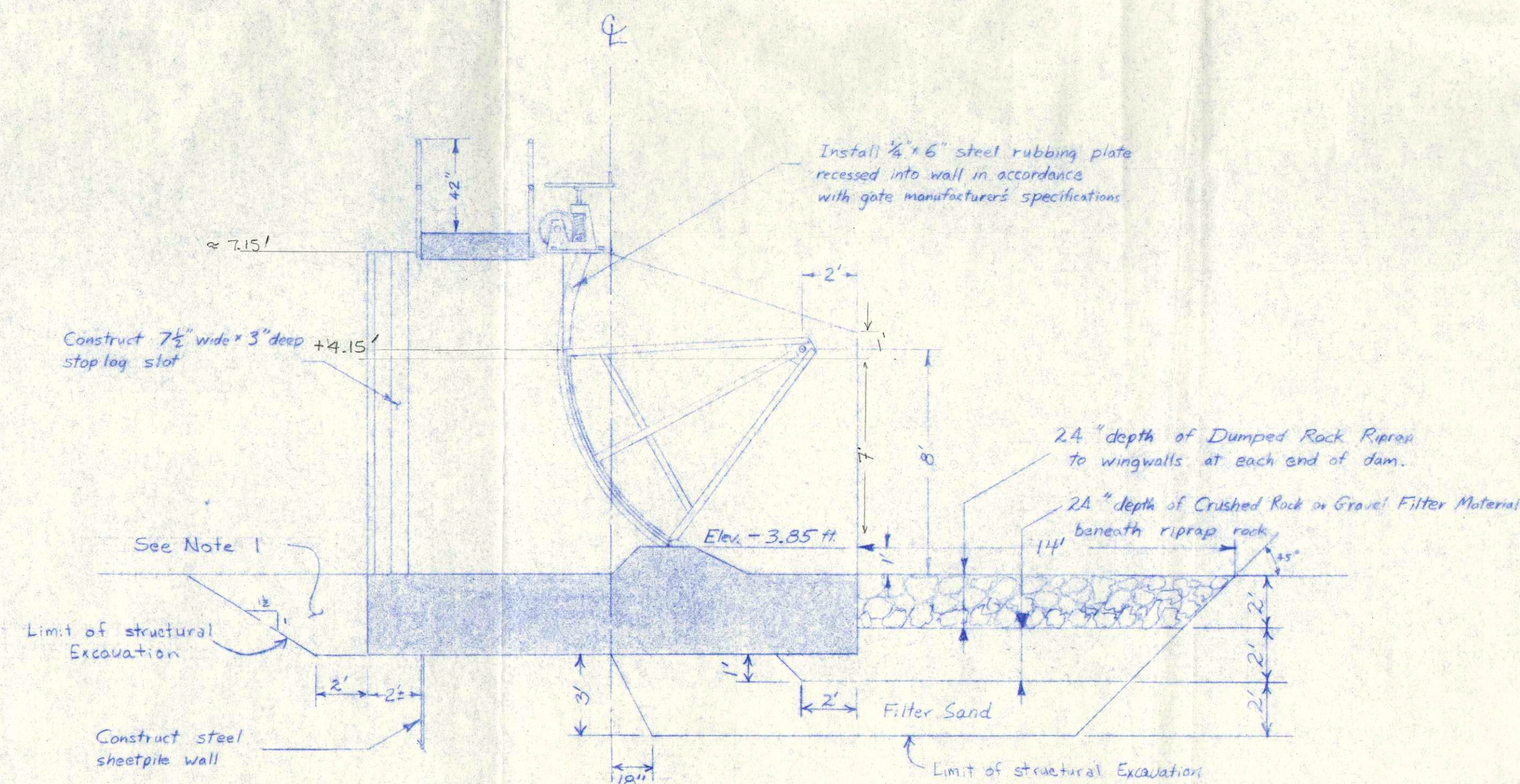
DRAWING NUMBER: 97-2020-1



DOWNSTREAM PROFILE
Scale: 1" = 8'-0"



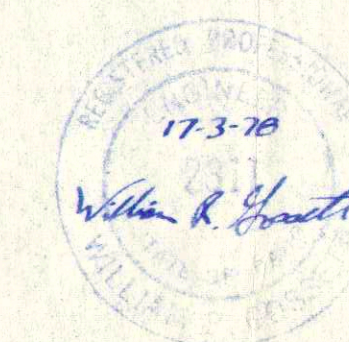
PLAN VIEW
Scale: 1" = 8'-0"



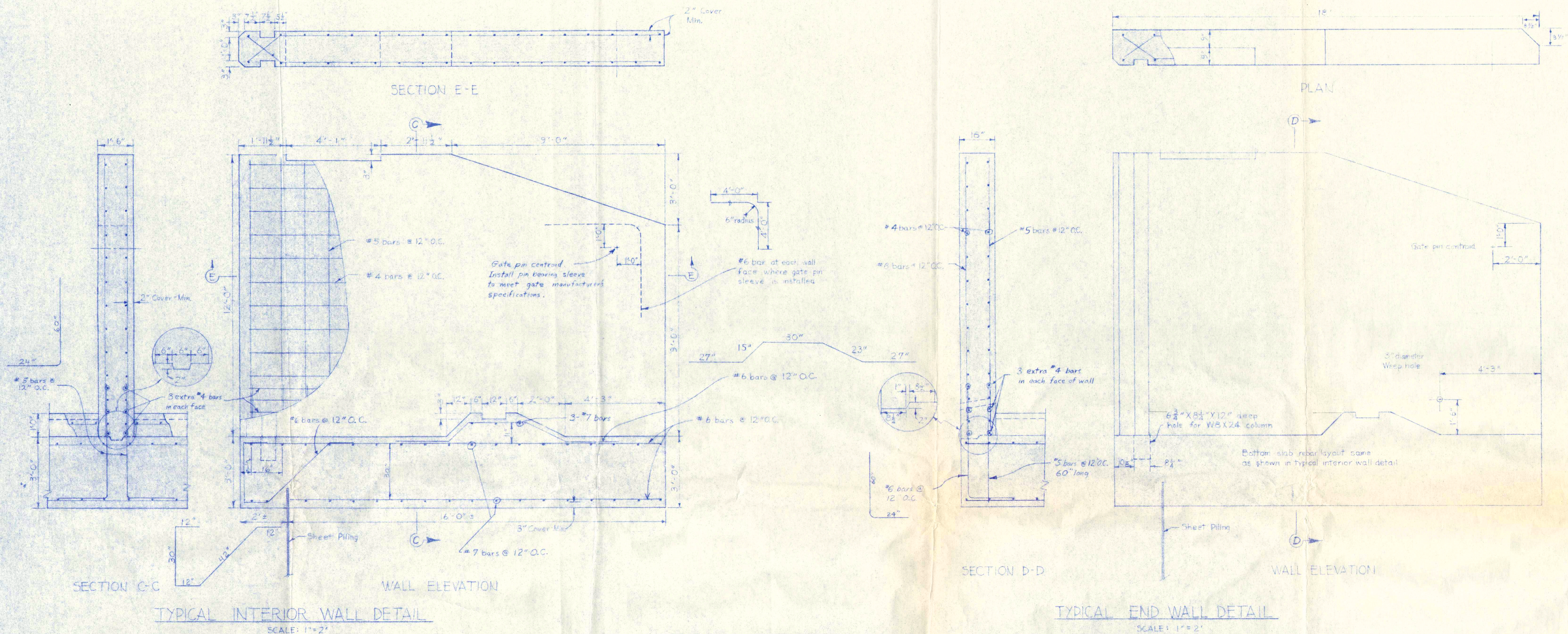
TYPICAL SECTION
Scale: 1" = 4'-0"

- NOTES**
1. Place compacted backfill, Class II compaction.
 2. Place compacted backfill with no more than 5% passing a No. 200 sieve above level of crushed rock or gravel to top of wingwalls. Class I compaction. Limits of fill extend vertically from crushed rock or gravel as shown
 3. Place Class I compacted impervious backfill behind walls near abutment and along water side of upstream walls.

APPROVED
IDAHO DEPARTMENT OF WATER RESOURCES
3/20/78
DATE FOR INSTRUMENT, RESOURCES ADMIN. DIVISION

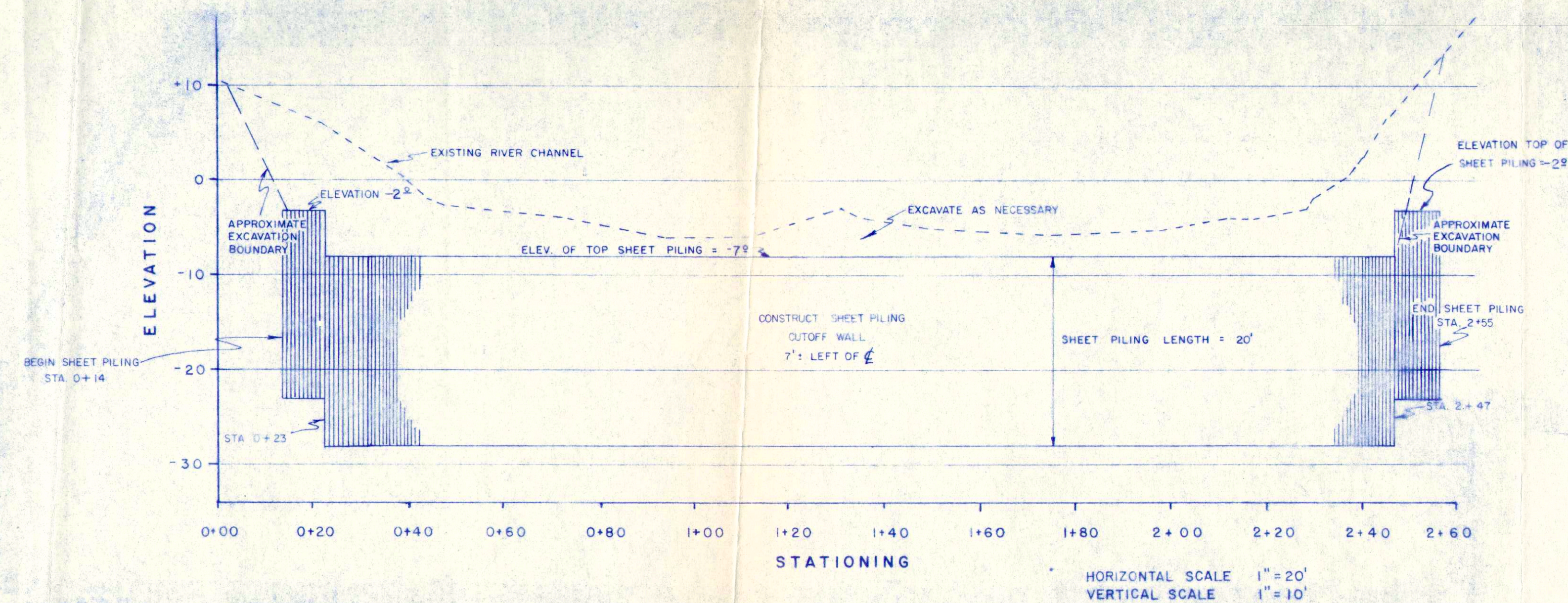
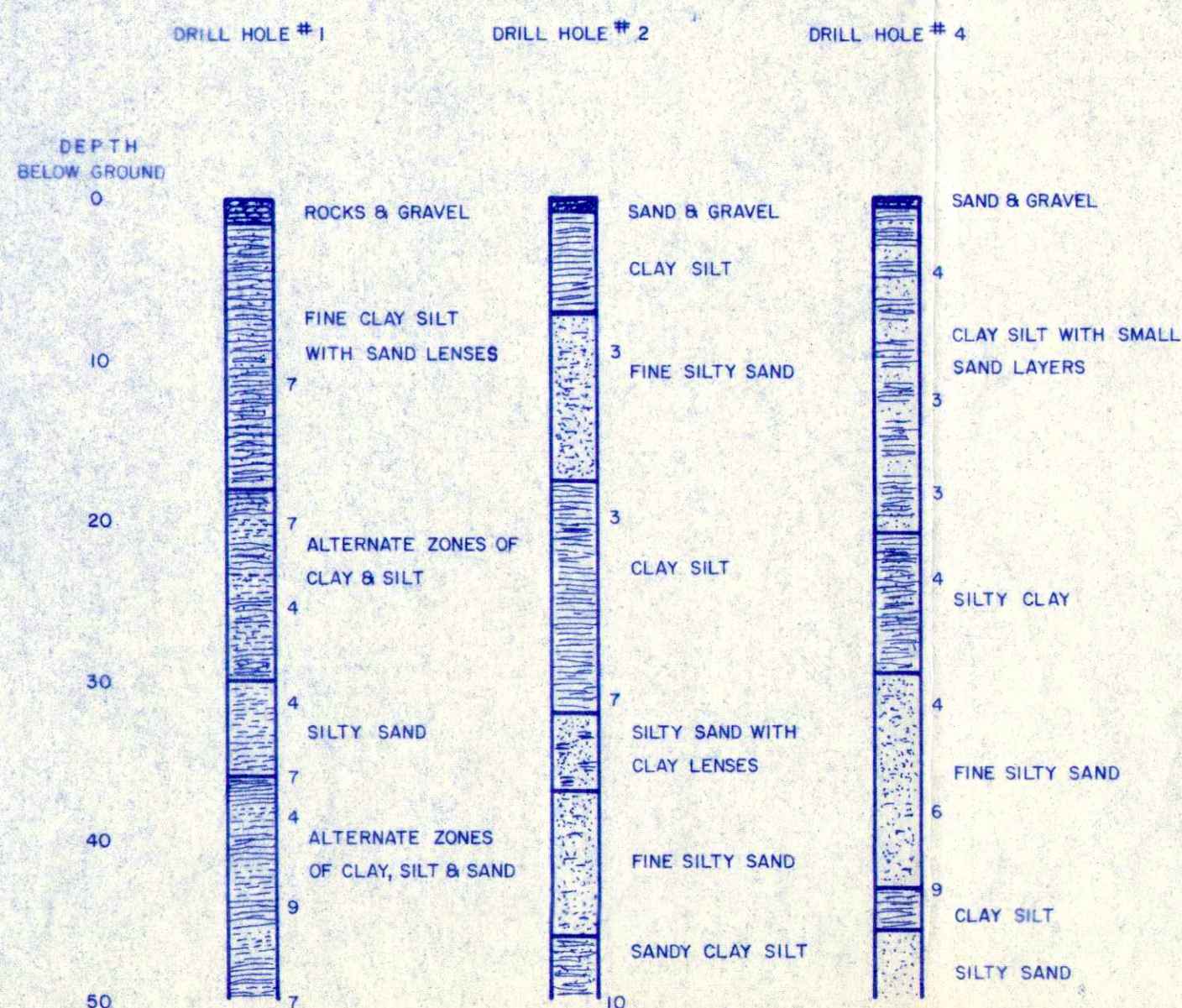


IDAHO DEPARTMENT OF WATER RESOURCES		
SCALE: as shown	APPROVED BY: <i>W. Gault</i>	DRAWN BY: W.G. JB.
DATE: 17 Mar 1978		REVISED
PRIEST LAKE OUTLET — PLAN & PROFILE		
DRAWING NUMBER		97-2020-2



DRILL LOGS - PRIEST LAKE DAM

DESCRIPTION OF MATERIAL & SPLIT SPOON BLOW COUNT PER 6" ADDITIONAL INFORMATION AVAILABLE FROM DEPT OF WATER RESOURCES.



SHEET PILE WALL PROFILE

IDAHO DEPARTMENT OF WATER RESOURCES

SCALE: 1"=20' HORIZONTAL, 1"=10' VERTICAL

DATE: 11/17/2020

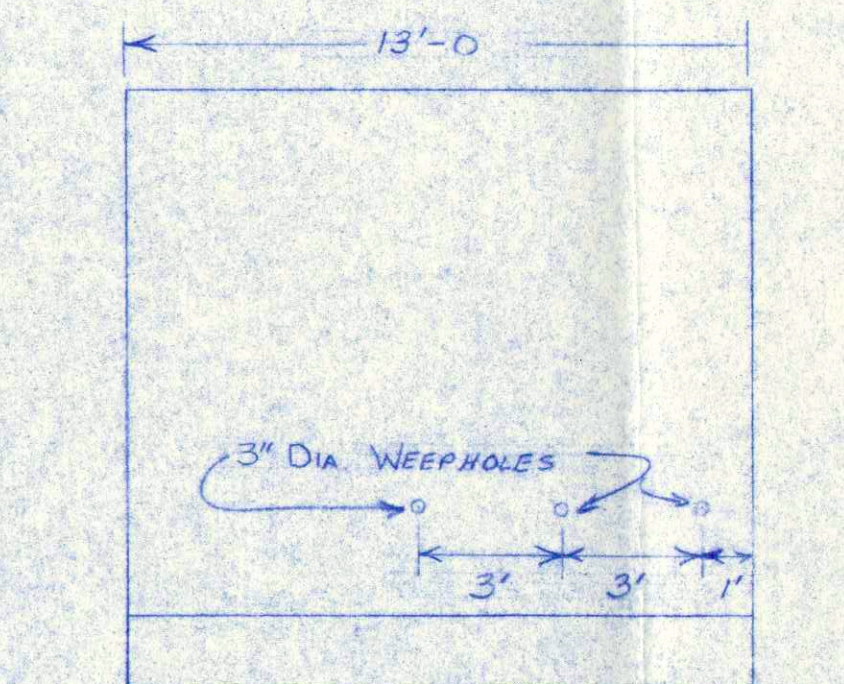
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DESIGNED BY: [Signature]

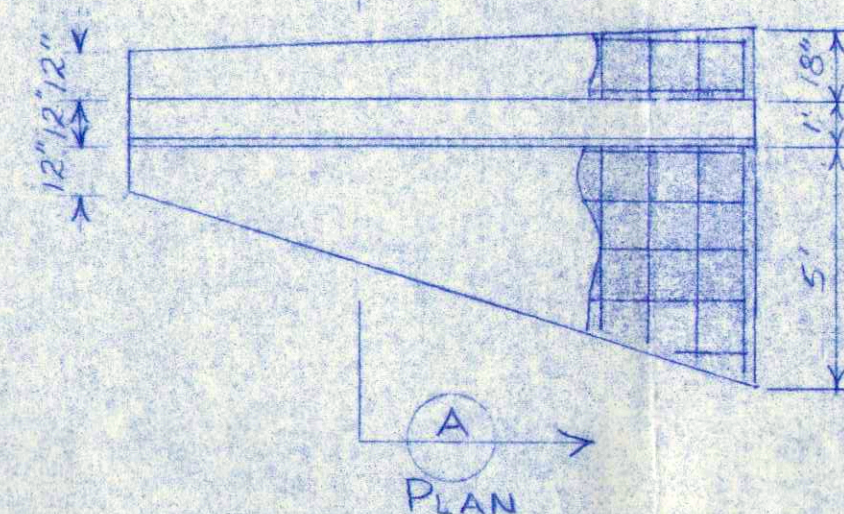
REVIEWED BY: [Signature]

