## Alaska Energy Authority

PART **A**

# REQUEST FOR PROPOSALS PACKAGE

(Procurement per Article 3 of AS 36.30)

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Other: N/A

### ISSUING OFFICE

Agency Contact & Phone No.....: Selwin C. Ray, 907-771-3035
Contracting Agency.....: Alaska Energy Authority

### PROJECT

**RFP NUMBER** ..... : 22056
Project Site (City, Village, etc.)..... : Bradley Lake
Project Title & Contract Description ..... : Term Agreement for Bradley Lake Hydroelectric Engineering Project

The Contractors shall provide design, engineering, construction administration, licensing, and support services for the Alaska Energy Authority owned Bradley Lake Hydroelectric Project.

It is anticipated that the Agency will award two term agreements for these services.

### SCHEDULE & PAYMENT

Anticipated period for performance-Begin/End: July 1, 2022 to June 30, 2025 with the option for three additional one-year extensions (June, 2028)

Estimated amount of proposed contract:

☐ less than $100,000 ☐ $100,000 to $150,000 ☐ $150,000 to $250,000
☐ $250,000 to $500,000 ☐ $500,000 to $1,000,000 ☒ $1,000,000 or greater

Proposed Method(s) of Payment: ☐ Firm Fixed Price (FFP) ☐ Cost Plus Fixed Fee (CPFF)
☐ Fixed Price Plus Expenses (FPPE) ☒ Other: Determined per individual NTPs

### SUBMITTAL DEADLINE AND LOCATION

*OFFERORS ARE RESPONSIBLE TO ASSURE DELIVERY PRIOR TO DEADLINE (2 AAC 12.250).*
*ONLY PROPOSALS RECEIVED PRIOR TO THE FOLLOWING DATE AND TIME WILL BE OPENED.*

DATE: **April 27, 2022** PREVAILING TIME: **2:00 PM**

HAND DELIVER ONLY DIRECTLY TO FOLLOWING LOCATION (and person, if named):

Alaska Energy Authority
Selwin C. Ray
813 W. Northern Lights Blvd.
Anchorage, AK 99503

*(When submitting proposals, please make sure to identify the project title and the RFP number on the outer envelope of the submittal package.)*

IMPORTANT NOTICE: If you downloaded this solicitation from the State's Website, you must register with the Authority to be placed on the planholders list and to receive subsequent addenda. Failure to register may adversely affect your proposal. It is the Offeror's responsibility to insure that he has received all addenda affecting this RFP. To be registered, call 907-771-3035 or fax 907-771-3044 and provide the project name & number, company name & contact person, address, phone number & fax number.

PART

A

# SELECTION PROCEDURE

1. Competitive Sealed Proposals will be evaluated by a committee (2 AAC 12, Article 4). Evaluation of responses to criteria set forth in Part C results in a numerical score for each proposal. Each criterion in Part C has an assigned weight for this RFP which demonstrates its relative importance. The total of all weights is 100 (100%). Each one- percent weight equates to a range of 0-5 points per Evaluator. The maximum points (score) obtainable for any proposal is equal to the product of 500 multiplied by the number of Evaluators.

2. Scoring of proposals will be accomplished as follows:

2.1 Each Evaluator will individually read and rate each Offeror's response to each criterion described in Part C - Section I - Technical Proposal. Ratings will be based solely on contents of proposal and in compliance with the Contracting Agency's standard Instructions for Evaluation Committee. Except as may be stated within any criterion description in Part C, a rating of "5" = Best Response from all Offerors; “4” to “1” = Progressively Less Responsive; “0” = Non-Responsive. Ratings are multiplied by the assigned weights for each criterion to obtain criteria scores.

2.2 After completion of individual ratings in Part C, Section 1, Technical Proposal, the Evaluation Committee will meet to discuss proposals. Evaluators may then alter their ratings; however, any changes shall be based solely on the criteria set forth in Part C.

2.2 After scoring Part C - Section I - Technical Proposal, criteria scores for Part C - Section II - Preferences, and Section III - Price (if applicable), will be calculated based on criteria descriptions.