DRAWING NUMBER: 97-2020-3

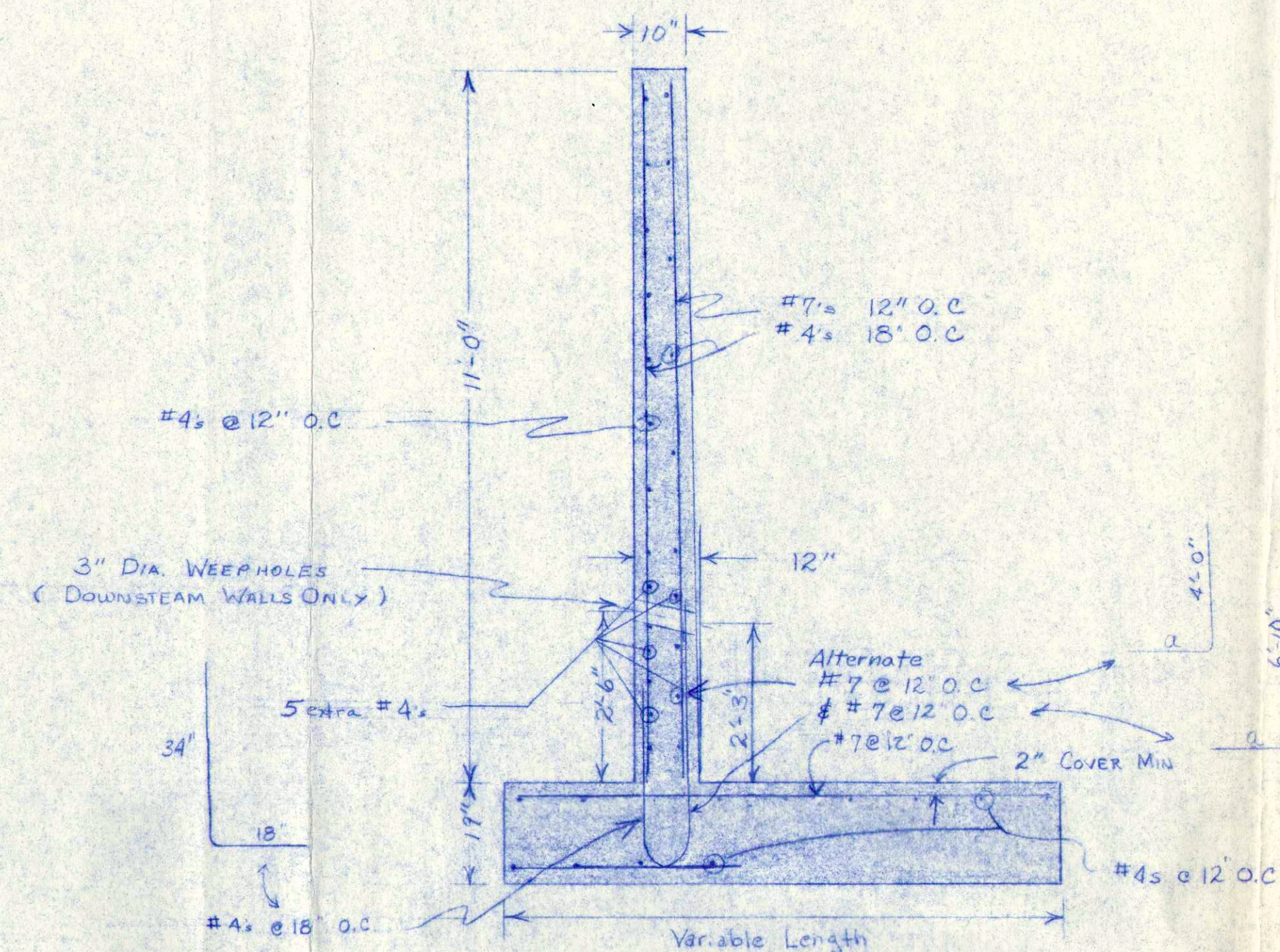
PRIEST LAKE OUTLET - STRUCTURAL DETAIL



ELEVATION
A



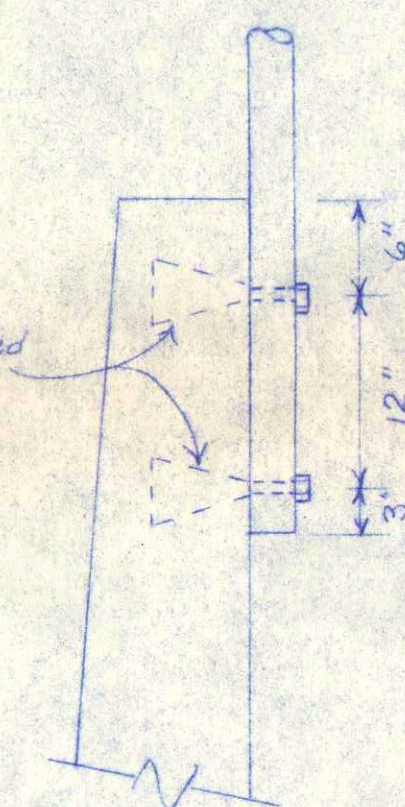
LEFT WING WALL - DOWNSTREAM
SCALE 1" = 4'-0"



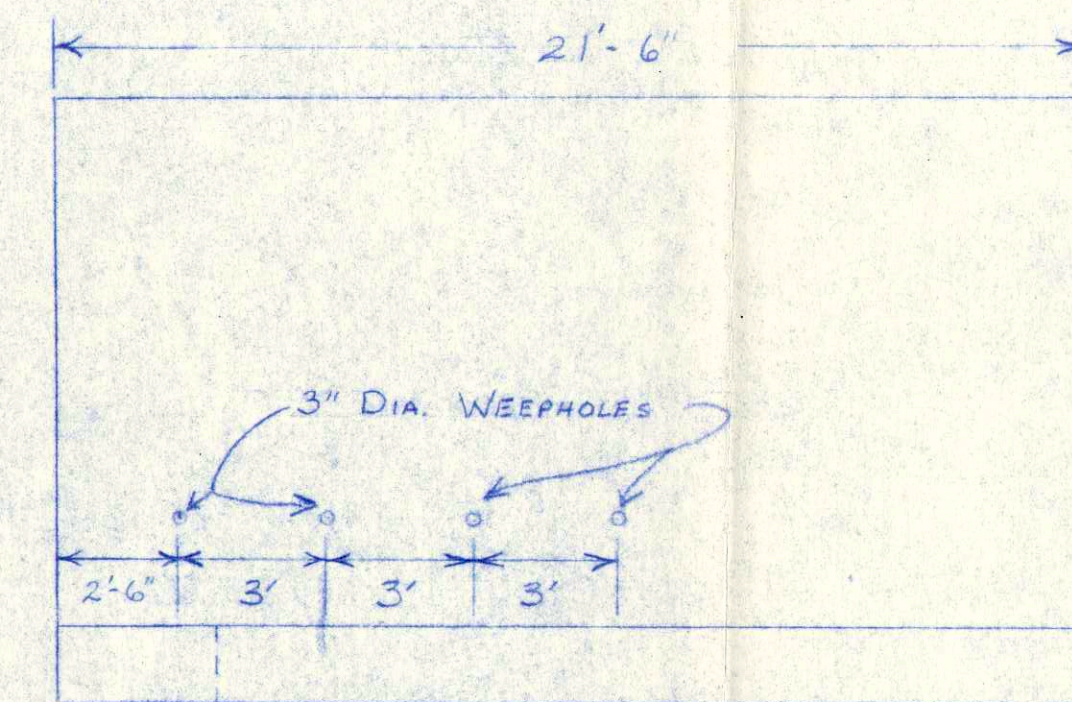
SECTION A-A
TYP. DOWNSTREAM WING WALLS
SCALE 1" = 2'-0"

NOTE:
DIMENSION "a" VARIES WITH LENGTH OF
WING WALL BASE

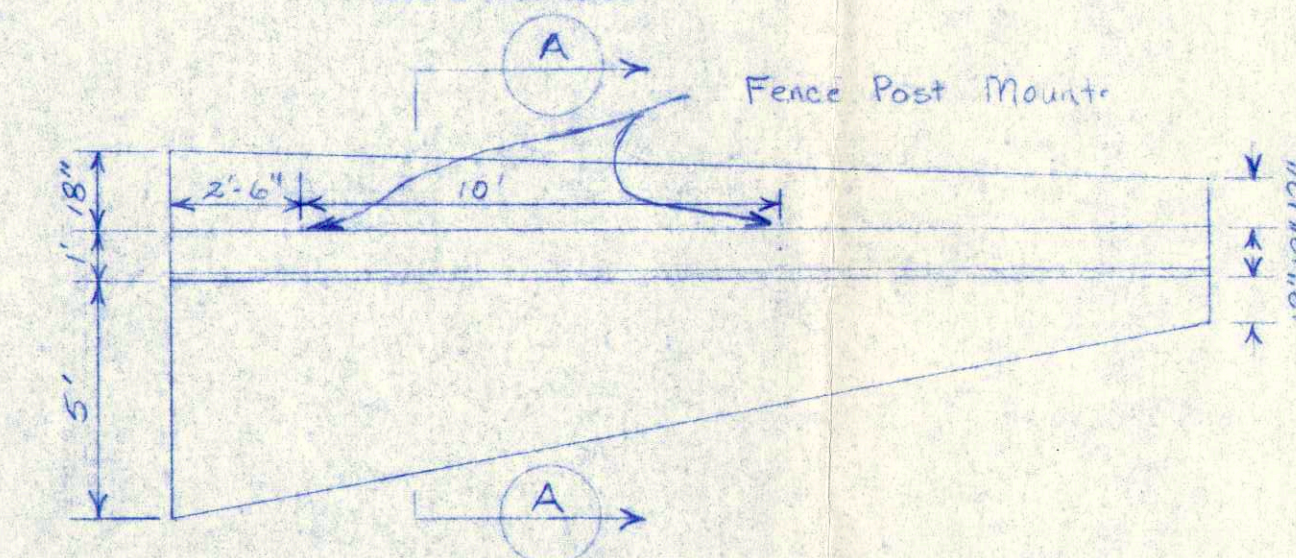
Superior 1/2" x 1/2" Flared
Coil Loop Insert or
Cast-in Place Approved
Equal



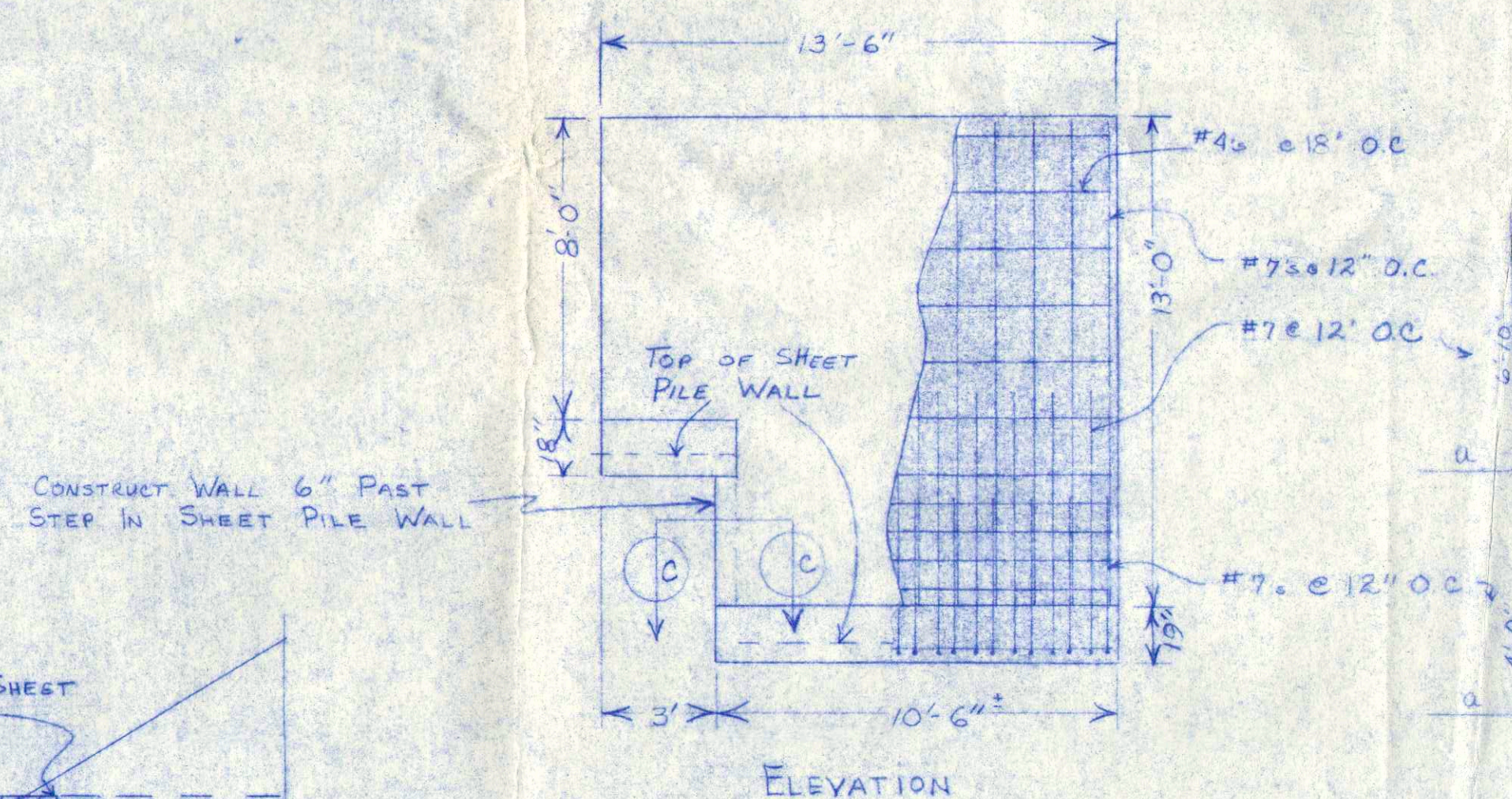
FENCE MOUNT DETAIL
SCALE 1" = 1'



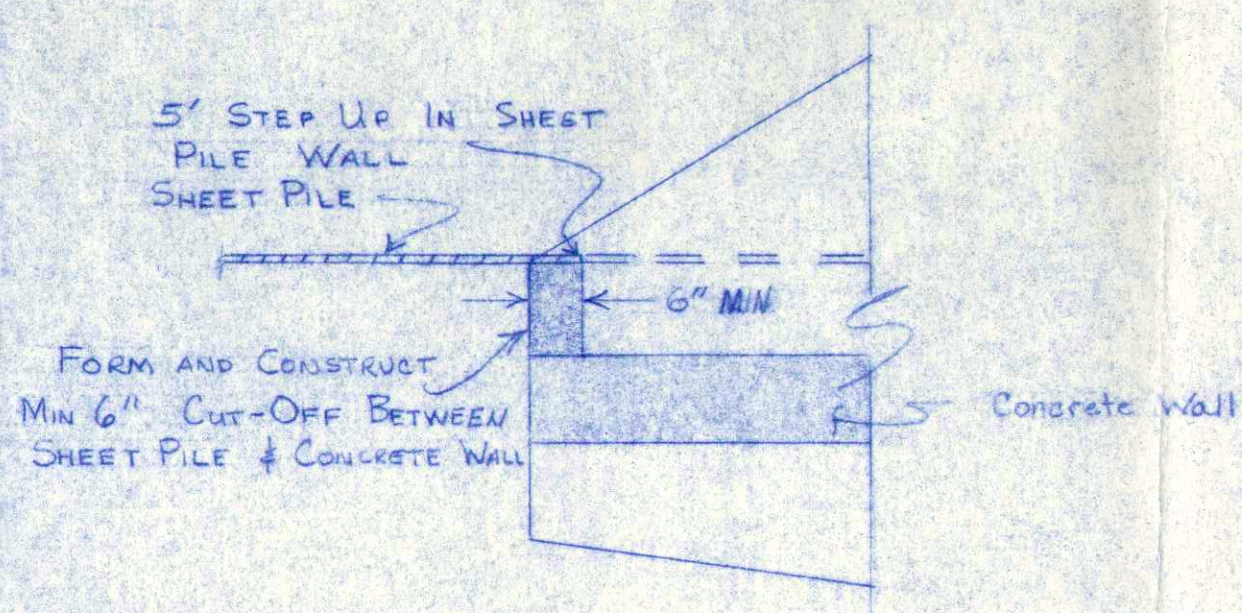
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A



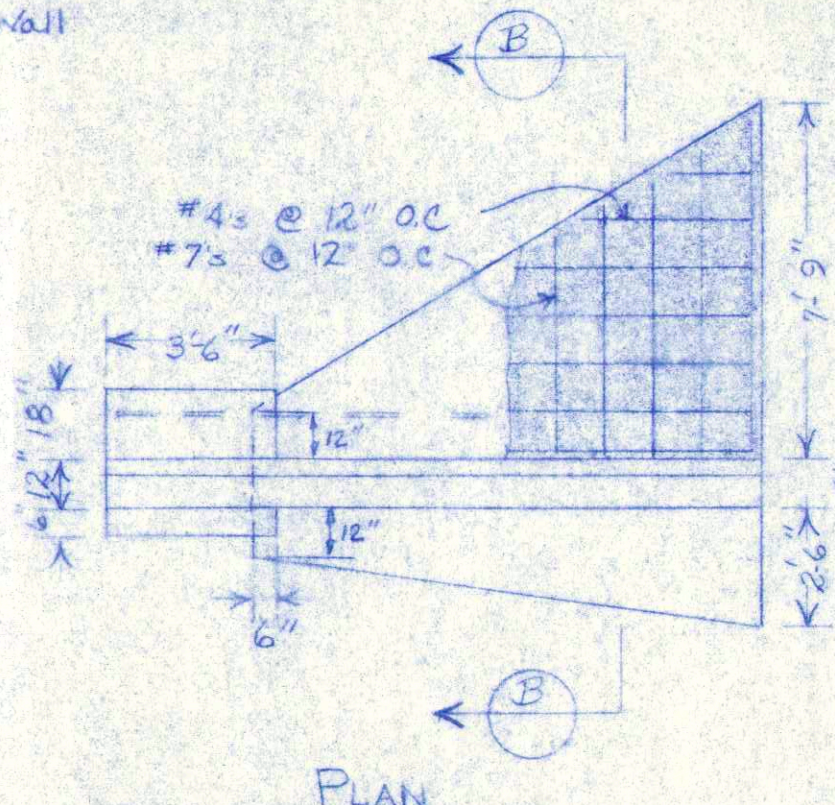
RIGHT WING WALL - DOWNSTREAM
SCALE 1" = 4'-0"



ELEVATION

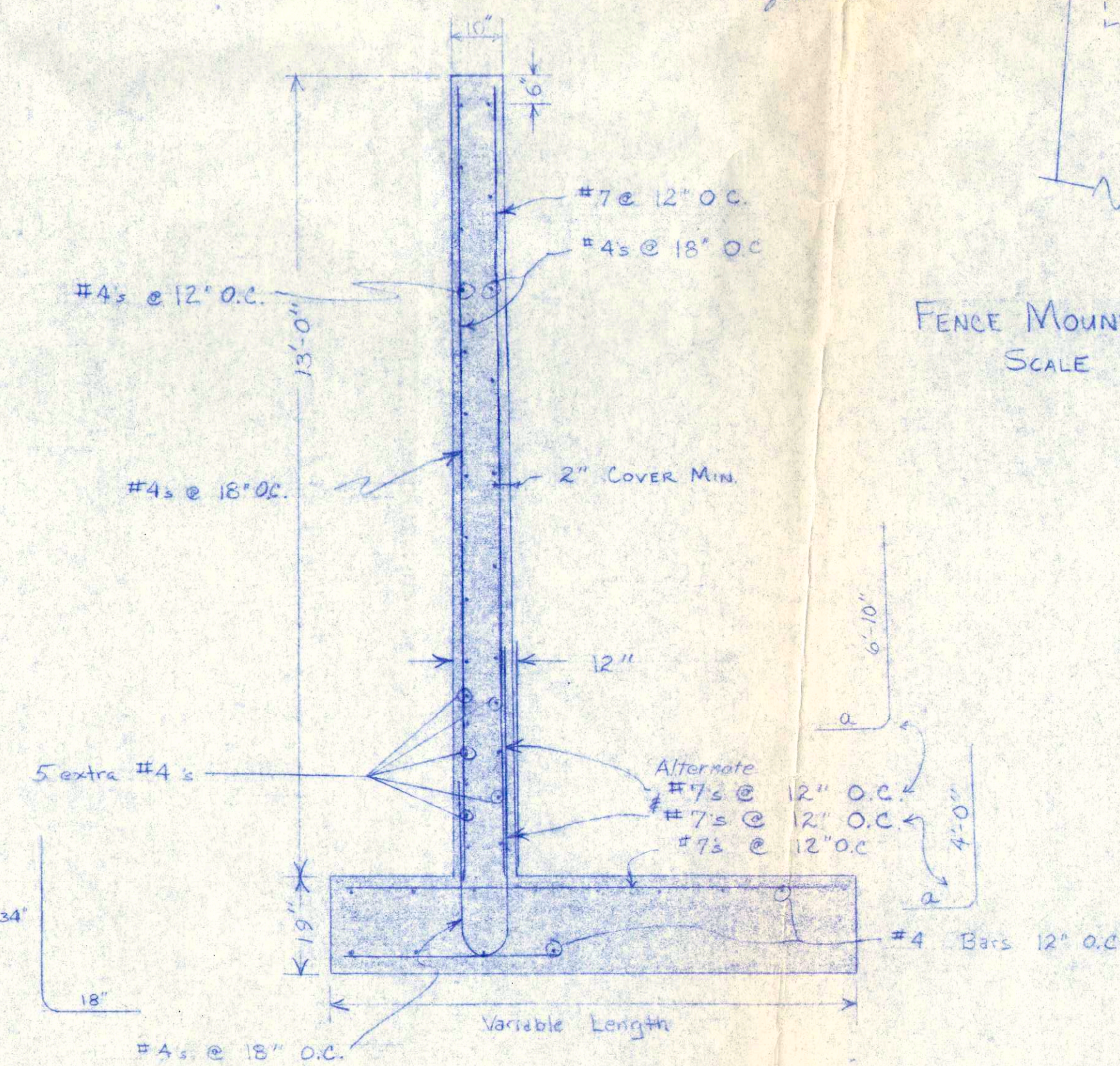


SECTION C-C
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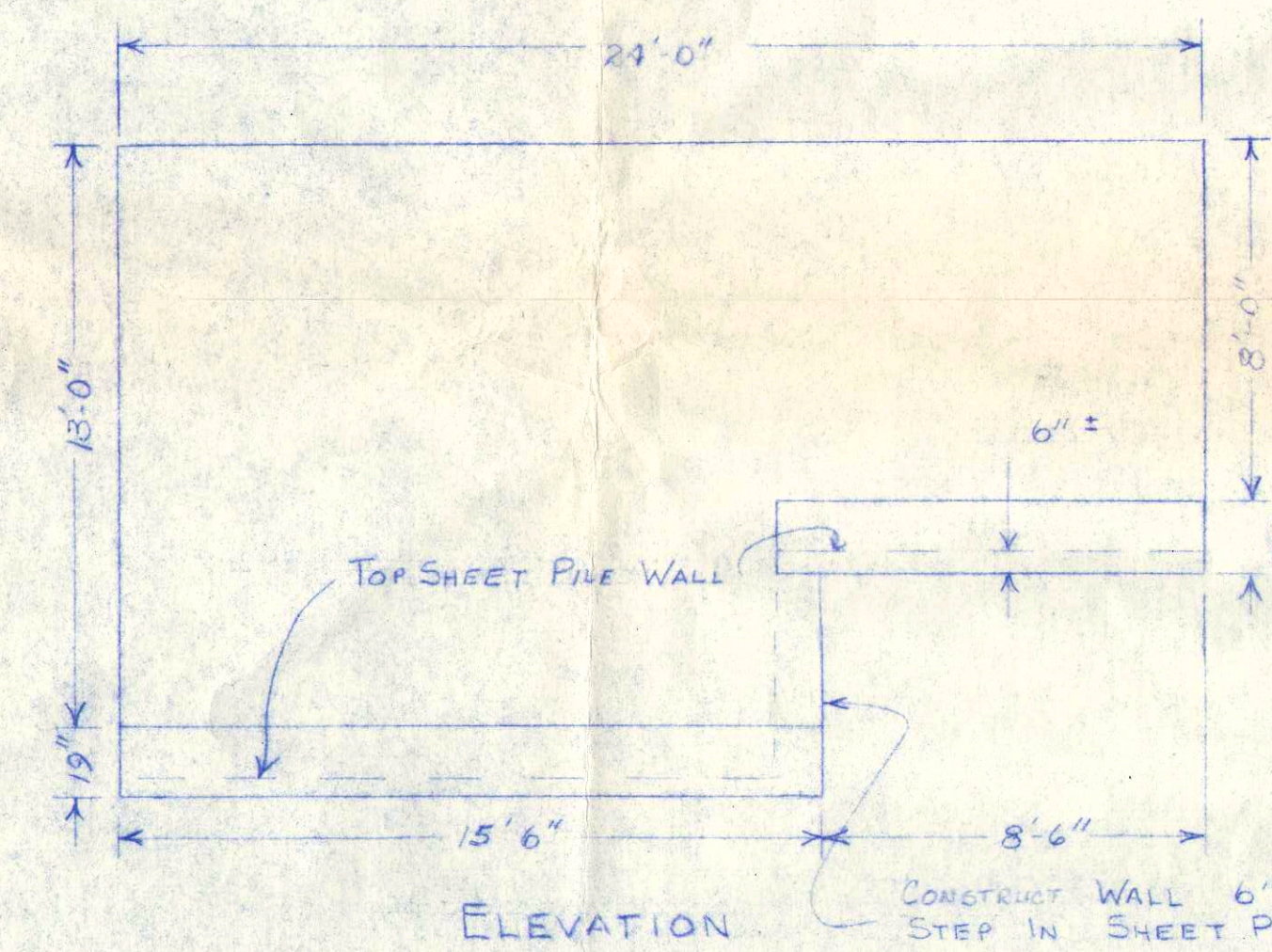
PLAN

LEFT WING WALL - UPSTREAM
SCALE 1" = 4'-0"

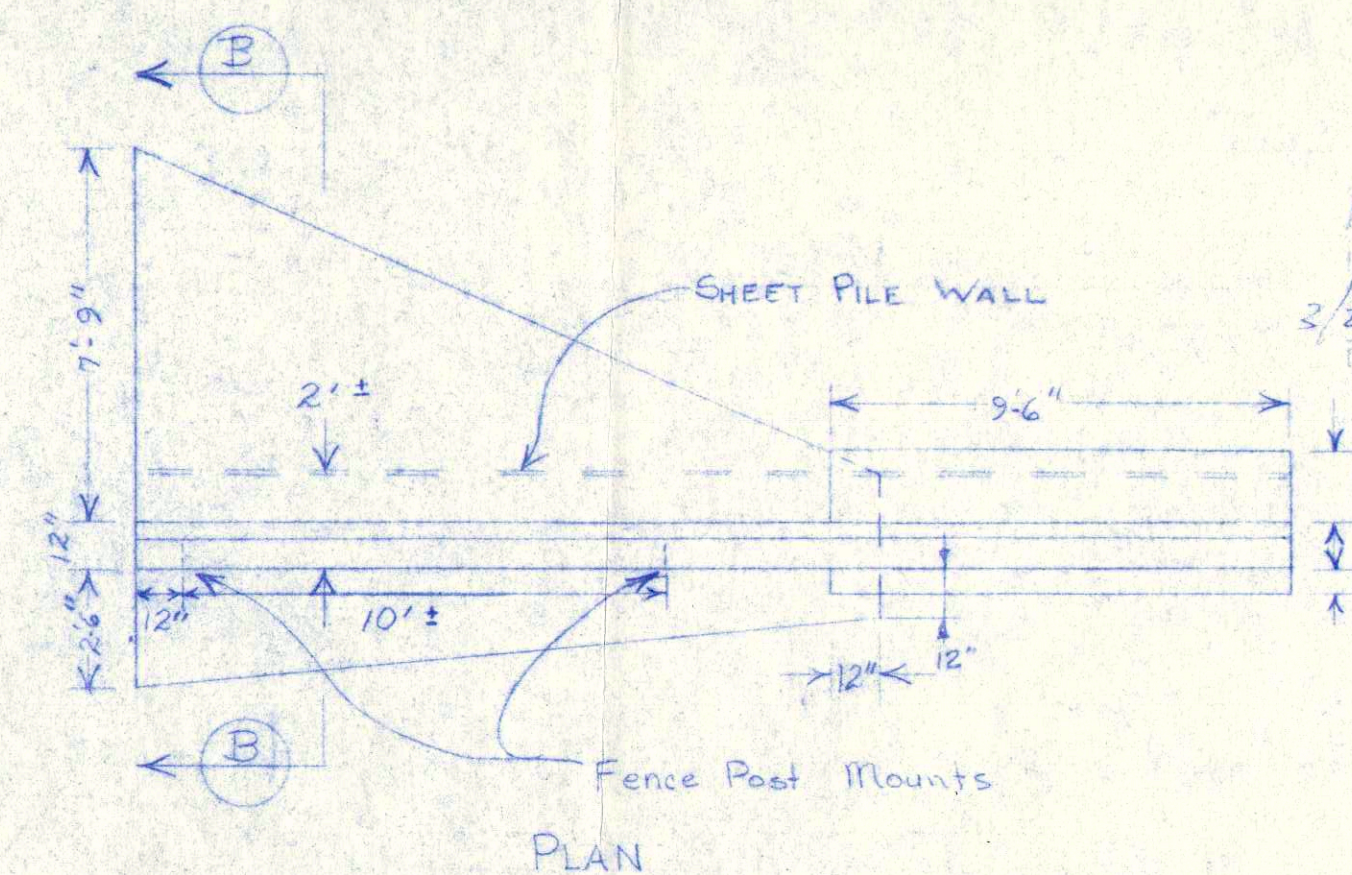


SECTION B-B
SCALE 1" = 2'-0"

NOTE:
Construct Expansion Joint at each contact
between wingwalls and dam end wall.
See Typical Detail on Sheet 5.



ELEVATION



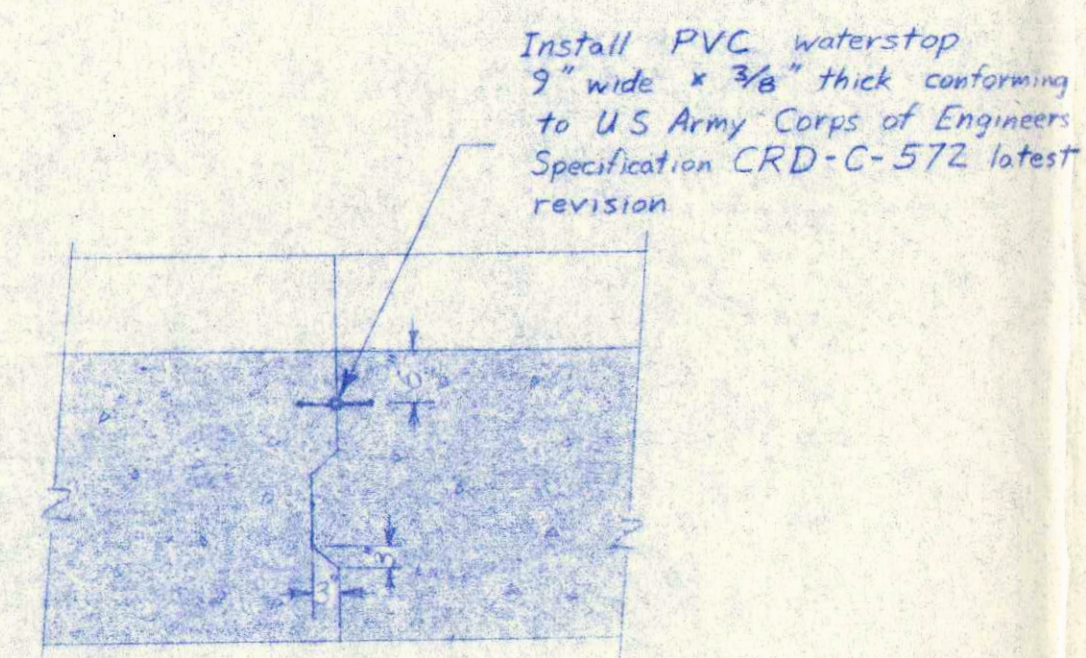
PLAN

RIGHT WING WALL - UPSTREAM
SCALE 1" = 4'-0"

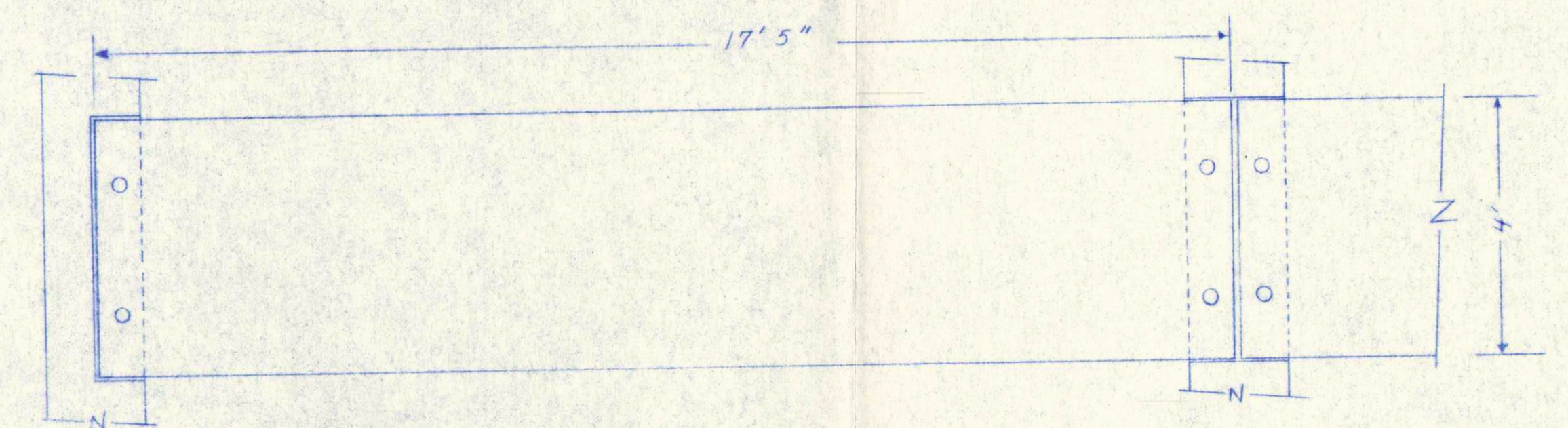
APPROVED
IDAHO DEPARTMENT OF WATER RESOURCES
2/20/78
DATE: ADMINISTRATOR, RESOURCES ADMIN. DIVISION

REGISTERED PROFESSIONAL
ENGINEER
17-3-78
WILLIAM R. GOSS

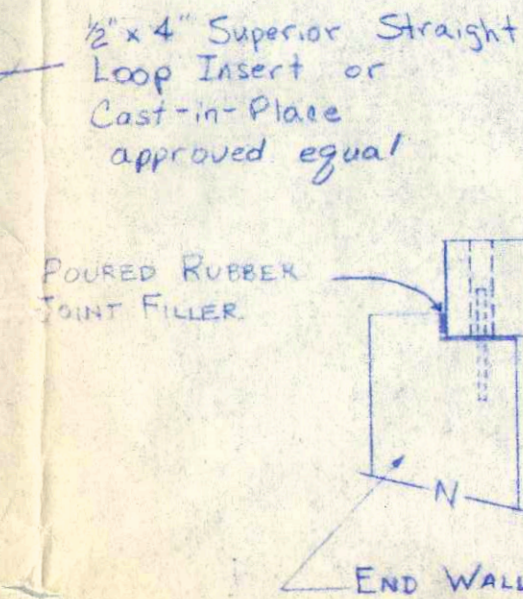
IDAHO DEPARTMENT OF WATER RESOURCES	
PRIEST LAKE OUTLET - WINGWALLS	
DRAWN BY: J.B.	APPROVED: [Signature]
SCALE: AS SHOWN	
DATE: 17 Nov 78	
SHEET NO. 4	



NOTE:
Concrete walkway to be designed for a
live load of 100 lbs/ft^2 plus dead load.

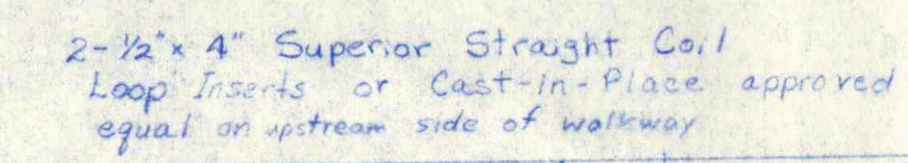


BRACKET DETAIL
SCALE 1" = 1'

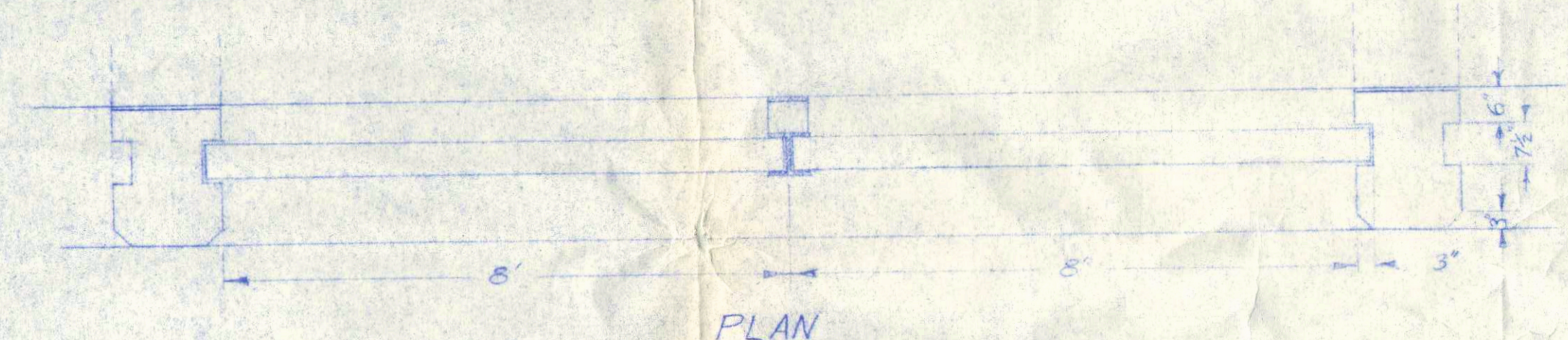
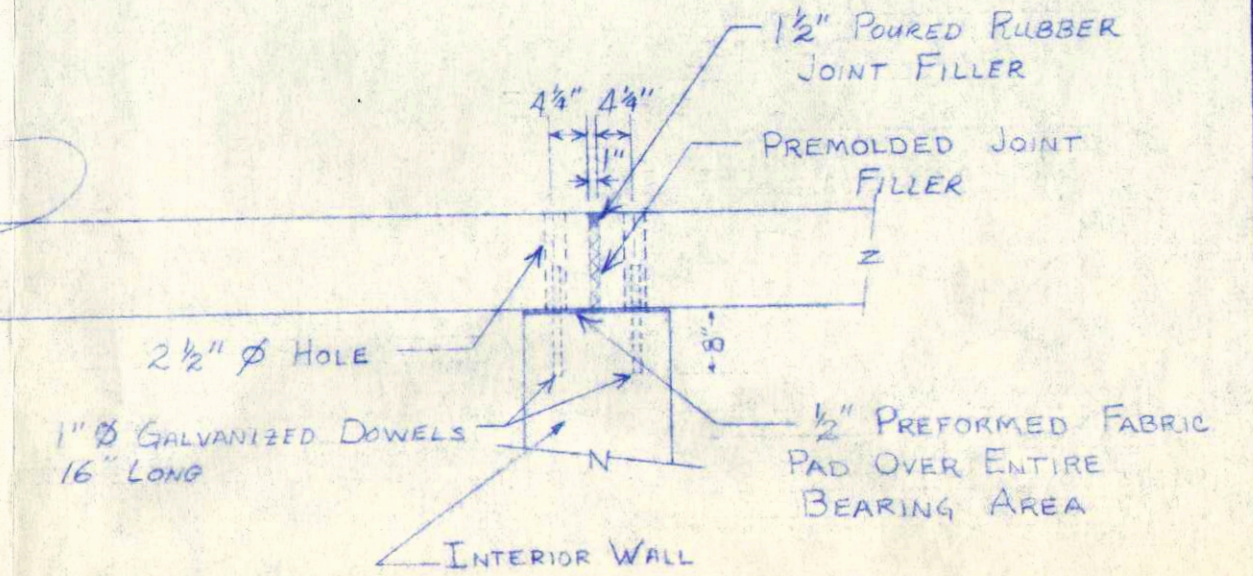


PLAN
SCALE 1" = 2'-0"

BOLT INSERTS OR WELD PLATES SHALL BE INSTALLED ALONG BOTH SIDES TO ACCOMMODATE HANDRAILING. HANDRAIL DESIGN SHALL BE APPROVED BY OWNER PRIOR TO CONSTRUCTION.