2.4 The total score for each Offeror will be obtained by summing the scores determined for each criterion in Sections I, II and III of Part C. The order of ranking for negotiations shall be as follows: highest scored Offeror will be ranked first, next highest scored second, and etcetera.

3. Evaluators may discuss factual knowledge of, and may investigate Offerors' and proposed Subcontractors' prior work experience and performance, including projects referenced in proposal, available written evaluations, etcetera, and may contact listed references or other persons knowledgeable of a Contractor's and/or a Subcontractor's past performance. Factors such as overall experience relative to the proposed contract, quality of work, control of cost, and ability to meet schedules may be addressed. If any issues of significant concern to the proposed contract are discovered, the Committee may:

3.1 Provide written recommendations for consideration during contract negotiations;

3.2 Conduct discussions in accordance with paragraph 4, below.

4. The Committee may decide to conduct discussions (or "interviews") with responsible Offerors whose proposals are determined to be reasonably susceptible of being selected for award for the purpose of clarification to assure full understanding of, and responsiveness to, the solicitation requirements (AS 36.30.240 & 2 AAC 12.290). Offerors selected by the Committee for discussions may be permitted to submit Best and Final Offers (BAFO) for final Committee Evaluation. After discussions and any BAFO's, Evaluators will determine the final scoring and ranking for contract negotiations by evaluating written and oral responses using only the criteria set forth in Part C of this RFP (2 AAC 12.260(b)).

5. All Offerors will be advised of the Offeror selected for negotiation and, after completion of negotiations, a Notice of Intent to Award will be provided to all Offerors. If contract negotiations are unsuccessful with Offeror(s) selected for negotiation, the Contracting Agency may either cancel the solicitation or negotiate with other Offerors in the order of ranking.

## NOTICES

1. The Contracting Agency is an equal opportunity employer.

2. Copies of contract documents are available for review at the Contracting Agency's office. Offerors located outside the general vicinity of the Contracting Agency's office may telephone the Agency Contact identified on page one of this Part A for a discussion of such items.

**General Conditions** of the Professional Services Agreement are contained in the Small Procurement Standard Provisions Booklet, which is located on the Department's WEB site. To view or download the booklet, follow these steps:

A. log on to the web page at www.dot.state.ak.us
B. select Procurement
C. select Professional Services, Construction Related
D. select Small Procurement Standard Provisions Booklet

The General Conditions are the **same** for both Competitive Sealed Proposals and Small Procurements.

3. Offerors are specifically advised that a contract shall not be in effect until a written agreement is executed by an authorized agent of the Contracting Agency. The Contracting Agency shall not be liable for any cost incurred by an Offeror in response to this solicitation, including any work done, even in good faith, prior to execution of a contract and issuance of a Notice to Proceed.

4. The Contracting Agency expressly reserves the right to waive minor informalities, negotiate changes or reject any and all proposals and to not award the proposed contract, if in its best interest. "Minor Informalities" means matters of form rather than substance which are evident from the submittal, or are insignificant matters that have a negligible effect on price, quantity, quality, delivery, or contractual conditions and can be waived or corrected without prejudice to other Offerors (2 AAC 12.990).

5. All proposals shall be open for public inspection (AS 36.30.230) after a Notice of Intent to Award is issued. Offerors should not include proprietary information in proposals if such information should not be disclosed to the public. Any language within a submittal purporting to render all or portions of a proposal confidential will be disregarded. Proprietary information which may be provided after selection for contract negotiations will be confidential if expressly agreed to by the Contracting Agency (AS 36.30.230).

6. Substitution for any personnel named in a proposal may result in termination of negotiations.

7. If it is discovered that a selected Offeror is in arrears on taxes due the State of Alaska, a contract may not be awarded until the Alaska Department of Revenue approves the payment provisions for the contract.