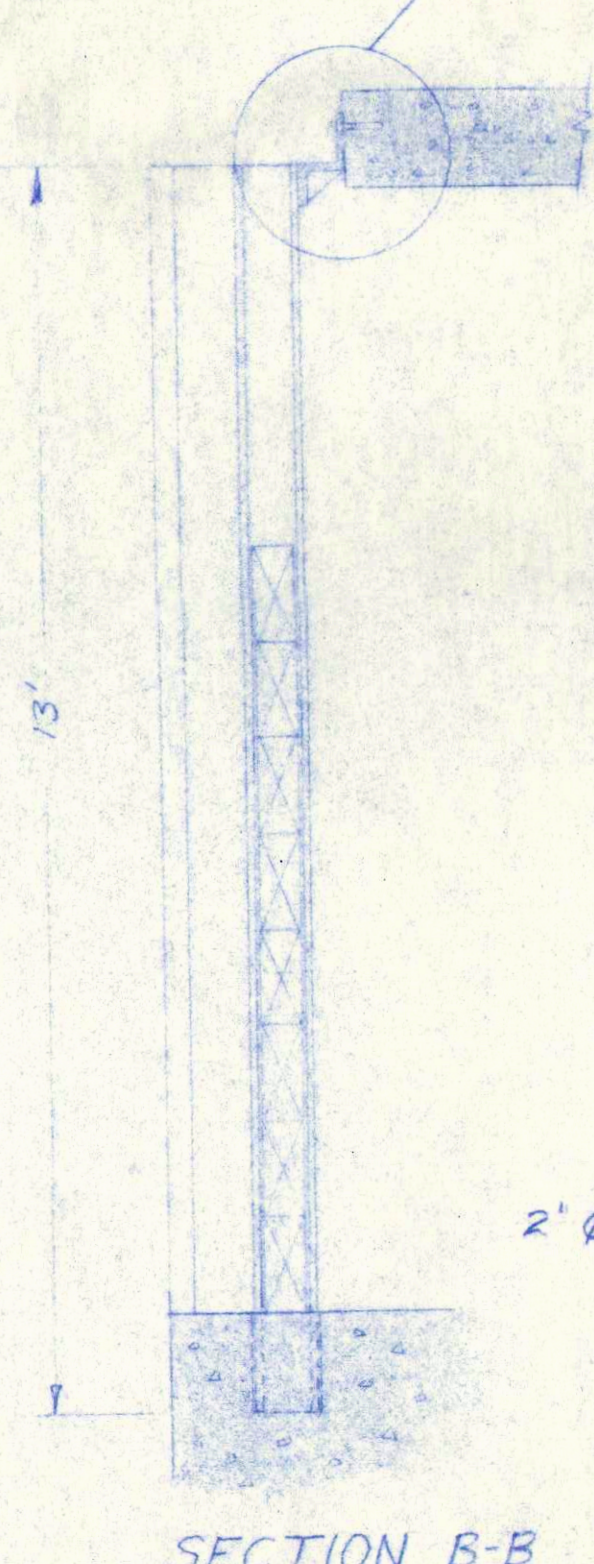
PROFILE
SCALE 1" = 2'-0"



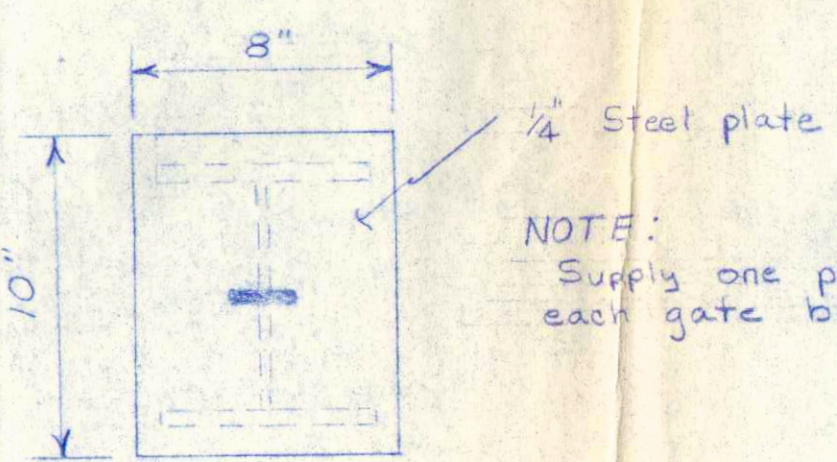
PLAN

PROFILE

STOP LOG SECTION DETAIL
Scale: 1" = 2'-0"

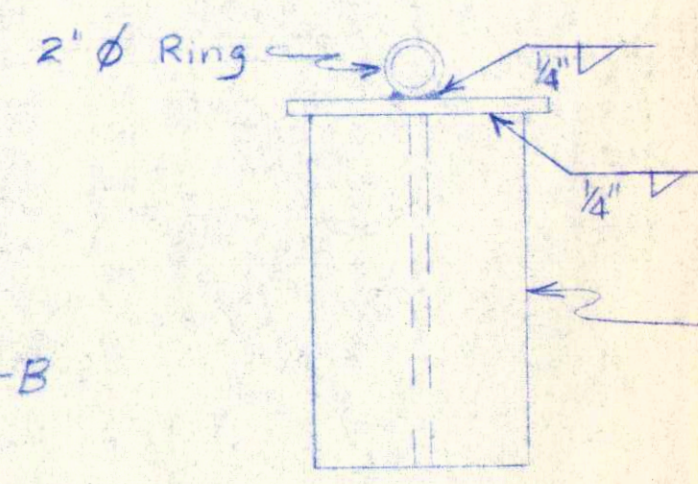


SECTION B-B



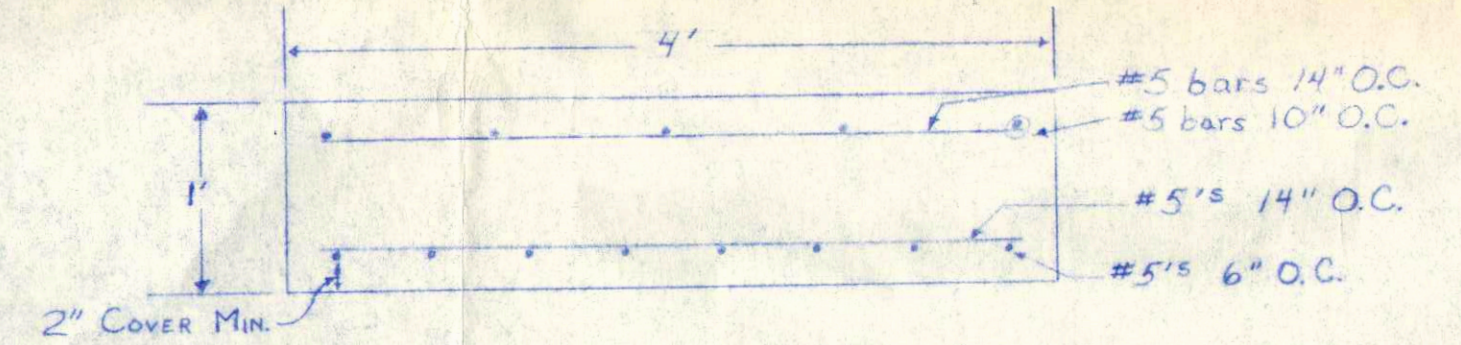
TOP VIEW

NOTE:
Supply one plug for
each gate bay.



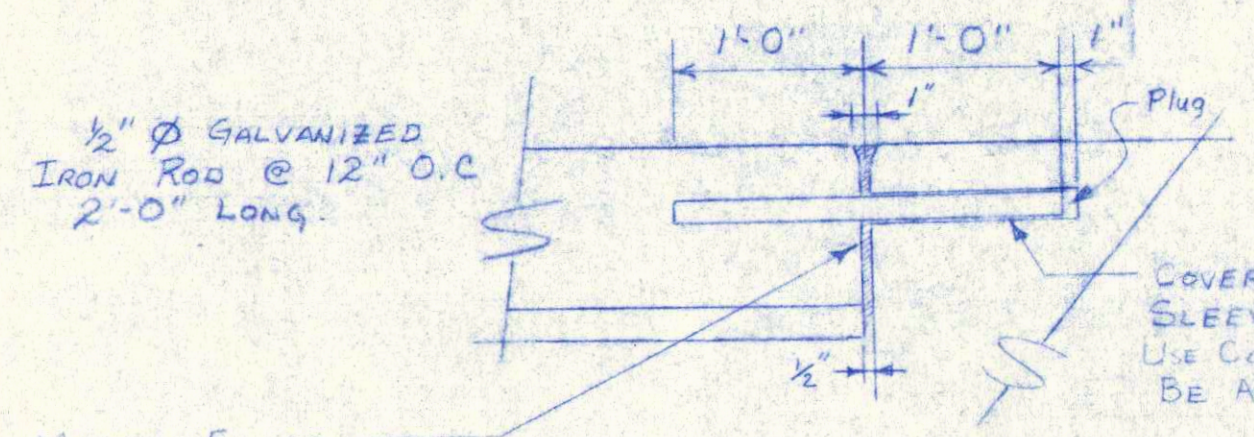
ELEVATION

PLUG DETAIL
SCALE 1" = 1'



SECTION C-C
SCALE 1" = 1'-0"

PRECAST CONCRETE WALKWAY



TYP. EXPANSION JOINT
No SCALE

NOTE :
ALIGN DOWELS PARALLEL TO
WING WALLS

COVER DOWELS WITH SLEEVES TO PREVENT BOND OR USE COATED STEEL DOWEL TO BE APPROVED BY ENGINEER.

APPROVED
IDAHO DEPARTMENT OF WATER RESOURCES
DATE 1/78 Norman C. Young
ADMINISTRATOR, RESOURCES ADMIN. DIVISION

IDAHO DEPARTMENT OF WATER RESOURCES

PRIEST LAKE OUTLET — MISC. DETAILS

DRAWN BY: WG, KH. APPROVED: *W. J. Smith*

SCALE
as shown

DATE
17 Mar 1978

SHEET No. 7-2020
5

APPENDIX G – STANDARD TRAFFIC CONTROL PLANS

CONTENTS

1. Idaho Standard Traffic Control Plans

Attachment F

Fixed Price Construction Contract for Priest Lake Outlet Dam Improvements

CONXXXXX

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EXHIBITS

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- B** Addresses and representatives (including limitations)
- C** List of drawings and specifications
- D** Contractor's affidavit concerning taxes
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- H** Release of claims
- I** Conditions precedent to final payment

FIXED PRICE CONSTRUCTION CONTRACT FOR PRIEST LAKE OUTLET DAM IMPROVEMENTS

This fixed price construction contract for Priest Lake Outlet Dam Improvements (the "Contract") is between the State of Idaho, Idaho Water Resource Board ("Owner") and (**insert name of contractor**) (the "Contractor") and is for the construction of the project (the "Project"), as more fully described in Exhibit A, attached and incorporated by reference. This Contract shall take effect when both parties have signed it. The date of this Contract will be the date the Contract is signed by the last party to sign it.

THE OWNER AND THE CONTRACTOR AGREE:

ARTICLE 1 CONTRACT DOCUMENTS

1.1 The Contract Documents consist of this Contract, the drawings and specifications for the Project (the "Drawings and Specifications") identified in Exhibit C and any addenda issued prior to execution of this Contract, written amendments signed by both the Owner and the Contractor, Change Orders signed by both the Owner and the Contractor, Construction Change Directives and any written orders by the Owner's Representative for minor changes in the Work (the "Contract Documents"). Documents not included or expressly contemplated in this Article 1 do not, and shall not, form any part of the Contract Documents.

1.2 The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations.

ARTICLE 2

REPRESENTATIONS AND WARRANTIES OF THE CONTRACTOR

The Contractor makes the following representations to the Owner:

- 2.1** The Contractor is fully qualified to act as the Contractor for the Project and has, and shall maintain, any and all licenses, permits or other authorizations necessary to act as the Contractor for, and to construct, the Project.
- 2.2** The Contractor has become familiar with the Project site and the local conditions under which the Project is to be constructed and operated particularly in correlation to the requirements of the Contract.
- 2.3** The Contractor has received, reviewed, compared, studied and carefully examined all of the documents which make up the Contract Documents, including the Drawings and Specifications, and any addenda, and has found them in all respects to be complete, accurate, adequate, consistent, coordinated and sufficient for construction. Such review, comparison, study and examination shall be a warranty that the contractor believes that the documents are complete, and the Project is buildable as described except as reported.
- 2.4** The Contractor warrants that the Contract Time is a reasonable period for performing the Work.

The Contractor warrants to the Owner and Owner's Representative that all labor furnished on this Project shall be competent to perform the tasks undertaken; materials and equipment furnished under the Contract will be new and of high quality unless otherwise required or permitted by the Contract Documents; that the Work will be complete, of high quality and free from defects not inherent in the quality required or permitted; and that the Work will strictly conform to the requirements of the Contract Documents. Any Work not strictly conforming to these requirements, including substitutions not properly approved and authorized, shall be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse by Owner or its representatives, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. This warranty shall survive the completion of the Contract and final payment to the Contractor.

- 2.5** The Contractor provides the warranties and representations contained in the Specifications.

ARTICLE 3 INTENT AND INTERPRETATION

- 3.1** This Contract constitutes the entire and exclusive agreement between the parties with reference to the Project, and supersedes any and all prior discussions, communications, representations, understandings, negotiations or agreements. This Contract also supersedes any bid documents.
- 3.2** The intent of the Contract is to include all items necessary for the proper execution and completion of the Project and anything that may be required, implied or inferred by the documents which make up this Contract, or any one or more of them, shall be provided by the Contractor for the Fixed Price Contract Amount. The Contract Documents are complementary, and what is required by one shall be as binding as

if required by all.

3.3 Nothing contained in this Contract shall create, nor be interpreted to create, privity or any other relationship whatsoever between the Owner and any person or entity except the Contractor; provided, however, that the Owner's Representative is entitled to performance and enforcement of obligations under the Contract intended or necessary to facilitate its duties. Any reference to the Owner, the Contractor or the Owner's Representative will be deemed to include authorized representatives.

3.4 When a word, term or phrase is used in this Contract, it shall be interpreted or construed first as defined in this Contract; second, if not defined, according to its generally accepted meaning in the construction industry; and third, if there is no generally accepted meaning in the construction industry, according to its common and customary usage.

3.5 The words "include," "includes," or "including," as used in this Contract, are deemed to be followed by the phrase "without limitation."

3.6 The specification of any act, failure, refusal, omission, event, occurrence or condition as constituting a material breach of this Contract shall not imply that any other, non-specified act, failure, refusal, omission, event, occurrence or condition will not constitute a material breach of this Contract.

3.7 The Contractor shall have a continuing duty to read, examine, review, compare and contrast each of the documents which make up this Contract, shop drawings and other submittals, and shall give timely written notice to the Owner and the Owner's Representative of any conflict, ambiguity, error or omission which the Contractor may find with respect to these documents before proceeding with the affected Work.

3.8 The express or implied approval by the Owner or the Owner's Representative of any shop drawings or other submittals shall not relieve the Contractor of the continuing duties imposed within the Contract Documents, nor shall any such approval be evidence of the Contractor's compliance with this Contract. The Owner has requested that the Owner's Representative prepare documents for the Project, including the Drawings and Specifications for the Project, which are accurate, adequate, consistent, coordinated and sufficient for construction. HOWEVER, THE OWNER MAKES NO REPRESENTATION OR WARRANTY OF ANY NATURE WHATSOEVER TO THE CONTRACTOR CONCERNING SUCH DOCUMENTS. The Contractor again acknowledges and represents that it has received, reviewed and carefully examined such documents; has found them to be complete, accurate, adequate, consistent, coordinated and sufficient for construction; and that the Contractor has not, does not and will not rely upon any representations or warranties by the Owner concerning such documents, as no such representations or warranties have been or are made in the Contract Documents.

3.9 In the event of any conflict among any of the documents which make up this Contract, the Owner's Representative shall interpret the documents, and the interpretation shall be binding on both the Owner and Contractor; provided, however, that this does not change the Owner's right to make decisions regarding Claims in accordance with Article 13 and Article 14. If no interpretation is provided by the Owner's Representative, the most stringent requirement in the Contract Documents will apply.

ARTICLE 4 OWNERSHIP OF DOCUMENTS

4.1 Unless otherwise agreed by the Owner's Representative and its consultants, the party that prepared

the drawings, specifications and other documents is the author of such with all copyright, common law, statutory and other reserved rights. The Contractor may retain one (1) record set of the Drawings and Specifications and other documents but shall not own or claim any copyright in them.

4.2 The Drawings and Specifications and other documents, and any copies, are to be used solely for this Project, and not on any other project, or additions to this Project outside this Contract, without written consent of the Owner, the Owner's Representative and the Owner's Representative's consultants; provided, however, that copies may be made of applicable portions as necessary for completion of the Work. Such copies shall include any copyright notice on the Drawings and Specifications and other documents.

4.3 Submission to or use by a regulatory body related to this Project is an acceptable use.

ARTICLE 5 CONTRACTOR'S PERFORMANCE

The Contractor shall perform all of the Work required, implied or reasonably inferable from this Contract, including the following:

5.1 Construction of the Project.

5.2 The furnishing of any required surety bonds and insurance.

5.3 The provision or furnishing, and prompt payment, of labor, supervision, services, materials, supplies, equipment, fixtures, appliances, facilities, tools, transportation, storage, power, fuel, heat, light, cooling or other utilities required for construction and all necessary permits, including any required elevator permits, required for the construction of the Project.

5.4 The creation and submission of a detailed and comprehensive set of marked up blue or black-lined record drawings. Said record drawings shall be submitted to and approved by the Owner's Representative as a condition precedent to final payment to the Contractor.

ARTICLE 6 TIME FOR CONTRACTOR'S PERFORMANCE

6.1 The Contractor shall commence the performance of this Contract in accordance with the "Notice to Proceed" (Exhibit F) issued by the Owner and shall diligently continue its performance to and until final completion of the Project. The Contractor shall accomplish Substantial Completion of the Project on or before the time indicated in Exhibit A. The period of time, including any adjustments made under this Contract, for the Contractor to reach Substantial Completion is the "Contract Time."

6.2 The Contractor may be assessed by and be responsible to the Owner for the amount indicated in Exhibit A per day for each and every calendar day of unexcused delay in achieving Substantial Completion beyond the date set forth for Substantial Completion. Any sums owed hereunder by the Contractor shall be payable not as a penalty but as liquidated damages, representing an estimate of delay damages likely to be sustained by the Owner estimated at the time of this Contract. When the Owner reasonably believes that Substantial Completion will be inexcusably delayed, the Owner shall be entitled, but not required, to withhold from any amounts otherwise due the Contractor an amount then believed by the Owner to be adequate to recover liquidated damages applicable to such delays. If and when the Contractor overcomes

the delay in achieving Substantial Completion, or any part thereof, for which the Owner has withheld payment, the Owner shall promptly release to the Contractor those funds withheld, but no longer applicable, as liquidated damages. The Owner's right to liquidated damages is not, and shall not be deemed to be, an exclusive remedy for delay and the Owner shall retain all remedies at law or in equity for delay or other breach.

6.3 The term "Substantial Completion," shall mean that point at which, as certified in writing by the Owner's Representative, the entire Project is at a level of completion in strict compliance with the Contract Documents, such that the Owner or its designee can enjoy beneficial use or occupancy and can use or operate it in all respects for its intended purpose. If, in the reasonable determination of the Owner, receipt of operation and maintenance manuals or completion of training is necessary for such beneficial use or occupancy, then there shall be no Substantial Completion until such manuals are provided or such training is completed. Partial use or occupancy of the Project shall not result in the Project being deemed substantially complete, or accepted as substantially complete, and such partial use or occupancy shall not be evidence of Substantial Completion. The Project shall not be deemed accepted until it is finally complete.

6.4 Any request by the Contractor for an extension of the Contract Time must be made in accordance with, and is subject to, Article 13 and Article 14 related to Claims.

6.5 The Owner shall have no liability of any kind to the Contractor if a schedule or other document submitted by the Contractor shows an intention to complete the Work prior to the scheduled completion date and for any reason other than Owner caused delay, the Contractor is not able to achieve such early completion.

ARTICLE 7 FIXED PRICE AND CONTRACT PAYMENTS

7.1 The Owner shall pay, and the Contractor shall accept, as full and complete payment for the Contractor's timely performance of its obligations hereunder, the Fixed Price Contract Amount indicated in Exhibit A. The Fixed Price Contract Amount shall not be modified except as provided in this Contract.

7.2 The Fixed Price Contract Amount will be apportioned and paid for according to the Bid Schedule indicated in Exhibit A and Contractor's Schedule of Values. Prior to approval of the contract, the Contractor shall prepare and present to the Owner and the Owner's Representative the Contractor's Schedule of Values apportioning the lump sum (LS) bid items within the Bid Schedule for purposes of periodic and final payment. The Contractor shall not imbalance its Schedule of Values nor artificially inflate any element thereof. The violation of this provision by the Contractor shall constitute a material breach of this Contract. The Bid Schedule and Contractor's Schedule of Values will be utilized for the Contractor's requests for payment but shall only be so utilized after it has been approved in writing by the Owner's Representative. Bid items within the Bid Schedule with units CY, SY, Ton, CF, and LF will be paid according to the estimated quantity within the Bid Schedule. Work items will not be paid according to the measured and installed in-place quantity. If it is shown from verifiable measurements that to complete the work according to the Contract Documents, actual installed quantities exceeded the estimated quantities within the Bid Schedule by greater than 25%, compensation for the additional work will be determined according to Article 16.3.4.

7.3 The Owner shall pay the Fixed Price Contract Amount to the Contractor in accordance with the procedures set forth in this Article. The Contractor shall submit a Contractor's Request for Payment, on or

before the day of each month indicated in Exhibit A or otherwise agreed to, after commencement of performance, but no more frequently than once monthly. Said payment shall include whatever supporting information as may be required by the Owner's Representative, the Owner or both. The Contractor may request payment for one hundred percent (100%) of the Work satisfactorily completed to the date of the Contractor's Request for Payment, less five percent (5%) retainage, based on the Fixed Price Contract Amount allocated on the Schedule of Values. The Contractor's Request for Payment may include only:

.1 Properly provided labor, materials or equipment properly incorporated into the Project, and time and materials or equipment necessary for the Project or that will be incorporated into the Project and are properly stored at the Project site (or elsewhere if off-site storage is approved in writing by the Owner).

.2 The Contractor's Request for Payment must exclude the total amount of previous payments received from the Owner. Any payment on account of stored materials or equipment will be subject to the Contractor providing written proof that the Owner has title to such materials or equipment and that they are fully insured against loss or damage.

.3 Each Request for Payment shall be signed by the Contractor and its submission shall constitute the Contractor's affirmative representation that the quantity of Work has reached the level for which payment is requested; that the Work has been properly installed or performed in strict compliance with the Contract; that all Work for which the Owner has previously paid is free and clear of any lien, claim or other encumbrance of any person whatsoever; and that the Contractor knows of no reason why payment should not be made as requested.

.4 As a condition precedent to payment, the Contractor shall, if required by the Owner, furnish to the Owner properly executed waivers or releases, in a form acceptable to the Owner, from all subcontractors, materialmen, suppliers or others having any claims or alleged claims, wherein said subcontractors, materialmen, suppliers or others shall acknowledge receipt of all sums due pursuant to all prior Contractor's Requests for Payment, and waive and relinquish any rights or other claims relating to the Project or Project site. The submission by the Contractor of the Contractor's Request for Payment also constitutes the Contractor's affirmative representation that, upon payment of the Contractor's Request for Payment submitted, title to all Work included in such payment shall be vested in the Owner.

7.4 The Owner's Representative shall review the Contractor's Request for Payment and may also review the Work at the Project site or elsewhere to determine whether the quantity and quality of the Work are as represented in the Contractor's Request for Payment and as required by this Contract. The Owner's Representative shall approve in writing the amount which, in the opinion of the Owner's Representative, is properly owing to the Contractor and such approval is required before the Owner shall have any payment obligation. The Owner's Representative may withhold such approval, in whole or in part, as necessary to protect the Owner if it reasonably believes that the quantity or quality of the Work is not as represented in the Contractor's Request for Payment or is not in strict conformance to the Contract Documents.

7.5 The Owner shall make payment to the Contractor no more than thirty (30) days following receipt by the Owner of the Owner's Representative's written approval of each Contractor's Request for Payment. The amount of each such payment will be the amount approved for payment by the Owner's Representative less such amounts, if any, otherwise owing by the Contractor to the Owner or which the Owner shall have the right to withhold as authorized by this Contract. The Owner's Representative's approval of the

Contractor's Request for Payment shall not preclude the Owner from the exercise of any of its rights it may have in this Contract, at law or in equity, as set forth in Paragraph 7.9.

7.6 Off-site storage will not be approved at locations outside the State of Idaho and any payment for any off-site storage is subject to the following:

.1 The Contractor must provide at least thirty (30) days' advance written notice of its request to store off-site. Such notice must include a description of the type, quantities, locations and values of materials involved for the next billing cycle. All invoices must indicate the type, quantities and value of materials or equipment for which payment is requested;

.2 All materials stored off-site must be segregated and clearly marked with the Project name and as being the "Property of the State of Idaho;"

.3 The Owner's Representative and/or the Owner's Construction Manager must have unrestricted access to the stored materials during all business hours and may physically inventory all invoiced materials and equipment and may physically inspect the storage conditions;

.4 The Contractor must provide written Consent of Surety, described in Article 24, to off-site storage of materials and equipment and to payment for such materials and equipment prior to incorporation in the Work. Consent must be from the Surety. Consent of local broker or agent is not acceptable.

.5 The Contractor must maintain and must provide to the Owner's Representative and the Owner's Construction Manager, upon request, a current log of stored materials and equipment, which reflects when materials and equipment are used or added; and

.6 The Contractor must obtain and maintain all risk property insurance at replacement cost, with the State of Idaho listed as loss payee on all materials and equipment stored off-site and in transit.

7.7 When payment is received from the Owner, the Contractor shall immediately pay all subcontractors, materialmen, laborer and suppliers the amounts they are due for the Work covered by such payment. The Contractor shall not withhold from a subcontractor or supplier more than the percentage withheld from a payment certificate for the subcontractor's or supplier's portion of the Work. In the event the Owner becomes informed that the Contractor has not paid a subcontractor, materialmen, laborer or supplier as provided herein, the Owner shall have the right, but not the duty, to issue future checks and payment to the Contractor of amounts otherwise due hereunder naming the Contractor and any such subcontractor, materialmen, laborer or supplier as joint payees. Such joint check procedure, if employed by the Owner, shall create no rights in favor of any person or entity beyond the right of the named payees to payment of the check and shall not be deemed to commit the Owner to repeat the procedure in the future.

7.8 Payment to the Contractor, utilization of the Project for any purpose by the Owner, or any other act or omission by the Owner shall not be interpreted or construed as an acceptance of any Work of the Contractor not strictly in compliance with this Contract.

7.9 The Owner shall have and be entitled to the right to refuse to make any payment, including by reducing payment under any Contractor's Request for Payment, and, if necessary, may demand the return

of a portion or all of an amount previously paid to the Contractor for reasons that include the following:

- .1 The quality of the Contractor's work, in whole or part, is not in strict accordance with the requirements of this Contract or identified defective work, including punch list work, is not remedied as required by the Contract Documents;
- .2 The quantity of the Contractor's work, in whole or in part, is not as represented in the Contractor's Request for Payment or otherwise;
- .3 The Contractor's rate of progress is such that, in the Owner's opinion, Substantial Completion or final completion, or both, may be inexcusably delayed or that the Owner will incur additional costs or expense related to repeated Substantial Completion or final completion inspections through no fault of the Owner;
- .4 The Owner reasonably believes that the Contractor has failed to use Contract funds, previously paid the Contractor by the Owner, to pay Contractor's project-related obligations, including subcontractors, laborers and material and equipment suppliers;
- .5 There are claims made or it seems reasonably likely that claims will be made, against the Owner;
- .6 The Contractor has caused a loss or damage to the Owner, the Owner's Representative or another contractor;
- .7 The Owner reasonably believes that the Project cannot be completed for the unpaid balance of the Fixed Price Contract Amount or the Owner reasonably believes that the Project cannot be completed within the Contract Time and that the unpaid balance of the Fixed Price Contract Amount would be inadequate to cover the cost of actual or liquidated damages for the anticipated delay;
- .8 The Contractor fails or refuses to perform any of its obligations to the Owner; or
- .9 The Contractor fails to pay taxes as required by Title 63, Chapter 15, Idaho Code.

In the event that the Owner makes written demand upon the Contractor for amounts previously paid by the Owner as contemplated in this Paragraph 7.9, the Contractor shall promptly comply with such demand.

7.10 If the Owner, without cause, fails to pay the Contractor any amounts due and payable thirty (30) days after those amounts are due pursuant to Paragraph 7.5, the Contractor shall have the right to cease the Work until receipt of proper payment. Contractor must first provide written notice to the Owner of the Contractor's intent to cease the Work ten (10) days prior to stopping the Work under this Paragraph. If any amounts remain unpaid after fifty-one (51) days after the Owner's Representative approves the Contractor's Request for Payment under Paragraph 7.5, interest at the rate of four percent (4%) per annum shall accrue on those unpaid amounts.

7.11 When Contractor considers Substantial Completion has been achieved, the Contractor shall notify the Owner and the Owner's Representative in writing and shall furnish to the Owner's Representative a listing of those matters yet to be finished. The Owner's Representative and/or Owner's Contract Manager will conduct an inspection to confirm that the Work is, in fact, substantially complete. Upon its

confirmation that the Contractor's work is substantially complete, the Owner's Representative will notify the Owner and Contractor in writing and will set forth the date of Substantial Completion. The Owner and the Contractor must accept the date of Substantial Completion in writing. Guarantees and warranties required by this Contract shall commence on the date of Substantial Completion. At the Contractor's Request for Payment following Substantial Completion, the Owner shall pay the Contractor an amount sufficient to increase total payments to the Contractor to ninety-five percent (95%) of the Fixed Price Contract Amount, less any liquidated damages, less the reasonable costs as determined by the Owner's Representative for completing all incomplete work, correcting and bringing into conformance all defective and nonconforming work, and handling any outstanding or potential claims. If the Owner's Representative determines that the Contractor has made or is making satisfactory progress on any uncompleted portions of the Work, the Owner may, at its discretion, release a portion of the retainage to the Contractor prior to the actual final completion of the conditions set forth in Paragraph 7.15. It is the intent of the parties that the Project will be accepted only in total (at Substantial Completion and final completion) and not in phases unless provided for in Exhibit A. Any acceptance other than in total shall require written agreement of Owner and Owner's Representative.

7.12 When Contractor considers the Project is at final completion, it shall notify the Owner and the Owner's Representative in writing. The Owner's Representative will perform a final inspection of the Project. If the Owner's Representative confirms that the Project is complete in full accordance with the Contract Documents and that the Contractor has performed all of its obligations to the Owner, the Owner's Representative will furnish a final approval for payment to the Owner certifying to the Owner that the Project is complete and the Contractor is entitled to the remainder of the unpaid Fixed Price Contract Amount, less any amount withheld pursuant to this Contract.

7.13 If the Contractor fails to achieve final completion within a reasonable number of days as established by the Owner's Representative from the date of Substantial Completion, the Contractor may be assessed and be responsible to the Owner for fifty percent (50%) of the daily amount of liquidated damages as established pursuant to Paragraph 6.2 and Exhibit A, per day for each and every calendar day of unexcused delay in achieving final completion beyond the date established for final completion of the Work. Any sums due and payable by the Contractor shall be payable not as a penalty but as liquidated damages representing an estimate of delay damages likely to be sustained by the Owner, estimated at or before the time of executing this Contract. When the Owner reasonably believes that final completion will be inexcusably delayed, the Owner may withhold from any amounts otherwise due the Contractor an amount then believed by the Owner to be adequate to recover liquidated damages applicable to such delays. If and when the Contractor overcomes the delay in achieving final completion, or any part thereof, for which the Owner has withheld payment, the Owner shall promptly release to the Contractor those funds withheld, but no longer applicable, as liquidated damages. The Owner's right to liquidated damages is not, and shall not be deemed to be, an exclusive remedy for delay and the Owner shall retain all remedies at law or in equity for delay or other breach.

7.14 As a condition precedent to final payment, the Contractor must furnish the Owner, in the form and manner required by Owner, and with a copy to the Owner's Representative of the following:

- .1** An affidavit that all of the Contractor's obligations to subcontractors, laborers, equipment or material suppliers or other third parties in connection with the Project have been paid or otherwise satisfied;
- .2** A release by the Contractor of all Claims it has or might have against the Owner or the

Owner's property (Exhibit H);

.3 Contractor's Affidavit of Debts and Claims (AIA Document G706);

.4 Consent of Surety to final payment (AIA Document G707);

.5 Confirmation of all required training, product warranties, operating manuals, instruction manuals and other record documents, drawings and things customarily required of the Contractor; and

.6 A Public Works Contract Tax Release issued by the Idaho Tax Commission (See "Request for Tax Release" form, Exhibit G, to be submitted by Contractor to the Idaho Tax Commission).

7.15 The Owner shall, subject to its rights set forth in this Contract, make final payment of all sums due the Contractor within thirty (30) days of the Owner's Representative's execution of a final approval for payment and receipt of documentation required by Paragraph 7.15, whichever is received later.

ARTICLE 8 INFORMATION AND MATERIAL SUPPLIED BY THE OWNER

8.1 The Owner's Chairman or his designee shall be the sole representative of the State of Idaho. The Owner's Representative shall have authority to bind Owner only as specifically set forth in this Contract.

8.2 In Exhibit B, the Owner has identified an Owner's Representative and Owner's Construction Manager to represent the Owner.

8.3 The Owner shall furnish to the Contractor, prior to the execution of this Contract, any and all written and tangible material in its possession concerning conditions below ground at the site of the Project. Such written and tangible material is furnished to the Contractor only in order to make complete disclosure of such material as being in the possession of the Owner and for no other purpose. By furnishing such material, the Owner does not represent, warrant or guarantee its accuracy, either in whole in part, implicitly or explicitly.

8.4 The Owner will secure and pay for all required easements, conditional use permits and any other permits and fees specifically indicated in the Contract Documents to be secured and paid for by the Owner.

8.5 The Owner will provide the Contractor one copy of this complete Contract and the number of sets of Drawings and Project Manuals (including Specifications) as indicated in Exhibit A.

ARTICLE 9 STOP WORK ORDER

9.1 In the event the Contractor fails or refuses to perform the Work as required or fails or refuses to correct nonconforming Work, the Owner may instruct the Contractor to stop Work in whole or in part. Upon receipt of such instruction, the Contractor shall immediately stop as instructed by the Owner and shall not proceed further until the cause for the Owner's instructions has been corrected, no longer exists or the Owner instructs that the Work may resume. In the event the Owner issues such instructions to stop, and in

the further event that the Contractor fails and refuses within seven (7) days of receipt of same to provide adequate assurance to the Owner that the cause of such instructions will be eliminated or corrected, then the Owner shall have the right, but not the obligation, to carry out the Work with its own forces or with the forces of another contractor, and the Contractor shall be fully responsible and liable for the costs of performing such Work by the Owner. Without limiting what else might constitute nonconforming Work, the existence of a gross safety violation or other situation or condition that creates, or could imminently create, a threat of serious harm to persons or property, shall constitute nonconforming Work and any order to stop the Work issued for such reason shall not be considered an interference with the Contractor's performance of the Work or its means and methods. The rights set forth herein are in addition to, and without prejudice to, any other rights or remedies the Owner may have against the Contractor.

9.2 Any order to stop the Work issued pursuant to Paragraph 9.1 shall not be used to justify any Claim by the Contractor for additional time or money.

ARTICLE 10 DUTIES, OBLIGATIONS AND RESPONSIBILITIES OF THE CONTRACTOR

In addition to any and all other duties, obligations and responsibilities of the Contractor set forth in this Contract, the Contractor shall have and perform the following duties, obligations and responsibilities to the Owner:

10.1 The Contractor's continuing duties set forth in Paragraph 3.7 are by this reference incorporated in this Paragraph 10.1. The Contractor shall not perform Work without adequate plans and specifications or, as appropriate, approved shop drawings or other submittals. If the Contractor performs Work knowing or believing it involves an error, inconsistency or omission in the Contract without first providing written notice to the Owner's Representative and Owner, the Contractor shall be responsible for such Work and shall pay the cost of correcting same.

10.2 The Contractor shall take field measurements, verify field conditions, and shall carefully compare such field measurements, conditions, and other information known to the Contractor with the Contract Documents before commencing Work. Errors, inconsistencies or omissions discovered shall be reported to the Owner's Representative, the Owner, and the Owner's Construction Manager immediately. Such examination, review, and comparison shall be a warranty that the Contract Documents are complete and the Project is buildable as described except as reported. Reported errors, inconsistencies or omissions will constitute a request for an interpretation by the Owner's Representative and may constitute a claim pursuant to Article 13 where appropriate.

10.3 The Contractor shall ensure that all Work shall strictly conform to the requirements of this Contract.

10.4 The Contractor shall strictly supervise the Work and bears full responsibility for any and all acts or omissions of those engaged in the Work on behalf of the Contractor.

10.5 All labor furnished on this Project shall be competent to perform the tasks undertaken; materials and equipment furnished under the Contract will be new and of high quality unless otherwise required or permitted by the Contract Documents; the Work will be complete, of high quality and free from defects not inherent in the quality required or permitted; and the Work will strictly conform to the requirements of the Contract Documents. Any Work not strictly conforming to these requirements, including

substitutions not properly approved and authorized, shall be considered defective.

10.6 Except as provided in Paragraph 8.4, the Contractor shall secure or provide and pay for all licenses, permits, governmental approvals and inspections, connections for outside services for the use of municipal or private property for storage of materials, parking, utility services, temporary obstructions, enclosures or opening and patching of streets, and for all other facilities and services necessary for proper execution and completion of the Project.

10.7 The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations and lawful orders of public authorities bearing on performance of the Work.

10.8 The Contractor shall employ and maintain at the Project site only competent supervisory personnel. Key supervisory personnel assigned by the Contractor to this Project are listed in Exhibit B.

10.9 The Contractor shall employ a competent superintendent and necessary assistants, as needed, to oversee execution of the Work. The superintendent shall be in attendance at the Project site during the progress of the Work. The superintendent and any project manager, if the Contractor uses a project manager, shall be reviewed and must be approved by the Owner's Representative and Owner, and neither shall be changed except with the consent of the Owner's Representative and Owner, unless the superintendent and/or project manager cease to be employed by the Contractor. Under this circumstance, any new superintendent or new project manager must be satisfactory to the Owner's Representative and Owner. Such approval shall not be unreasonably withheld. The superintendent and any project manager shall represent the Contractor and all communications given to the superintendent or project manager are deemed given to the Contractor.

10.10 So long as the individuals named above remain actively employed or retained by the Contractor, they shall perform the functions indicated next to their names unless the Owner agrees to the contrary in writing. In the event one or more individuals not listed in Paragraph 10.9 subsequently assumes one or more of those functions listed in Paragraph 10.9, the Contractor shall be bound by the provisions of this paragraph as though such individuals had been listed in Paragraph 10.9.

10.11 The Contractor shall provide to the Owner, the Owner's Representative, and Owner's Construction Manager a Construction Sequence Work Plan for completing the Work within the Contract Time. The Construction Sequence Work Plan shall be in a form specified in Division 1 of the Specifications and be acceptable to the Owner and to the Owner's Representative. The Construction Sequence Work Plan must be submitted to and accepted by the Owner's Representative 45 days prior to the start of construction unless otherwise specified by Division 1 of the Specifications. The Contractor's Construction Sequence Work Plan must be updated as required by the Owner's Representative and/or the Owner to reflect conditions encountered and shall apply to the total Project. The Contractor's revisions to the Construction Sequence Work Plan shall not constitute a waiver of the requirement to complete the Project in the time allowed by the Contract, unless additional time for performance has been allowed pursuant to a Change Order. Any changes in the Construction Sequence Work Plan begin or end dates must be furnished to the Owner, the Owner's Representative, and the Owner's Construction Manager. Strict compliance with the requirements of this Paragraph shall be a condition precedent to the payment to the Contractor and failure by the Contractor to strictly comply with said requirements shall constitute a material breach of this Contract.