8. **Offerors and proposed subcontractors shall be in compliance with the statutory requirements for Alaska business licensing and professional registrations included in the certification statement on Page 2 of Part D in this RFP package. Non-compliance shall result in rejection of proposal.**

9. **PRICE COMPETITION**: Price cannot be an Evaluation Criterion in accordance with Article 3 of AS 36.30 for services that must be performed only by Architects, Engineers or Land Surveyors (A/E or LS) licensed in the State of Alaska, UNLESS the provisions of AS 36.30.270(d) apply; i.e., unless the services required are repetitious in nature, and the nature and amount of services required are thoroughly defined by measurable and objective standards to reasonably enable firms or persons making proposals to compete with a clear understanding and interpretation of the services required. If price is a factor, a majority of the evaluation committee must be registered in Alaska to perform architectural, engineering, or land surveying services.

9.1 If the services performed do not require an A/E or LS, then all Offerors including any A/E or LS must provide Price Proposals in accordance with AS 36.30.270(b) and 2 AAC 12.260(c).

9.2 Price (or any estimate of labor hours) cannot be an Evaluation Criterion for contracts that will receive federal funding (FHWA and FAA) per 49 CFR 18.36(t), AC 150/5100-14D. For FAA exceptions: see AC 150/5100/14D, para 2-4(c).

10. An audit of the selected Offerors' and proposed Subcontractors' cost accounting systems and business records may be required to ascertain if systems are adequate for segregating contract costs; to establish a maximum allowable Indirect Cost Rate for the Agency's negotiator; and to investigate the accuracy of proposed labor rates and unit prices. In order

not to unduly delay contract negotiation or award, be prepared to submit Pre-Audit Statement, DOT&PF Form 25A257 immediately for your firm and any subcontract which may exceed $250,000. For contract amounts less than $250,000, the Contracting Agency may require the Offeror and proposed Subcontractor to submit the Pre-Audit Statement if deemed necessary to determine allowable costs under Title 23 CFR requirements. If selected for negotiation, failure to submit properly completed Pre-Audit Statement(s) in a timely manner may disqualify an Offeror from further consideration. Information from Pre-Audit Statements and any Audit conducted for the Contracting Agency is considered proprietary and will be confidential.

**A**

11. Standard insurance provisions for Worker's Compensation, General and Automobile Liability, and Professional Liability are contained in DOT&PF Form 25A269, Indemnification and Insurance. Coverages may be modified under very limited circumstances. Offeror should not assume any modification of coverages.

12. Professional Liability Insurance for the proposed contract: ☐ is not required

☒ is required as shown on DOT&PF Form 25A269.

13. The proposed contract ☐ will ☒ will not be a Federally Assisted Program of the U.S. Department of Transportation. If it will be an assisted program, then the Offeror shall insert the following notification in all subcontract solicitations for bids or proposals pertinent to this RFP:

"In accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 U.S.C. 2000d to 2000d-4 and Title 49, CFR, U.S. Department of Transportation (U.S. DOT), Subtitle A, Office of the Secretary, Part 21, Nondiscrimination in Federally-assisted programs of the U.S. DOT issued pursuant to such Act, in any Subcontract entered into pursuant to this RFP, Disadvantaged Business Enterprise firms will be afforded full opportunity to submit bids or proposals and will not be discriminated against on the grounds of race, color, sex, or national origin, in consideration for an award.

14. Pre-proposal Conference: ☒ None ☐ As follows:

15. Special Notices:

15.1 Per Alaska Statute (AS) 36.30.210(e): An Alaska Business License is required of Contractors who do business in Alaska and is a prerequisite to Proposal. Offerors should be aware of this requirement and are advised that proof of application for an Alaska Business License will satisfy this requirement. Information regarding applying for an Alaska Business License can be found on-line at https://www.commerce.alaska.gov/web/cbpl/BusinessLicensing.aspx or by calling 1-907-465-2550. The business license must be in the name of the company under which the proposal is submitted. This is a requirement regardless of funding source. If an Offeror fails to comply with this requirement, their proposal will be rejected as non-responsive.