10.12 The Contractor shall schedule and perform the Work in accordance with a Critical Path Method ("CPM") to indicate the rate of progress and practical order of the Project. The purpose of this scheduling

requirement is to assure adequate planning, coordination, and execution of the Work. The schedule shall indicate the dates for starting and completing major work activities, project events, major equipment, material and equipment submittals and delivery of major items. Project activities having critical time restraints on action, required by the Owner, shall be shown as scheduled milestones. The Contractor's schedule shall demonstrate the order, interdependence, and sequence of activities. Critical paths shall be highlighted or distinguished. The schedule shall include all the dates specified in the Contract for Substantial Completion and final completion of the Work. The time limit set forth in the Contract for Substantial Completion and final completion must govern; the schedule must be adjusted to meet these dates. Schedule float shall belong to the Project. The Contractor shall submit to the Owner, Owner's Representative, and Owner's Construction Manager a CPM schedule within three (3) weeks after award of the Contract and maintain such schedule on a current basis in accordance with the Contract Documents.

10.13 Once a month, or at intervals as required by the Owner's Representative, the Contractor shall update the Owner and the Owner's Representative of the status of the Work on the current Construction Sequence Work Plan. If any project dates are not met on schedule, the Contractor shall immediately advise the Owner and Owner's Representative in writing of the proposed action to bring the Work on schedule. The Contractor shall also submit a detailed short-term schedule that shall include a description of current and anticipated problem areas, delaying factors and their impact, and explanation of corrective action taken or proposed. If the Work is behind schedule, the Contractor shall indicate what measures it will take to put the Work back on schedule.

10.14 If the Work is not progressing through no fault of the Owner or the Owner's Representative, as shown on the milestone schedule, as determined by the Owner's Representative, and the Owner and the Owner's Representative do not believe the Contractor's proposed action to bring the Work on schedule is adequate, then the Contractor shall be deemed in default under this Contract and the progress of the Work shall be deemed unsatisfactory. In such event, the Owner, at its discretion, may require the Contractor to work such additional time over regular hours, including Saturdays, Sundays, and holidays, without additional cost to the Owner to bring the Work on schedule.

10.15 The Contractor shall keep an updated copy of the Drawings (including Specifications) and Addenda at the site. Additionally, the Contractor shall keep a current submittal schedule and a copy of approved shop drawings and other submittals. All of these items shall be available to the Owner, Owner's Construction Manager and the Owner's Representative at all regular business hours. Upon final completion of the Work, all of these items must be updated by the Contractor and provided to the Owner's Representative and shall become the property of the Owner.

10.16 The Contractor shall carefully review and inspect for compliance with the Contract Documents, the shop drawings and other submittals (including product data and samples) required by the Contract Documents and shall submit to the Owner's Representative only submittals approved in accordance with this section. Such review and submittal shall be done promptly and in a sequence that will not delay its Work under this Contract or the activities of the Owner or of separate contractors. Shop drawings and other submittals from the Contractor do not constitute a part of the Contract. The Contractor shall not do any work requiring shop drawings or other submittals unless the Owner's Representative has verified compliance in writing. All Work requiring verified shop drawings or other submittals shall be done in strict compliance with such approved documents. However, verification of compliance by the Owner's Representative shall not be evidence that Work installed pursuant thereto conforms to the requirements of this Contract. The Owner's Representative shall have no duty to review submittals that are not Contractor approved, partial submittals or incomplete submittals. The Contractor shall maintain a submittal log which

shall include, at a minimum, the date of each submittal, the date of any re-submittal, the date of any approval or rejection and the reason for any rejection.

10.17 The Contractor shall maintain the Project site in a reasonably clean condition during performance of the Work. Upon final completion, the Contractor shall thoroughly clean the Project site of all debris, trash and excess materials or equipment.

10.18 At all times relevant to this Contract, the Owner and the Owner's Representative shall have a right to enter the Project site and the Contractor shall allow the Owner and/or the Owner's Representative to review or inspect the work without formality or other procedure.

10.19 The presence or duties of the Owner's Representative's or the Owner's personnel or representatives at the construction site, does not make any of them responsible for those duties that belong to the Contractor or other entities and does not relieve the Contractor or any other entities of their obligations, duties, and responsibilities, including any obligation or requirement to have or to implement any health or safety plans or precautions. Except as provided in Paragraph 10.9, Owner's Representative's and Owner's personnel have no authority to exercise any control over any Contractor or other entities or their employees in connection with their work or any health or safety precautions and have no duty for inspecting, noting, observing, correcting, or reporting on health or safety deficiencies of the Contractor or other entities or any other persons at the site except their own personnel. The presence of Owner's Representative's or Owner's personnel at a construction site is for the purpose of providing to Owner a greater degree of confidence that the completed Work will conform to the Contract Documents and that the integrity of the design concept as reflected in the Contract Documents has been implemented and preserved by the Contractor.

10.20 The Contractor Superintendent or approved replacement will be present for all meetings, including Substantial Completion and Final Inspection walkthroughs.

ARTICLE 11 INDEMNITY

11.1 The Contractor shall defend, indemnify and hold harmless the Owner, Owner's Representative, and their employees, officers and agents harmless from any and all claims, liabilities, damages, losses, costs and expenses of every type whatsoever, including attorney fees and expenses, arising out of or resulting from the Contractor's work, acts or omissions under or related to the Contract Documents, to the extent caused by the Contractor, or anyone for whose acts the Contractor may be liable, regardless of whether such liability, claim, damage, loss, cost or expense is caused in part by the Owner.

11.2 The limits of any insurance of the Contractor shall not be, and shall not be deemed to be, a limitation of the Contractor's defense and indemnity obligations contained in this Article.

11.3 In claims against any person or entity indemnified under this Article by an employee of the Contractor, a subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under this Article shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 12

THE OWNER'S REPRESENTATIVE

The Owner's Representative for this Project is identified in Exhibit B along with any authorized representatives and any limitations of responsibility. If the employment of the Owner's Representative is terminated, the Owner may retain a replacement professional and the role of the replacement professional shall be the same as the role of the Owner's Representative. Unless otherwise directed by the Owner in writing, the Owner's Representative will perform those duties and discharge those responsibilities allocated to the Owner's Representative in this Contract. The duties, obligations and responsibilities of the Owner's Representative shall be for contract administration and include the following:

12.1 Unless otherwise directed by the Owner in writing, the Owner's Representative shall not act as the Owner's agent.

12.2 Unless otherwise directed by the Owner in writing, the Owner and the Contractor shall communicate with each other through the Owner's Representative.

12.3 When requested by the Owner or Contractor in writing, the Owner's Representative shall within seven (7) days render written interpretations necessary for the proper execution or progress of the Work or shall provide a written explanation as to why more time is needed and provide a date by which it will be provided.

12.4 The Owner's Representative shall draft proposed change authorization(s).

12.5 The Owner's Representative shall review and verify compliance or respond otherwise as necessary concerning shop drawings or other submittals received from the Contractor.

12.6 The Owner's Representative shall be authorized to refuse to accept Work that is defective or otherwise fails to comply with the requirements of this Contract. If the Owner's Representative deems it appropriate, the Owner's Representative may, with the Owner's consent, require extra inspections or testing of the Work for compliance with the requirements of this Contract.

12.7 The Owner's Representative shall review the Contractor's Request for Payment and shall verify in writing those amounts which, in the opinion of the Owner's Representative, are properly owing to the Contractor as provided in this Contract.

12.8 The Owner's Representative shall, upon written request from the Contractor, perform Substantial Completion and final completion inspections contemplated by Article 6.

12.9 The Owner's Representative may require the Contractor to make changes which do not involve a change in the Fixed Price Contract Amount or in the Contract Time consistent with the intent of this Contract. Such changes shall be given to the Contractor in writing under signature of the Owner's Representative, with a copy to the Owner, and may be in the form of a supplemental instruction.

12.10 The Owner's Representative shall review and evaluate Claims and take other actions related to Claims in accordance with Articles 13 and 14.

12.11 The duties, obligations and responsibilities of the Contractor under this Contract shall in no manner whatsoever be changed, altered, discharged, released or satisfied by any duty, obligation or responsibility

of the Owner's Representative. The Contractor is not a third-party beneficiary of any Contract by and between the Owner and the Owner's Representative. It is expressly acknowledged and agreed that the duties of the Contractor to the Owner are independent of, and are not diminished by, any duties of the Owner's Representative to the Owner.

ARTICLE 13 CLAIMS

13.1 For purposes of this Contract, a "Claim" means a demand by the Contractor to the Owner, or by the Owner to the Contractor, for a change in the Fixed Price Contract Amount, an extension of the Contract Time, an adjustment to or interpretation of the Contract terms, or other relief with respect to the terms of the Contract, which demand the Contractor or Owner asserts is required or allowed under the Contract Documents and which the Contractor and the Owner have previously discussed and failed to agree upon.

13.2 For the Claim to be considered, it must meet the following requirements:

- .1** The Claim must be in writing;
- .2** The Claim must be signed by an authorized representative of the entity making the claim;
- .3** The Claim by the Contractor must be provided to the Owner and to the Owner's Representative and the Claim by the Owner must be provided to the Contractor and to the Owner's Representative;
- .4** The Claim must be made no later than ten (10) days after the event or first appearance of the circumstance giving rise to the Claim;
- .5** The Claim must describe in detail all known facts and circumstances that the Contractor or Owner asserts support the Claim;
- .6** The Claim must refer to the provision(s) of the Contract Documents that the Contractor or Owner asserts support the Claim;
- .7** The Contractor or Owner must provide all documentation or other information to substantiate the Claim; and
- .8** The Contractor or Owner must continue its performance under this Contract pending the resolution of any Claim; provided, however, that the Contractor shall not perform any additional or changed work not otherwise authorized in accordance with the Contract Documents.

13.3 The failure by the Contractor to meet any of the requirements of Paragraph 13.2 shall constitute a complete waiver by the Contractor of any rights arising from or related to the Claim. Similarly, the failure by the Owner to meet any of the requirements of Paragraph 13.2 shall constitute a complete waiver by the Owner of any rights arising from or related to the Claim.

13.4 If the Claim is made based on concealed or unknown site conditions, the following shall apply in addition to all other provisions applicable to the Claim:

- .1** The condition must have been previously concealed and unknown or of a type not ordinarily encountered in the general geographic location of the Project and must not have been reasonably

susceptible to discovery; and

.2 The Contractor shall notify the Owner's Representative and the Owner of the condition and shall not disturb the condition until the Owner's Representative and Owner have observed it or have waived in writing the right to observe it.

13.5 If the Claim by the Contractor is for an increase in the Fixed Price Contract Amount, the following shall apply in addition to all other provisions applicable to the Claim:

.1 Any increase in the Fixed Price Contract Amount shall be strictly limited to the direct costs incurred by the Contractor and shall not include any other costs, indirect or other, including any costs for or related to lost productivity, profit, home office overhead and any other overhead, legal fees, claim preparation, any matter previously resolved by a change order, equipment costs, costs related to the services of a project manager unless the project manager was required full time by the Owner or the Contract Documents, any costs associated with the failure to complete the Work early or in advance of the date required by the Contract Documents, it being specifically agreed to by the parties that there is no intention to have the Eichleay or other similar formula applicable to this Contract nor shall this Contract be deemed to be subject to any such formula; and

.2 The Owner shall have no liability for, and the Fixed Price Contract Amount shall not be increased related to, any claims of third parties, including subcontractors, unless and until the liability of the Contractor for such has been established in a court of competent jurisdiction and any such liability of the Owner shall be limited in the same manner as described in subparagraph 13.5.1.

13.6 If the Claim by the Owner is for a change in the Fixed Price Contract Amount, all other applicable provisions to the Claim apply.

13.7 If the Claim by the Contractor is for an extension of the Contract Time, one of the following shall apply in addition to all other provisions applicable to the Claim:

.1 The Contractor has been delayed in its performance by an act or omission of the Owner and through no fault of the Contractor;

.2 The Contractor has been delayed in its performance by unusually severe weather that could not reasonably have been anticipated or by another event not within its reasonable control; or

.3 At the time it occurs or during its occurrence, the delay will preclude completion of the Project in the time required by the Contract Documents.

Any extension of the Contract Time shall be the Contractor's sole and exclusive remedy for any delay except a delay caused by the active interference of the Owner with the Contractor's performance which active interference continues after written notice to the Owner. The Owner's exercise of any of its rights or remedies under this Contract, including ordering changes in the Work, directing suspension, rescheduling or correction of the Work, do not constitute active interference.

13.8 If a Claim is made based on an error, inconsistency or omission in the Contract that was reasonably susceptible to discovery by the Contractor and was not reported in accordance with Paragraph 2.3, that Claim shall be denied.

ARTICLE 14 RESOLUTION OF CLAIMS

14.1 All Claims made in accordance with Article 13 shall be reviewed and evaluated by the Owner's Representative. If the Claim is not made in strict accordance with Article 13, it shall be rejected as waived. Any failure by the Owner's Representative to reject the Claim for failure to meet the requirements of Article 13 is not binding on the Owner and the Owner may reject the Claim for such failure. No later than seven (7) days from receipt of the Claim by the Owner's Representative, it shall:

- .1** Make a written request to the Contractor or Owner for more data to support the Claim;
- .2** Attempt to facilitate resolution of the Claim through informal negotiations; or
- .3** If the Claim is by the Contractor, make a written recommendation to the Owner, with a copy to the Contractor, that the Owner reject or approve all or part of the Claim and state the reasons for the Owner's Representative's recommendation. If the Claim is by the Owner, make a written recommendation to the Contractor, with a copy to the Owner, that the Contractor reject or approve all or part of the Claim and state the reasons for the Owner's Representative's recommendation.

14.2 If the Owner's Representative requests more data from the Contractor or the Owner under subparagraph 14.2.1, the Contractor or Owner shall respond no later than seven (7) days from receipt of such request, and provide additional data, provide a date certain by which additional data will be provided, or state that it will not provide additional data. Upon receipt of data, if any, in accordance with this section, the Owner's Representative will complete the evaluation of the Claim. Failure to respond at all or failure to provide data by the date specified in the response to the request shall result in the Claim being evaluated based on the information in the Owner's Representative's possession.

14.3 In evaluating the Claim, the Owner's Representative may consult with the Contractor, the Owner or other persons with knowledge or expertise that may assist the Owner's Representative in its evaluation.

14.4 No later than fourteen (14) days after receipt by the Owner of the Owner's Representative's recommendation regarding the Contractor's Claim, the Owner shall, in writing, notify the Contractor and the Owner's Representative of its decision regarding the Claim. No later than fourteen (14) days after receipt by the Contractor of the Owner's Representative's recommendation regarding the Owner's Claim, the Contractor shall, in writing, notify the Owner and the Owner's Representative of its decision regarding the Claim.

14.5 The Owner's decision regarding the Contractor's Claim is binding on the Owner and the Contractor but is subject to mediation in accordance with this Contract, and the Contractor's decision regarding the Owner's Claim is binding on the Owner and the Contractor but is subject to mediation in accordance with this Contract.

ARTICLE 15 SUBCONTRACTORS

15.1 A document in the form of Exhibit E shall be completed and submitted upon execution of this Contract and those subcontractors named shall match those subcontractors named in the Contractor's bid unless otherwise agreed to in writing by the Owner. Also upon execution of this Contract by the Contractor, the Contractor shall identify to the Owner and the Owner's Representative, in writing, those parties intended as subcontractors on the Project not otherwise named in Exhibit E. The Owner shall, in writing, state any objections the Owner may have to one or more of such subcontractors. The Contractor shall not enter into a subcontract with an intended subcontractor to whom the Owner objects. All subcontracts shall afford the Contractor rights against the subcontractor which correspond to those rights afforded to the Owner against the Contractor herein, including those rights of Contract Termination as set forth in this Contract. All subcontractors shall, throughout the duration of this Contract, be properly licensed as Idaho Public Works Contractors.

15.2 The Contractor conditionally assigns each of its subcontracts related to the Project to the Owner. All subcontracts between the Contractor and the subcontractors shall obligate the subcontractor to such conditional assignment. Upon a Termination by the Owner for cause under Paragraph 20.1, the Owner may accept such conditional assignment by written notification to the applicable subcontractor and to the Contractor. Such acceptance is subject to the rights of the Surety, if any, relating to the Contract.

ARTICLE 16 CHANGES IN THE WORK

16.1 General

.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article and elsewhere in the Contract Documents; and

.2 Changes in the Work shall be performed under applicable provisions of the Contract Documents and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

16.2 Change Orders

.1 A "Change Order" is a written instrument prepared by the Owner's Representative and signed by the Owner, Contractor and Owner's Representative, stating their agreement upon: a change in the work, any adjustment in the Fixed Price Contract Amount and any adjustment in the Contract Time;

.2 Methods used in determining adjustments to the Fixed Price Contract Amount may include those listed in subparagraph 16.3.4;

.3 The amount allowed for overhead and profit on any Change Order is limited to the amounts indicated in subparagraph 16.3.11;

.4 Any Change Order prepared, including those arising by reason of the parties' mutual agreement or by mediation, shall constitute a final and full settlement of all matters relating to or affected by the change in the Work, including all direct, indirect, and consequential costs associated with such change and any and all adjustments to the Fixed Price Contract Amount and Contract

Time. In the event a Change Order increases the Fixed Price Contract Amount, the Contractor shall include the Work covered by such Change Order in the Contractor's Request for Payment as if such Work were originally part of the Project and Contract Documents; and

.5 By the execution of a Change Order, the Contractor agrees and acknowledges that it has had sufficient time and opportunity to examine the change in Work which is the subject of the Change Order and that it has undertaken all reasonable efforts to discover and disclose any concealed or unknown conditions which may to any extent affect the Contractor's ability to perform in accordance with the Change Order. Aside from those matters specifically set forth in the Change Order, the Owner shall not be obligated to make any adjustments to either the Fixed Price Contract Amount or Contract Time by reason of any conditions affecting the change in Work addressed by the Change Order, which could have reasonably been discovered or disclosed by the Contractor's examination.

16.3 Construction Change Directive (CCD)

.1 A "Construction Change Directive" is a written order prepared by the Owner's Representative and signed by the Owner and Owner's Representative directing a change in the Work prior to agreement on adjustment, if any, in the Fixed Price Contract Amount or Contract Time or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract, consisting of additions, deletions or other revisions, the Fixed Price Contract Amount and Contract Time being adjusted accordingly;

.2 A Construction Change Directive, within limitations, may also be used to incorporate minor changes in the Work agreed to by the Owner, Owner's Representative, the Owner's Construction Manager and the Contractor's superintendent or project manager. The limits of these representatives' authority with regard to Construction Change Directives shall be documented in writing by the Owner's Representative, Owner, and Contractor;

.3 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order;

.4 If the Construction Change Directive provides for an adjustment to the Fixed Price Contract Amount, the adjustment shall be based on one (1) of the following methods:

.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation, examples include item quotes, man hours, number of laborers, equipment cost breakdown, or timing;

.2 Unit prices stated in the Contract Documents or subsequently agreed upon. A change in unit price will only be considered if the needed quantity is greater than 25% of the quantity outlined in the in the Contract Documents. Unit price changes that are different from the ones stated in the bid schedule will require substantiating data to support the change in unit price;

.3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or

.4 As provided in subparagraph 16.3.7;

.5 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Owner's Representative in writing within forty-eight (48) hours of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Fixed Price Contract Amount or Contract Time;

.6 A Construction Change Directive signed by the Contractor indicates the agreement of the Contractor therewith, including adjustment in Fixed Price Contract Amount and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be incorporated into a future Change Order;

.7 If the Contractor does not respond promptly or disagrees with the method for adjustments in the Fixed Price Contract Amount or Contract Time, the method and the adjustment shall be determined by the Owner's Representative on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Fixed Price Contract Amount, an allowance for overhead and profit in accordance with subparagraph 16.3.11. In such case of an increase in Fixed Price Contract Amount, and also under subparagraph 16.3.4, the Contractor shall keep and present, in such form as the Owner's Representative may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this subsection shall be limited to the following:

.1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom and workers' compensation insurance;

.2 Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;

.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;

.4 Costs of permit fees and sales, use or similar taxes related to the Work; and

.5 Additional costs of supervision and field office personnel directly attributable to the change;

.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change which results in a net decrease in the Fixed Price Contract Amount shall be for the actual net cost of the decrease, confirmed by the Owner's Representative. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change;

.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, amounts not in dispute for such changes in the Work shall be included in the Contractor's Request for Payment accompanied by a Change Order indicating the parties' agreement with part or all of such costs;

.10 When the Owner and Contractor agree with the determination by the Owner's

Representative concerning the adjustments in the Fixed Price Contract Amount and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and shall be recorded by preparation and execution of an appropriate Change Order; and

.11 For purposes of subparagraphs 16.2.3 and 16.3.7, the allowance for combined overhead, profit, bonds and insurance shall be limited as follows, unless otherwise provided in the Contract Documents:

.1 For changes, the amount allowed for overhead, profit, bonds and insurance for the Contractor and all subcontractors of any tier combined shall not exceed fifteen percent (15%) of direct costs; or

.2 The Contractor will determine the apportionment between the Contractor and its subcontractors of allowable amounts of overhead, profit, bonds and insurance.

ARTICLE 17

DISCOVERING AND CORRECTING DEFECTIVE OR INCOMPLETE WORK

17.1 If the Contractor covers, conceals or obscures its Work in violation of this Contract or in violation of a directive or request from the Owner or the Owner's Representative, such Work shall be uncovered and displayed for the Owner's or Owner's Representative's inspection upon request and shall be reworked at no cost in time or money to the Owner.

17.2 If any of the Work is covered, concealed or obscured in a manner not addressed by Paragraph 17.1, it shall, if directed by the Owner or the Owner's Representative, be uncovered and displayed for the Owner's or Owner's Representative's inspection. If the uncovered Work conforms strictly with this Contract, the costs incurred by the Contractor to uncover and subsequently replace such Work shall be borne by the Owner. Otherwise, such costs shall be borne by the Contractor.

17.3 The Contractor shall, at no cost in time or money to the Owner, promptly correct Work (fabricated, installed or completed) rejected by the Owner or by the Owner's Representative as defective or that fails to conform to this Contract, whether discovered before or after Substantial Completion. Additionally, the Contractor shall reimburse the Owner for all testing, inspections and other expenses incurred as a result.

17.4 In addition to any other warranty obligations in this Contract, the Contractor shall be specifically obligated to correct, upon written direction from the Owner, any and all defective or nonconforming Work for a period of twelve (12) months following Substantial Completion.

17.5 The Owner may, but shall in no event be required to, choose to accept defective or nonconforming Work. In such event, the Fixed Price Contract Amount shall be reduced by the lesser of: (i) the reasonable costs of removing and correcting the defective or nonconforming Work; or (ii) the difference between the fair market value of the Project as constructed and the fair market value of the Project had it not been constructed in such a manner as to include defective or nonconforming Work. If the remaining portion of the unpaid Fixed Price Contract Amount, if any, is insufficient to compensate the Owner for the acceptance of defective or nonconforming Work, the Contractor shall, upon written demand from the Owner, pay the Owner such remaining compensation for accepting defective or nonconforming work.

ARTICLE 18

TERMINATION BY THE CONTRACTOR

18.1 The Contractor may terminate the Contract if the Work is stopped for a period of ninety (90) consecutive days through no act or fault of the Contractor or a subcontractor, sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

- .1** Issuance of an order by a court or by another public authority having jurisdiction and authority which requires all Work to be stopped; or
- .2** An act of government, such as a declaration of national emergency, which requires all Work to be stopped.

18.2 In such event, the Contractor shall be entitled to recover from the Owner as though the Owner had terminated the Contractor's performance under this Contract pursuant to Paragraph 20.3.

ARTICLE 19

OWNER'S RIGHT TO SUSPEND CONTRACTOR'S PERFORMANCE

19.1 The Owner may, at any time and without cause, order the Contractor, in writing, to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine. If the Owner directs any such suspension, the Contractor must immediately comply with same.

19.2 In the event the Owner directs a suspension of performance under this Article, and such suspension is through no fault of the Contractor, the Fixed Price Contract Amount and Contract Time shall be adjusted for increases in the cost and time caused by such suspension, delay, or interruption to cover the Contractor's reasonable costs, actually incurred and paid, of:

- .1** Demobilization and remobilization, including such costs paid to subcontractors;
- .2** Preserving and protecting Work in place;
- .3** Storage of materials or equipment purchased for the Project, including insurance thereon; and
- .4** Performing in a later, or during a longer, time frame than that provided by this Contract.

19.3 The adjustment of the Fixed Price Contract Amount shall include an amount for a reasonable profit. The adjustment of the Fixed Price Contract Amount shall not include any amount not otherwise allowed under this Contract, including any limitations applicable to Claims. The Contractor shall provide supporting documentation related to any increase upon request of the Owner. No adjustment shall be made to the extent:

- .1** That performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or
- .2** That an equitable adjustment is made or denied under another provision of the Contract.

ARTICLE 20

TERMINATION BY THE OWNER

The Owner may terminate this Contract in accordance with the following terms and conditions:

20.1 If the Contractor does not perform the Work, or any part thereof, in accordance with the Contract Documents, or in a timely manner; does not supply adequate labor, supervisory personnel, or proper equipment or materials; fails to pay subcontractors; fails to timely discharge its obligations for labor, equipment, and materials; proceeds to disobey applicable law; or otherwise breaches this Contract, then the Owner, in addition to any other rights it may have against the Contractor, may terminate the Contract and assume control of the Project site and of all materials and equipment at the site and may complete the Work. In such case, the Contractor shall not be paid further until the Work is complete. Upon such Termination, the Owner may, subject to any superior rights of the Surety, take possession of the site and of all materials, equipment, tools and construction equipment and machinery thereon owned by the Contractor; accept assignment of those subcontracts conditionally assigned under Paragraph 15.2; and finish the Work by whatever reasonable method the Owner may deem expedient.

20.2 When the Owner terminates the Contract for cause as provided in Paragraph 20.1, the Contractor shall not be entitled to receive further payment until the Work is finished and shall only be entitled to payment for Work satisfactorily performed by the Contractor in accordance with the Contract Documents. If the costs of finishing the Work, including compensation for the Owner's Representative's services and expenses made necessary thereby, exceed the unpaid balance, the Contractor shall pay the difference to the Owner. This obligation for payment shall survive termination of the Contract. The Contractor shall also terminate outstanding orders and subcontracts. The Contractor shall settle the liabilities and claims arising out of the termination of subcontracts and orders. In the event the employment of the Contractor is terminated by the Owner for cause pursuant to Paragraph 20.1 and it is subsequently determined by a court of competent jurisdiction that such termination was without cause, such termination shall thereupon be deemed a Termination under Paragraph 20.3 and the provisions of Paragraph 20.3 shall apply.

20.3 The Owner may, at any time and for any reason, terminate this Contract. The Owner shall give no less than seven (7) days' written notice of such Termination to the Contractor specifying when termination becomes effective. The Contractor shall incur no further obligations in connection with the Work and the Contractor shall stop Work when such Termination becomes effective. The Contractor shall also terminate outstanding orders and subcontracts. The Contractor shall settle the liabilities and claims arising out of the termination of subcontracts and orders. The Owner may direct the Contractor to assign the Contractor's right, title and interest under termination orders or subcontracts to the Owner or its designee. The Contractor shall transfer title and deliver to the Owner such completed or partially completed Work and materials, equipment, parts, fixtures, information and Contract rights as the Contractor has. When terminated pursuant to this section, the following shall apply:

.1 The Contractor shall submit a Termination Claim to the Owner and the Owner's Representative specifying the amounts claimed due because of the Termination, together with costs, pricing or other supporting data required by the Owner or the Owner's Representative. Failure by the Contractor to file a Termination Claim within ninety (90) days from the effective date of termination shall be deemed a complete waiver by the Contractor of any right to any payment;

.2 Before or after receipt of the Termination Claim, the Owner and the Contractor may agree to the compensation, if any, due to the Contractor hereunder; and

.3 If the Contractor has filed the Termination Claim but the Contractor and the Owner do not agree on an amount due to the Contractor, the Owner shall pay the Contractor the following amounts:

.1 Unpaid Contract prices for labor, materials, equipment and other services provided or perfected prior to termination and acceptable to or accepted by the Owner;

.2 Reasonable costs incurred in preparing to perform the terminated portion of the Work, and in terminating the Contractor's performance, plus a fair and reasonable allowance for direct job-site overhead and profit related to such preparation (such profit shall not include anticipated profit or consequential damages); provided, however, that if it appears that the Contractor would have not profited or would have sustained a loss if the entire Contract would have been completed, no profit shall be allowed or included and the amount of compensation shall be reduced to reflect the anticipated loss, if any; and

.3 Reasonable costs of settling and paying claims arising out of the Termination of subcontracts or orders pursuant to this Paragraph 20.3.

20.4 Costs described in subparagraphs 20.3.3.2 or 20.3.3.3 above shall not include amounts paid in accordance with other provisions hereof. In no event shall the total sum to be paid the Contractor under subparagraph 20.3.3 exceed the total Fixed Price Contract Amount, as properly adjusted, reduced by the amount of payments previously or otherwise made and by any other deductions permitted under this Contract and shall in no event include duplication of payment.

ARTICLE 21 CONTRACTOR'S LIABILITY INSURANCE

21.1 The Contractor, subcontractor and sub-subcontractor shall purchase and maintain in full force and effect from a company or companies lawfully authorized to do business in the State of Idaho such insurance as will protect the Contractor, subcontractor and sub-subcontractor from claims set forth below which may arise out of or result from the Contractor's or subcontractor's operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a subcontractor or by anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable:

.1 Claims under workers' or workmen's compensation, disability benefits and other similar employee benefit acts which are applicable to the work to be performed;

.2 Claims for damages because of bodily injury, occupational sickness or disease or death of the Contractor's employees;

.3 Claims for damages because of bodily injury, sickness or disease or death of any person other than the Contractor's employees;

.4 Claims for damages insured by usual personal injury liability coverage which are sustained:
(i) by a person as a result of an offense directly or indirectly related to employment of such person by the Contractor; or (ii) by another person;

- .5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting there from;
- .6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- .7 Claims for bodily injury or property damage arising out of completed operations; and
- .8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Article 11.

21.2 The insurance required by Paragraph 21.1 above shall be written for not less than limits of liability specified in this Contract or as required by law, whichever is greater. Coverages, whether written on an occurrence or claims- made basis, shall be maintained without interruption from date of commencement of the Work until date of final payment and termination of any coverage required to be maintained after final payment. In addition, for any insurance required that is obtained on a claims-made basis, "tail coverage" is required at the completion of the Work for twenty- four (24) months. Continuous claims-made coverage will be acceptable in lieu of "tail coverage" provided the retroactive date is on or before the effective date of this Contract or twenty-four (24) months "prior acts" coverage is provided. The insurance required by Paragraph 21.1 above shall be written for not less than the following limits:

- .1 Workers' Compensation and Employer's Liability
 - (a) State Workers Compensation: Statutory
 - (b) Employer's Liability: \$1,000,000 per Accident
\$1,000,000 Disease, Policy Limit
\$1,000,000 Disease, Each Employee
- .2 Comprehensive Commercial General Liability and Umbrella Liability Insurance. Contractor shall maintain Commercial General Liability ("CGL") and, if necessary, commercial umbrella insurance with a limit of not less than \$2,000,000 each occurrence. If such CGL insurance contains a general aggregate limit, it shall apply separately to this project location;

CGL insurance shall be written on Insurance Services Office ("ISO") occurrence form CG 00 01 12 04 (or a substitute form providing equivalent coverage) and shall cover liability arising from premises, operation, independent contractors, products-completed operations, personal (including employee acts) and advertising injury and liability assumed under an insured contract (including the tort liability of another assumed in a business contract). As applicable, coverage must also include a broad form CGL endorsement if the substitute insurance is a 1973 edition CGL or its equivalent;

Owner shall be included as an additional insured under the CGL, using ISO additional insured endorsement CG 20 10 and CG 20 37 or their equivalent, which endorsement shall include coverage for the Owner with respect to liability arising out of the Work, including completed operations of Contractor, and which coverage shall be maintained in effect for the benefit of Owner for a period of two (2) years following the completion of the work

specified in this Contract. Additional insured coverage as required in this subparagraph shall apply as primary insurance with respect to any other insurance or self-insurance programs afforded to the Owner;

(a) For the hazards of explosion, collapse, and damage to underground property, commonly referred to as XCU, coverage shall be required if the exposures exist; and

(b) This coverage may be provided by the subcontractor if the Owner and prime Contractor are named as additional insureds;

.3 Business Auto and Umbrella Liability Insurance: Contractor shall maintain business, auto liability and, if necessary, commercial umbrella liability insurance with a limit of not less than \$1,000,000 each accident;

Such insurance shall cover liability arising out of any auto (including owned, hired, and non-owned autos);

Business auto coverage shall be written on ISO form CA 00 01, CA 00 05, CA 00 12, CA 00 20 or a substitute form providing equivalent liability coverage. If necessary, the policy shall be endorsed to provide contractual liability coverage equivalent to that provided in the 1990 and later editions of CA 00 01;

If hazardous waste will be hauled, Contractor shall obtain pollution liability coverage equivalent to that provided under the ISO pollution liability-broadened coverage for covered autos endorsement (CA 99 48) and the Motor Carrier Act endorsement (MCS 90) shall be attached;

.4 If the General Liability coverages are provided by Commercial Liability policies the:

.1 General Aggregate shall be not less than \$4,000,000; and

.2 Fire legal liability shall be provided in an amount not less than \$100,000 per occurrence; and

.5 Umbrella Excess Liability. An umbrella policy may be used in combination with other policies to provide the required coverage.

21.3 The Owner shall be named as additional insured or loss payee, as applicable, on the insurance required in subparagraphs 21.2.2, 21.2. 3 and 21.2. 5 above, and the insurance shall contain the severability of interest clause as follows:

"The insurance afforded herein applies separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the company's 'liability.' "

21.4 The Contractor may include all subcontractors as insureds under the Contractor's policies in lieu of separate policies by each subcontractor. The Contractor must furnish the Owner, with the required endorsements or certificates of insurance from each subcontractor which names the subcontractor, its officials, employees and volunteers as insureds.

21.5 Certificates of Insurance for Workers' Compensation shall be on the standard form. Certificates of Insurance for Commercial or Comprehensive General Liability shall be the most current ACORD Form 25 or 28, must be acceptable to the Owner and shall be filed with the Owner prior to commencement of the Work. The Owner may require proof of coverage by an endorsement. If any of the foregoing insurance coverages are required to remain in force after final payment and are reasonably available, an additional certificate evidencing continuation of such coverage shall be submitted with the final Contractor's Request for Payment as required by Article 7. Information concerning reduction of coverage shall be furnished by the Contractor with reasonable promptness in accordance with the Contractor's information and belief.

ARTICLE 22 OWNER'S LIABILITY INSURANCE

The Owner, at its option, may purchase or maintain insurance for protection against claims which may arise from operations under the Contract.

ARTICLE 23 PROPERTY INSURANCE

23.1 Unless otherwise provided, the Owner shall purchase or maintain, from a company or companies lawfully authorized to do business in the State of Idaho, property insurance written on a builders risk "all-risk" or equivalent policy form in an amount not less than the initial Fixed Price Contract Amount. Such property insurance shall be maintained until final payment to the Contractor has been made. This insurance shall include interests of the Owner, the Contractor, subcontractors and sub-subcontractors.

23.2 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, but not necessarily be limited to insurance against the perils of fire (with extended coverage) and mischief, collapse, earthquake, flood, windstorm, temporary buildings and debris removal, including demolition occasioned by enforcement of any applicable legal requirements, and shall cover necessary and reasonable expenses for the Owner's Representative's expenses required as a result of such insured loss.

23.3 If the property insurance requires deductibles, the Owner shall pay costs of such deductibles.

23.4 Loss of Use Insurance. The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of the Owner's property due to fire or other hazards, however caused.

23.5 Waivers of Subrogation. The Owner and Contractor waive all rights against: (i) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other; and (ii) the Owner's Representative, Owner's Representative's consultants, separate contractors, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages to the Work caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Article or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner. The Owner or Contractor, as appropriate, shall require of the Owner's Representative, Owner's Representative's consultants, separate contractors, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of

subrogation by endorsement. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged. The Owner does not waive its subrogation rights to the extent of its property insurance on structures or portions of structures that do not comprise the Work.

23.6 The Contractor authorizes the Owner to negotiate and agree on the value and extent of, and to collect the proceeds payable with respect to, any loss under a policy of insurance carried by the Owner pursuant to any of the provisions of this Article. The Owner shall have full right and authority to compromise any claim, or to enforce any claim by legal action or otherwise, or to release and discharge any insurer, by and on behalf of the Owner and Contractor. The Owner shall provide written notice to Contractor of: (i) its having reached any such settlement or adjustment with an insurer; and (ii) the receipt of any funds pursuant to this Article. Any objection by the Contractor to a settlement or adjustment made under this Article must be made in writing to the Owner within five (5) business days of the notice from the Owner. The Owner and the Contractor agree to attempt to resolve the dispute by mutual agreement.

23.7 A loss under the Owner's property insurance shall be adjusted by the Owner and made payable to the Owner for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause.

23.8 The Owner shall deposit proceeds so received, in a manner in which such proceeds can be separately accounted for, which proceeds the Owner shall distribute in accordance with such agreement as the parties in interest may reach. If after such loss no other special agreement is made and unless the Owner terminates the Contract pursuant to Article 20, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 16.

23.9 The Contractor shall pay subcontractors their shares of the insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require subcontractors to acknowledge the Owner's authority under this Article 23 and make payments to their sub-subcontractors in similar manner.

23.10 Nothing contained in this Article 23 shall preclude the Contractor from obtaining, solely at its own expense, additional insurance not otherwise required.

ARTICLE 24

PERFORMANCE AND PAYMENT BONDS

24.1 The Contractor shall furnish separate performance and payment bonds to the Owner. Each bond shall set forth a penal sum in an amount not less than the Fixed Price Contract Amount and shall include a power of attorney attached to each bond. The signature of both the Contractor (principal) and the Surety are required. If the Surety is incorporated, both bonds must have the corporate seal. Each bond furnished by the Contractor shall incorporate by reference the terms of this Contract as fully as though they were set forth verbatim in such bonds. In the event the Fixed Price Contract Amount is adjusted by Change Order executed by the Contractor, the penal sum of both the performance bond and the payment bond shall be deemed increased by like amount. The performance and payment bonds furnished by the Contractor shall be AIA Document A312, or a standard surety form certified approved to be the same as the AIA Document A312, and shall be executed by a Surety, or Sureties, reasonably acceptable to the Owner and authorized to

do business in the State of Idaho.

24.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall permit a copy to be made.

24.3 It is the Contractor's obligation to notify the Surety in the event of changes in the Contract Documents, which in the absence of notification might serve to discharge the Surety's obligations, duties or liability under bonds or the Contract.

ARTICLE 25 PROJECT RECORDS

All documents relating in any manner whatsoever to the Project, or any designated portion thereof, which are in the possession of the Contractor or any subcontractor of the Contractor, shall be made available to the Owner or the Owner's Representative for inspection and copying upon written request. Furthermore, said documents shall be made available, upon request by the Owner, to any state, federal or other regulatory authority and any such authority may review, inspect and copy such records. Said records include all drawings, plans, specifications, submittals, correspondence, minutes, memoranda, tape recordings, videos or other writings or things which document the Project, its design and its construction. Said records expressly include those documents reflecting the cost of construction to the Contractor. The Contractor shall maintain and protect these documents for no less than four (4) years after final completion or termination of the Contract or for any longer period of time as may be required by law or good construction practice.

ARTICLE 26 MISCELLANEOUS PROVISIONS

26.1 The governing law of this Contract is the law of the State of Idaho. Venue for any proceeding related to this Contract shall be in Boise, Ada County, Idaho, unless otherwise mutually agreed by the parties.

26.2 Pursuant to Idaho Code Section 54-1904A, within thirty (30) days after award of this Contract, the Contractor shall file with the Idaho State Tax Commission, with a copy to the Owner, a signed statement showing the date of Contract award, the names and addresses of the home offices of contracting parties, including all subcontractors, the state of incorporation, the Contract Number and a general description of the type and location of the Work, the amount of the prime contracts and all subcontracts and all other relevant information which may be required on forms which may be prescribed by the Idaho State Tax Commission.