15.2 The Contracting Agency makes no warranty nor implies that all project phases will be funded for detailed design or construction. Should project phases be funded, the Contracting Agency reserves the right to accomplish any or all of the work through means other than this agreement, including the use of in-house forces.

15.3 This agreement will initial term of three (3) years with three (3) one (1) year extensions. The amount of funding increase (or the decrease of funds) will be determined based on the anticipated project workload. The total funds are not anticipated to exceed $3,000,000 for the potential six-year term.

15.4 The Agency reserves the right to extend for three additional one (1) year periods. In addition, the Contracting Officer may authorize an extension of additional years to complete any work issued during the contract period of performance. The final extension(s) will be to finish existing NTP's only.

15.5 The Contracting Agency views these Term Agreements as one of the tools which may be used to accomplish its mission. The Contracting Agency reserves the right to accomplish these services through any other means.

15.6 Most, if not all, tasks will go to engineering firm with highest score. There is no guarantee of tasking for second highest scoring firm.

PART **B**

# SUBMITTAL CHECKLIST

**Offeror may use left margin to check off items when completed.**

***Prime Contractor shall have a current Alaska Business License on date of submittal, reference item 1, page 2, Part D.***

[ ] 1. Offerors must carefully review this RFP Package for defects and questionable material and become familiar with submittal requirements. Submit written comments to the address shown under "Submittal Deadline and Location" on page 1 of Part A - RFP. Substantive issues will be addressed in a written addendum to all RFP recipients on record. Failure to comply with directions may result in lower score and may eliminate a submittal from consideration. Protests based upon any omission, error or content of this solicitation may be disallowed at the discretion of the Contracting Agency if the protest is not received in writing at least ten Agency work days prior to the Submittal Deadline (2 AAC 12.565).

[ ] 2. Review Part A - RFP and the proposed Statement of Services and any other attached or referenced materials. If no Statement of Services is attached, telephone the Agency contact person identified on page 1 of Part A.

[ ] 3. Review Part C - Evaluation Criteria. Read each criterion in light of the proposed Statement of Services. Note any project specific criteria which may have been added or any changes to standard criteria descriptions which may have been made. Be aware of the assigned weight for each criterion. If a weight is not entered for any criterion on Part C, notify the Agency contact person. Plan your proposal to address the applicable criteria. Criteria Responses shall not exceed the number of pages stated below.

[ ] 4. Prepare a distinct Response for each criterion. Failure to respond directly to any criteria will result in an evaluation score of zero for that criteria. Acceptable Responses must be specific and directly related to the Contracting Agency's proposed Statement of Services. Marketing brochures, federal standard forms 254 and 255, marketing resumes, and other non-project specific materials will be discarded without evaluation and should not be submitted.

[ ] 5. ***Each criterion Response must be titled, numbered and assembled in the order in which the criteria are listed in Part C***, so the criterion to which information applies shall be plainly evident. Material not so identified or assembled may be discarded without evaluation.

[ ] 6. Price ☐ is ☒ is not an evaluation criterion for the proposed contract.

If Price is a Criterion, prepare ***Billing Rates and/or Price Proposals*** as described in Criteria #12 and/or #13.

[ ] 7. Complete all entries on Part D - Proposal Form. Note the statutory requirements for Alaska business licenses and professional registrations and be sure to sign and date the Certification. Copies of licenses and registrations may be provided with submittal, and will not count in the requirements of #8 below.

[ ] 8. Attach Criteria Responses (***except any Billing Rates or Price Proposals***) to Part D - Proposal Form. The maximum number of attached pages (***each printed side equals one page***) for Criteria Responses shall not exceed: **Ten (10)**. Attached page limit does not include the four-page Part D - Proposal Form.

Criteria Responses shall be presented in ***8-1/2" X 11" format***, except for a minimal number of larger sheets (e.g. 11" x 17") that may be used (e.g. for schedules) if they are folded to 8-1/2" X 11" size. Large sheets will count as multiple pages at 93.5 square inches or fraction thereof per page.

**CAUTION**: Criteria Responses which do not comply with the required page limit or presentation size, may result in disqualification. Further, small print or typeface that is difficult to read may negatively influence evaluation of your submittal and affect scoring for "Quality of Proposal."

CHECKLIST IS CONTINUED NEXT PAGE

[ ] 9. Not used.

[ ] 10. Parts A, B and C of Form 25A270 and the proposed Statement of Services shall not be returned to the Contracting Agency. ***Submittals shall consist of the following applicable items assembled as follows and in the order listed:***

[ ] 10.1 Completed Part D - Proposal Form (generally at least one copy with original signature) and Responses to all evaluation criteria attached. Each copy shall be fastened with one staple in the upper left corner. No other form of binding shall be used and no cover and no transmittal letter will be included. **CAUTION**: Failure to comply with this instruction will negatively influence evaluation of Submittal.

[ ] 10.2 Number of copies of Part D (***all pages***) and Criteria Responses required is: **Five (5)**

[ ] 10.3 Not used.

[ ] 10.4 Not used.

[ ] 10.5 If Item 9, above, is completed for this RFP Package, any submittal items described therein. Unless otherwise stated, one copy only, bound appropriately.

[ ] 10.6 Pre-Audit Statement, DOT&PF Form 25A257, shall ***not*** be provided with Submittal. (See Notice #10 on page 3 of Part A - RFP.)

[ ] 10.7 **CAUTION:** If you replicate (other than by photocopy) Part D or any form in lieu of completing the forms provided by the Contracting Agency, provide a signed certification that lists such forms and attests that they are exact replicas of that issued by the Contracting Agency. Changed forms may result in rejection at the Contracting Agency's discretion. Any alteration - other than completion of the required entries - may be cause for rejection without recourse.

[ ] 11. Deliver ***submittals in one sealed package*** to the location and before the submittal deadline cited in Part A - RFP. ***Mark the outside of the package*** to identify the Project and the Offeror. Proposals must be received prior to the specified date and time. Late proposals will not be opened (2 AAC 12.250).

PART **C**

# EVALUATION CRITERIA

**If a weight is not indicated for any criterion, telephone the Agency Contact person identified at the top of page 1 of Part A - RFP.**

## SECTION I - TECHNICAL PROPOSAL

**1. Objectives and Services** — **1. Weight: 10**

Response must **demonstrate your comprehension of the objectives and services** for the proposed contract. Do not merely duplicate the Statement of Services provided with this RFP. Also, consider if Statement of Services is sufficiently explicit; are expressed or implied schedules attainable/economically feasible; etcetera? Explain. **Define any assumptions made** in formulating Criteria Response. If design services for a construction project are included, express any opinions regarding alternative design considerations that could impact construction costs.

**2. Methods** — **2. Weight: 10**

Response must outline the methods for accomplishing the proposed contract or, if methodology is contained in the proposed Statement of Services, address its adequacy. Describe what, when, where, how, and in what sequence the work will be done. **Address how proximity to the Project site, *particular* geographic familiarity, experience, and capabilities of your firms (Offeror and Proposed Subcontractors) and Project Staff might *specifically* contribute to the proposed methods**. Identify the amount and type of work to be performed by any Subcontractors. Consider how each task may be carried out; what services or interaction required from/with the Contracting Agency; etcetera. Suggest alternatives, if appropriate. Identify any **distinct and substantive qualifications** for undertaking the proposed contract such as the availability of specialized equipment or unique approaches or concepts **relevant to the required services** which the firms may use.

**3. Management** — **3. Weight: 10**

Response must describe the administrative and operational structures that will be used for performing the proposed contract. For example consider: who will have overall responsibility for the contract? Who will have direct responsibility for specific disciplines? What will the lines of authority be? For any individual who would be in "responsible-charge" (reference AS 08.48) as an Architect or Chemical, Civil (including Structural), Electrical, Mechanical, Mining or Petroleum Engineer, or Land Surveyor, so state and list his/her Alaska professional registration number. A graphic depiction is preferred in your response to this criterion. Additionally, the Contracting Agency may want to inspect work products in progress and have a close ongoing working relationship with your Project Staff. Accordingly, your response should also identify where the various contract services will be performed, *in proximity to the Contracting Agency's office*, and how communications will be maintained between your Project Staff, the Contracting Agency, and (as applicable) any other government agencies or the public.