26.3 The Contractor, in consideration of securing the business of erecting or constructing public works in the State of Idaho, recognizing that the business in which it is engaged is of a transitory character, and that in the pursuit thereof, its property used therein may be without the state when taxes, excises or license fees to which it is liable become payable, agrees:

.1 To pay promptly when due all taxes (other than on real property), excises and license fees due to the State of Idaho, its sub-divisions, and municipal and quasi-municipal corporations therein, accrued or accruing during the term of this Contract, whether or not the same shall be payable at the end of such term;

.2 That if the said taxes, excises and license fees are not payable at the end of said term, but

liability for the payment thereof exists even though the same constitute liens upon its property, to secure the same to the satisfaction of the respective officers charged with the collection thereof; and

.3 That, in the event of its default in the payment or securing of such taxes, excises and license fees, to consent that the department, officer, board or taxing unit entering into this Contract may withhold from any payment due it hereunder the estimated amount of such accrued and accruing taxes, excises and license fees for the benefit of all taxing units to which said Contractor is liable.

26.4 Before entering into this Contract, the Contractor shall be authorized to do business in the State of Idaho and shall submit a properly executed Contractor's Affidavit Concerning Taxes (Exhibit D).

26.5 Pursuant to Idaho Code Section 44-1002, Contractor "must employ ninety-five percent (95%) bona fide Idaho residents as employees on any job under any such contract except where under such contracts fifty (50) or less persons are employed the contractor may employ ten percent (10%) nonresidents, provided, however, in all cases employers must give preference to the employment of bona fide residents in the performance of said work, and no contract shall be let to any person, firm, association, or corporation refusing to execute an agreement with the above mentioned provisions in it."

26.6 The Contractor shall maintain, in compliance with Idaho Code, Title 72, Chapter 17, a drug-free workplace program throughout the duration of this Contract and shall only subcontract work to subcontractors who have programs that comply with Idaho Code, Title 72, Chapter 17.

26.7 As between the Owner and Contractor as to acts or failures to act, any applicable statute of limitations shall commence to run and any legal cause of action shall be deemed to have accrued in any and all events in accordance with Idaho law.

26.8 The Contractor and its subcontractors and sub-subcontractors shall comply with all applicable Idaho statutes with specific reference to Idaho Public Works Contractors' licensing laws in the State of Idaho, Title 54, Chapter 19, Idaho Code, as amended.

26.9 The Contractor shall not knowingly hire or engage any illegal aliens or persons not authorized to work in the United States and take steps to verify that it does not hire or engage any illegal aliens or persons not authorized to work in the United States. Any misrepresentation in this regard or any employment of persons not authorized to work in the United States constitutes a material breach and shall be cause for the imposition of monetary penalties not to exceed five percent (5%) of the Fixed Price Contract Amount per violation and/or Termination of this Contract. The Contractor also acknowledges that, if it is a natural person, it is subject to Title 67, Chapter 79, Idaho Code regarding verification of lawful presence in the United States.

ARTICLE 27 EQUAL OPPORTUNITY

The Contractor shall maintain policies of employment as follows:

27.1 The Contractor and the Contractor's subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, age or national origin. The Contractor shall take affirmative action to insure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, color, sex, age or national origin. Such action shall include

the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of non-discrimination.

27.2 The Contractor and the Contractor's subcontractors shall, in all solicitation or advertisements for employees placed by them or on their behalf; state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex, age or national origin.

ARTICLE 28 SUCCESSORS AND ASSIGNS

28.1 Each party binds itself, its successors, assigns, executors, administrators or other representatives to the other party hereto and to successors, assigns, executors, administrators or other representatives of such other party in connection with all terms and conditions of this Contract. The Contractor shall not assign this Contract or any part of it or right or obligation pursuant to it without prior written consent of the Owner. If Contractor attempts to make assignment without consent of Owner, Contractor shall remain legally responsible for all obligations under this Contract.

ARTICLE 29 SEVERABILITY

29.1 In the event any provision or section of this Contract conflicts with applicable law or is otherwise held to be unenforceable, the remaining provisions shall nevertheless be enforceable and shall be carried into effect.

ARTICLE 30 MEDIATION

30.1 Contractor Claims for additional cost or time that are subject to Article 13, shall be reviewed as provided in accordance with that Article and, as a condition precedent to litigation, are subject to dispute resolution attempts and mediation in accordance with this Article. All other issues and disputes arising from this Contract are also subject to dispute resolution attempts & mediation in accordance with this Article, as a condition precedent to litigation.

30.2 The parties agree that resolution of any dispute or disagreement without formal legal proceedings is to their mutual benefit and to the benefit of the Project.

30.3 The parties agree to make every reasonable attempt to resolve any issues or disputes informally. The parties further agree that prior to the institution by either of legal or equitable proceedings of any kind, and as a condition precedent thereto, any dispute between the Contractor and the Owner related to the Contract, including a dispute over the Owner's decision regarding a Claim, shall be subject to mediation as follows:

.1 If the issue to be mediated involves only a dispute regarding the Contract Time, no request to mediate shall be made unless liquidated damages have been assessed by the Owner. If the issue to be mediated involves a Claim or other financial dispute, no request to mediate shall be made unless the amount is \$50,000 or more or until there are cumulative Claims or disputes amounting to \$50,000 or

more; provided, however, that a mediation request can be made as to any Claim or financial matter at any time after Substantial Completion;

.2 The party seeking mediation shall notify the other party in writing of its mediation request. In such written request, the requesting party must clearly describe the issues it believes are subject to mediation;

.3 Within fifteen (15) days of receipt of the mediation request, the non-requesting party shall respond in writing to the request;

.4 Unless the Owner and the Contractor agree to other rules for mediation, mediation shall be in accordance with the Construction Industry Rules of Arbitration and Mediation Procedures in effect at the time of the mediation;

.5 The parties shall share the mediator's fee and any filing fees equally; provided, however, that if a party makes a written request to the mediator without satisfying the requirements of this section and by doing so incurs any costs or fees, that party shall be solely responsible for the costs or fees;

.6 Unless otherwise mutually agreed to by the parties, the mediation shall be in Boise, Ada County, Idaho;

.7 The parties shall cooperate in arranging the other details of mediation, such as selection of the mediator, mediation dates and times;

.8 The parties agree that all parties necessary to resolve the matter shall be parties to the same mediation proceeding; provided, however, that no subcontractor or sub-subcontractor shall attend the mediation absent advance notice and consent from the Owner;

.9 Agreements reached in mediation shall be enforceable as settlement agreements in any court having proper jurisdiction; and

.10 Unless otherwise agreed in writing, the Contractor shall continue the Work and maintain the approved schedules during any mediation proceedings. If the Contractor continues to perform, the Owner shall continue to make payments in accordance with the Contract Documents.

30.4 If mediation fails to resolve the dispute, either party may file an action in the courts of Idaho in accordance with the venue provision contained in this Contract.

ARTICLE 31 WAIVER OF CONSEQUENTIAL DAMAGES

31.1 The Contractor and Owner waive claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes:

.1 Damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation and for loss of management or employee productivity or of the services of such persons.

.2 Damages incurred by the Contractor for principal office expenses, including the compensation of personnel stationed there; for losses of income, financing, business and reputation; loss of management or employee productivity or of the services of such persons; and for loss of profit

except profit arising directly from the Work.

31.2 This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Articles 18 and 20. Nothing contained in this paragraph shall be deemed to preclude an award of the assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

The parties have signed this Contract on the dates set forth below.

Owner

State of Idaho

IDAHO WATER RESOURCE BOARD

322 East Front Street

PO Box 83720

Boise, ID 83720-0098

Contractor

Name

Title

Name

Title

Date

Date

EXHIBIT A

OWNER'S PROJECT IDENTIFICATION INFORMATION:

IWRB Contract No. <number>

Project Title Priest Lake Water Management Project Outlet Dam Improvements

Project Location Priest Lake

General Project Description:

The Project generally includes providing all labor and materials, unless otherwise indicated in the Contract Documents or in the Drawings, to install a new concrete and armor rock scour apron extension. The project also includes inspecting and repairing steel welding work from a prior construction contract, inspection of existing concrete apron, installation of new vibrating piezometer, inspection and repair of potential aggregate void beneath concrete apron, gravel access road improvements, and repairing existing concrete, expansion joints, and the existing railing. This paragraph lists the major work items and may not include all of the work required to complete the Project in accordance with the Contract Documents.

ADDENDA: Addenda applicable to the Contract and made a part of are as follows:

Addendum No. Dated

Addendum No. Dated

Addendum No. Dated _

FIXED PRICE CONTRACT AMOUNT AND ACCEPTED ALTERNATES:

Base Bid Amount per Bid Schedule: \$.00

Total Fixed Price Contract Amount
() Dollars \$.00

Contractor's Requests for Payment are to be submitted for Work accomplished through the last day of each month as described in Paragraph 7.3.

TIME FOR PERFORMANCE AND LIQUIDATED DAMAGES:

A. The Contractor shall commence construction of its scope of the Work in accordance with the Notice to Proceed issued by the Owner, and which will become Exhibit F to this Contract.

B. The Contractor shall accomplish Substantial Completion as defined in Article 6 of the Contract by April 1, 2023.

C. The amount of liquidated damages per day for each and every day of unexcused delay as outlined in Article 6 on the Contract is: **Two thousand five hundred Dollars (\$2500)**. In addition, the amount of liquidated damages for each violation of work hour restrictions is: **One thousand Dollars (\$1000)**.

DRAWINGS AND SPECIFICATIONS

The Contractor will be furnished with sets of Drawings and Project Manuals.

BID SCHEDULE

Item No.	Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization/Demobilization	1	LS		
2	Environmental Protection, Site Prep, and Site Restoration	1	LS		
3	Temporary Access Road/Structure and River Crossing	1	LS		
4	Construction Surveying	1	LS		
5	Cofferdams and Dewatering	1	LS		
6	Combined Cofferdam and Dewatering Design	1	LS		
7	Excavation and Disposal - Streambed	1,200	CY		
8	Concrete - Apron Scour	10	CY		
9	Reinforced Concrete - Apron Extension	198	CY		
10	Concrete Repair - Pier 6 Spalled Areas	36	CF		
11	Existing Concrete Apron Extension Testing	1	LS		
12	Repair Wels at Gate Extension	11	BAY		
13	Replace J-Seals	11	BAY		
14	Repair Expansion Joints - S Abutment Wing Walls	50	LF		
15	Railing - Repair Damaged Section	8	LF		
16	Replace Grease Fittings and Pump	11	BAY		
17	Install New Gauge on North Abutment and South Abutment	2	EA		
18	Vibrating Piezometer Array	1	LS		
19	Armor Stone	650	TON		
20	Bedding Stone Type II	200	TON		
21	Government Furnished Armor Stone	350	TON		
22	Government Furnished Bedding Stone Type II	450	TON		

23	Government Furnished Bedding Stone Type I	70	TON		
24	Government Furnished Precast Concrete Keyway	8	EA		
25	Geotextile Fabric	311	SY		
26	Approach Redevelopment – Top Course	200	TON		
27	Approach Redevelopment – Hot Mix Asphalt Paving	25	TON		
28	Minor Changes	1	LS		

EXHIBIT B

ADDRESSES and AUTHORIZED REPRESENTATIVES: The names, addresses and authorized representatives of the Owner, the Contractor and the Owner's Representative are:

OWNER: State of Idaho
Idaho Water Resource Board
322 E Front Street, Suite 648
PO Box 83720
Boise, ID 83720-0098

Project Manager: [Name]
Telephone:
E-mail:
Fax:
May sign for Owner: Yes [X] No []

Construction Manager: [Name]
Telephone:
E-mail:
Fax:
May sign for Owner: Yes [X] No []

CONTRACTOR: - (company name)
- (address)
- (city, state, zip)
- (telephone and FAX)
Public Works Contractors License No. _

Officer: - (name and title)
- (telephone)
- (E-mail)

Contractor's
Project Manager: - (name)
- (telephone and FAX)
- (E-mail)
May sign for Contractor: Yes [] No []
] Change Orders:
up to: \$ _ .00
Construction Change Authorizations: up to: \$ _ .00
Contractor's Request for Payment

Contractor's
Superintendent: - (name)
- (telephone and FAX)
- (E-mail)
May sign for Contractor: Yes [] No []
Construction Change Authorizations: up to \$ _ .00

Owner's Representative:

Mott MacDonald, LLC
1601 5th Avenue, Suite 800
Seattle WA 98101
T: (425) 778-6042

Professional's
Project Manager:

(name)

Professional License No. _____

(telephone)

(FAX)

(E-mail)

Professional's
Field Representative:

(name)

(telephone)

(FAX)

(E-mail)

May sign for Owner's Representative:

Field Reports	Yes []	No []
Change Order Proposal Requests	Yes []	No []
Construction Change Authorization:	Yes []	No []
Construction Change Order	Yes []	No []
Owner's Representative's Supplemental Instructions	Yes []	No []
Interpretations of the Contract Documents	Yes []	No []
Contractor's Request for Payment	Yes []	No []
Acceptance of Substantial Completion	Yes []	No []
Acceptance of final completion	Yes []	No []

EXHIBIT C - LIST OF DRAWINGS AND SPECIFICATIONS

The drawings and specifications listed below are incorporated by reference to this Contract.

DIVISION 1 - GENERAL REQUIREMENTS

01 10 00	General Requirements
01 11 00	Summary of Work
01 20 00	Measurement and Payment
01 31 19	Project Meetings
01 33 00	Submittals
01 35 43	Environmental Controls
01 40 00	Quality Requirements
01 41 00	Regulatory Requirements
01 50 00	Temporary Facilities and Controls
01 57 13	Temporary Erosion and Sediment Control
01 70 00	Project Closeout
01 71 23	Construction Surveying

DIVISION 2-35 – TECHNICAL DIVISIONS

02 20 00	Cofferdams and Dewatering
03 30 00	Cast-in-Place Concrete
03 41 00	Precast Structural Concrete
03 73 00	Concrete Repair
05 05 00	Galvanizing
05 12 00	Structural Steel Framing
31 00 00	Excavation and Fill
31 09 13	Geotechnical Instrumentation and Monitoring
35 31 23	Armor Stone

APPENDICES

Appendix A – Permit Documents
Appendix B – Geotechnical Report
Appendix C – Stockpiling Areas
Appendix D – Existing Utility Drawings
Appendix E – Water Level & Flow Data
Appendix F – Original Construction Plans

EXHIBIT D

CONTRACTOR'S AFFIDAVIT CONCERNING TAXES

STATE OF _____)

COUNTY OF _____)

Pursuant to the Title 63, Chapter 15, Idaho Code I, the undersigned, being duly sworn, depose and certify that all taxes, excises and license fees due to the State or its taxing units, for which I or my property is liable then due or delinquent, has been paid, or arrangements have been made, before entering into a Contract for construction of any public works in the State of Idaho.

SEAL

Name of Contractor

Address

City and

State By:

(Signature)

Subscribed and sworn to before me this _____ day of _____, _____.

NOTARY PUBLIC

Residing at: _____

Commission expires: _____

EXHIBIT E

NAMED SUBCONTRACTORS:

Pursuant to Section 67-2310, Idaho Code, commonly known as the naming law, the names and addresses of the entities who will perform the work were named in the bid and are as follows:

Name	License #
------	-----------

Street	City, State
--------	-------------

Name	License #
------	-----------

Street	City, State
--------	-------------

Name	License #
------	-----------

Street	City, State
--------	-------------

Name	License #
------	-----------

Street	City, State
--------	-------------

EXHIBIT F

**PRIEST LAKE WATER MANAGEMENT PROJECT OUTLET DAM
IMPROVEMENTS NOTICE TO PROCEED**

TO CONTRACTOR:

CONTRACT NUMBER:

CONTRACT DATE:
MacDonald

OWNER'S REPRESENTATIVE: Mott

CONTRACT AMOUNT: \$

DATE OF ISSUANCE:

OWNER: State of Idaho
Idaho Water Resource Board

You are hereby notified to commence work on the above referenced contract on/or before and are to substantially complete the work within consecutive calendar days thereafter; therefore your contract completion date is .

The contract provides for the sum of **\$2500** as liquidated damages for each consecutive calendar day after the above established substantial completion date that the work remains incomplete. Completion date will be established by "Certificate of Substantial Completion." In addition, the amount of liquidated damages for each violation of work hour restrictions is **\$1000**

You are reminded that any changes to the original contract document regarding either cost or completion date must be effected by a change order approved by this department.

Standard Construction Document Templates (Pay Application, Change Order, Change Directive, etc) will be provided to you at the preconstruction meeting.

Mott MacDonald has been appointed Owner's Representative for this project. Please contact at [phone] prior to beginning work. A pre-construction meeting will be held , at, at **(location)**

Sincerely,

Brian Patton
Executive
Officer

DISTRIBUTION: Tax Commission

EXHIBIT G

Idaho State Tax Commission REQUEST
FOR TAX RELEASE

Date: _

PART I -- AWARDING AGENCY INFORMATION:

Name of agency	Mailing address	City, state, and ZIP Code
Contact name	Phone number	Email address

PART II -- CONTRACTOR INFORMATION:

Name of contractor	Mailing address	City, state, and ZIP Code	
Federal EIN	Contact name	Phone number	Email address

PART III -- CONSTRUCTION/CONTRACT MANAGER INFORMATION (if applicable):

Name of business	Mailing address	City, state, and ZIP Code	
Federal EIN	Contact name	Phone number	Email address

Send a copy of the approved Tax Release to: Awarding Agency ☐ Contractor ☐ Construction Manager ☐

NOTE: We will email all copies unless otherwise requested

PART IV -- PROJECT INFORMATION:

Name of project	Location of project
Description of project	

Project number assigned by awarding agency	Project start date	Project completion date	Final/closing contract amount (includes all change orders)
--	--------------------	-------------------------	--

Did any government entities supply materials which were installed by this contractor or its subs?: Yes ☐ No ☐

No

If YES, list these materials and their dollar values. (Attach additional information if needed)

List Materials	List Dollar Values of Materials
	\$
	\$
	\$

Send to: Contract Desk/Sales Tax Audit
Idaho State Tax Commission
PO Box 36
Boise ID 83722-0410
Phone: (208) 334-7618 • Fax: (208) 332-6619 • Email: contractdesk@tax.idaho.gov

NOTE: Please allow 30 days to process a Tax Release Request. You must send a complete, signed Form WH-5 Public Works Contract Report to the Idaho State Tax Commission to complete this request.

EXHIBIT H
RELEASE OF CLAIMS

(TO BE COMPLETED FOR FINAL PAYMENT)

I, _____, do hereby release the State of Idaho from any and all claims of any character whatsoever arising under and by virtue of contract number _____ Dated _____ as amended, except as herein stated.

Dated _____

Contractor _____

EXHIBIT J

Conditions Precedent to Final Payment

Date:

Contract No.

Project Title:

Location:

Send to:	Copy to:
Idaho Water Resource Board	Owner's Representative

Contractor's Responsibilities:

Per Paragraph 7.14 of the Fixed Price Contract: As a condition precedent to final payment, the Contractor must furnish the owner, in the form and manner required by Owner, to be submitted to the Owner's Representative for approval, the following:

- ☐ Contractor's Final Request for Payment Form has been provided;
- ☐ Release of Claims form has been provided (Exhibit H);
- ☐ Contractor's Affidavit of Payment of Debts and Claims Form has been provided (AIA G706);
- ☐ Consent of Surety to Final Payment has been provided (AIA G707);
- ☐ Public Works Contract Tax Release from the Idaho Tax Commission has been provided.

Contractor's Signature

Date

Owner's Representative's Approval for Payment:

- ☐ All Documents Required per Paragraph 7.14 of the Fixed Price Contract
- ☐ All Warranties, Guarantees, etc. have been received, approved and have been provided.
- ☐ As-Built Drawings have been received, reviewed and approved.
- ☐ Record Drawings have been completed. All of the required copies of the Record Documents and electronic media are attached and/or uploaded to OMS.
- ☐ All punch list items have been verified and signed off as complete.

To the best of my knowledge, information, and belief, and on the basis of my observations and inspections, I certify the Work has been completed in accordance with the terms and conditions of the Contract Documents and that the required documentation required by Paragraph 7.13 of the fixed priced contract has been received. The entire balance, as shown on the attached Final Request for Payment, is due and payable.

Owner's Representative Signature

Date