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**PART**

**C**

**4. Proposed Project Staff** | **4. Weight: 30**

Response must name the individuals to perform the following **FUNCTIONS** plus any other professional/technical functions you deem essential to perform the services:

1. Contract Management (contract compliance)
2. Project Management (single point-of-contact directly engaged in contract performance)
3. Civil Engineering
4. Mechanical Engineering
5. Geotechnical Engineering
7. Hydrology
8. Land Surveying
9. Cost Estimating
10. Land Title Search
11. FERC expert

*All personnel acting in responsible charge for all Architectural, Engineering and Land Surveying functions require an Alaska Registration and must be identified in your proposal.

Describe the work to be performed by the individuals you name to perform essential functions and detail their specific qualifications and substantive **experience directly related to the proposed contract.** A response prepared specifically for this proposal is required. Marketing resumes often include non-relevant information which may detract from the evaluation of proposal. Lists of projects are not useful. Focus on individual's specific duties and responsibilities and how project experience is relevant to the proposed contract.

For each person named, identify their: employer, professional discipline or job classification and state of residency. List at least 3 professional references (contact persons and telephone numbers) for each person.

**5. Workload and Resources** | **5. Weight: 5**

Response must: (1) discuss both current and potential time commitments of your proposed Project Staff to all clients; (2) discuss the projected workload of each firm (Offeror and Proposed Subcontractors) for all clients; and (3) demonstrate adequate support personnel, facilities and other resources to provide the services required. Provide a list of current contracts with the Contracting Agency in which your proposed Project Staff are participating. Include all contracts statewide with regions, divisions, etc., of the Contracting Agency.

Briefly address capabilities for providing additional services and/or services under an accelerated schedule. Address capacity to reassign personnel, equipment and facilities whenever the proposed contract would not require such capabilities or was delayed.

**6. Past Performance** | **6. Weight: 35**

Response must describe previous projects the project team has worked on that are related in size and scope to this project. Describe the dollar amount of the projects and a brief narrative of the successes of the projects. Address how the experience will help your team to perform under this contract. Provide references (contact name and phone number) for each project. Indicate which of the proposed firms and project staff was involved in each project. The State reserves the right to investigate referenced projects, contact references and research other projects that the respondent has worked on.

# Alaska Industrial Development & Export Authority
# PROPOSAL FORM

**PART D**

**THIS FORM MUST BE THE FIRST PAGE OF PROPOSAL.** Attach criteria responses as explained in Part B - Submittal Checklist. No transmittal letter or cover sheet will be used.

**PROJECT**

Project Numbers-State/Federal.....: N/A
Project Title .....: Term Agreement for Bradley Lake Hydroelectric Engineering Project
RFP No. .....: 22056

**OFFEROR (CONTRACTOR)**

Contractor.....:

Street.....:
P.O. Box.....:
City, State, Zip.....:
Alaska Business License Number .....: ***License is a prerequisite to Proposal.***
Federal Tax Identification No. .....:
DOT&PF DBE Certification No. (if any) .....:
Individual(s) to sign contract .....:
Title(s) .....:
Type of business enterprise (check one).....: [ ] Corporation in the state of . :
[ ] Individual [ ] Partnership [ ] Other(specify) ..... :

**ALASKA STATUTORY PREFERENCES (IF NO FEDERAL FUNDING)**

Check the applicable preferences that you claim for the proposed contract (reference Criteria 11, 12 & 13 in Part C):
[ ] Alaska Bidder (Offeror) **AND>>** [ ] Veterans **AND>>** [ ]Employment Program or [ ] Disabled Persons

**PROPOSED SUBCONTRACTOR(S)**

| Service, Equipment, etc. | Subcontractor & Office Location | AK Business License No. | DOT&PF DBE Certification No. |
|---|---|---|---|
| | | | |

**CERTIFICATIONS**

I certify: that I am a duly authorized representative of the Contractor; that this Submittal accurately represents capabilities of the Contractor and Subcontractors identified herein for providing the services indicated; and, that the requirements of the Certifications on page 2 and 3 of this Part D for 1) Alaska Licenses/Registrations, 2) Insurance, 3) Federal-Aid Contracts exceeding $100,000, 4) Cost and Pricing Data, 5) Trade Restrictions/Suspension/Debarment, 6) Foreign Contracting, 7) DBE Commitment, and 8) Former Public Officer - will be complied with in full. These Certifications are material representations of fact upon which reliance will be placed if the proposed contract is awarded. Failure to comply with these Certifications is a fraudulent act. The Contracting Agency is hereby authorized to request any entity identified in this proposal to furnish information deemed necessary to verify the reputation and capabilities of the Contractor and Subcontractors. This proposal is valid for at least ninety days.

Signature ..... : _____
Name..... : Date:
Title..... : Telephone (voice):
(fax):
Email Address:

PART

D

## CERTIFICATION FOR ALASKA BUSINESS LICENSES AND REGISTRATIONS

Contractor and all Subcontractors shall comply with the following applicable requirements of Alaska Statutes:

1. **Alaska Business License** (Form 08-070 issued under AS 43.70) at the time designated for opening (i.e., receipt) of proposals as required by AS 36.30.210(e) for Contractor; and not later than five days after a Notice of Intent to Award as required by AS 36.30.210(a) and AS 36.30.250(a) for all Subcontractors. In accordance with Administrative Manual, Section 81.120, proof of application for an Alaska Business license will satisfy this requirement. Per AAM 81.120, acceptable evidence that the offeror possesses a valid Alaska business license consists of any one of the following:
   a. Copy of the Alaska business license.
   b. Certification on the bid or proposal that the bidder/offeror has a valid Alaska business license number and has written the license number in the space provided on the proposal.
   c. A canceled check that demonstrates payment for the Alaska business license fee.
   d. A copy of the Alaska business license application with a receipt stamp from the State's business license office.
   e. A sworn notarized affidavit that the bidder/offeror applied and paid for the Alaska business license.
   f. Other forms of evidence acceptable to the Department of Law.

2. **Certificate of Registration** for each individual to be in "responsible charge" (AS 08.48.341(14)) for Architecture, Engineering or Land Surveying (Form 08-2407 issued under AS 08.48.211) issued prior to submittal of proposal. Associates, consultants, or specialists under the supervision of a registered individual in "responsible charge" are exempt from registration requirements (AS 08.48.331).

3. **Certificate of Authorization for Corporate Practice** for incorporated Contractors and incorporated Subcontractors for Architecture, Engineering or Land Surveying (Form 08-2407 issued under AS 08.48.241). Corporations offering to provide Architectural, Engineering or Land Surveying services do not need to be registered for such disciplines at the time proposal is submitted provided they obtain corporate registration before contract award (AS 08.48.241).

4. **Certificate of Incorporation** (Alaska firms) or **Certificate of Authorization for Foreign Firm** ("Out-of-State" firms). All corporations, regardless of type of services provided, must have one of the certificates (AS 10.06.218 and other sections of Title 10.06 - Alaska Corporations Code).

5. **Current Board of Director's Resolution** for incorporated Contractors and incorporated Subcontractors for Architecture, Engineering or Land Surveying (reference AS 08.48.241) which names the person(s) designated in "responsible charge" for each discipline. Such persons shall be licensed in Alaska and shall participate as project staff in the Contract/Subcontracts.

6. **All partners** in a Partnership to provide Architectural, Engineering, or Land Surveying **must be legally registered in Alaska** prior to submittal of proposal for at least one of those disciplines (AS 08.48.251) which the Partnership offers.

7. **Joint Ventures**, regardless of type of services provided, must be licensed/registered in the legal name of the Joint Venture as used in this proposal (AS 43.70.020 and 43.70.110(4)).

8. **Contracts for Architecture, Engineering or Land Surveying** may not be awarded to individuals, corporations or partnerships not in compliance, respectively, with the provisions of paragraph 2, 3, and 6, above (AS 36.90.100).

**[For information about licensing, Offerors may contact the Alaska Department of Commerce and Economic Development, Division of Occupational Licensing at P.O. Box 110806, Juneau, AK 99811-0806, or at Telephone (907) 465-2550, or at Internet address:** https://www.commerce.alaska.gov/web/cbpl/BusinessLicensing.aspx **.]**

## CERTIFICATION FOR INSURANCE

Contractor will ensure that it and all Subcontractors have insurance coverage to effectuate the requirements of DOT&PF Form 25A269, Indemnification and Insurance.

## CERTIFICATION FOR FEDERAL-AID CONTRACTS EXCEEDING $100,000

The individual signing this proposal certifies to the best of his or her knowledge and belief, that:

(1) No federal appropriated funds have been paid, by or on behalf of the Contractor, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the Contractor shall complete and submit Standard Form-LLL, Disclosure of Lobbying Activities, in accordance with its instructions. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

This certification is a material representation of fact upon which reliance will be placed if the proposed contract is awarded. Submission of this certification is a prerequisite for making or entering into the proposed contract imposed by Section 1352, Title 31, U.S. Code. The Contractor also agrees by submitting this proposal that Contractor shall require that the language of this certification be included in all lower tier subcontracts which exceed $100,000 and that all such Subcontractors shall certify and disclose accordingly.

PART

D

## CERTIFICATION - COST AND PRICING DATA

In accordance with AS 36.30.400, any cost and pricing data submitted herewith, or in any future price proposals for the proposed contract, will be accurate, complete and current as of the date submitted and will continue to be accurate and complete during the performance of the contract, if awarded.

The contractor certifies that all costs submitted in a current or future price proposal are allowable In accordance with the cost principles of the Federal Acquisition Regulations of Title 48, Code of Federal Regulations (CFR), Part 31 and that the price proposal does not include any costs which are expressly unallowable under the cost principles of the FAR of 48 CFR 31. In addition, all known material transactions or events that have occurred affecting the firm's ownership, organization and indirect costs rates have been disclosed.

## CERTIFICATION – TRADE RESTRICTIONS AND SUSPENSION AND DEBARMENT

The individual signing this proposal certifies to the best of his or her knowledge that the Contractor and any subcontractors are in compliance with DOT&PF 25A262 Appendix A, General Conditions, Article A25 and Article A26.

## CERTIFICATION - FOREIGN CONTRACTING

For state funded projects: by signature on this solicitation, the offeror certifies that all services provided under this contract by the Contractor and all subcontractors shall be performed in the United States. Failure to comply with this requirement may cause the state to reject the bid or proposal as non-responsive, or cancel the contract.

## CERTIFICATION – DBE COMMITMENT

For federal-aid projects with DBE goals: if the Contractor submits a utilization report that proposes to use certified DBE's in the performance of work, the Contractor certifies that every effort will be made to meet or exceed the proposed percentage.

In addition, the Contractor certifies that a Consultant Registration form shall be submitted to the DBE/Civil Rights Office for their firm and each subconsultant prior to award.

## CERTIFICATION – FORMER PUBLIC OFFICER

**Any proposer listing as a member of the proposer's team a current public officer or a former public officer who has left state service within the past two years must submit a sworn statement from that individual that the Alaska Executive Branch Ethics Act does not prohibit his or her participation in this project. If a proposer fails to submit a required statement, the proposal may be deemed nonresponsive or nonresponsible, and rejected, depending upon the materiality of the individual's proposed position.**

The Ethics Act bars a public officer who leaves state service from representing, advising or assisting a person for compensation regarding a matter –

that was under consideration by the administrative unit in which the officer served, and in which the officer participated personally and substantially through the exercise of official action,

for two years after leaving state service. See AS 39.52.180(a). "Public officer" includes a state employee, a member of a state board and commission, and a trustee of the Exxon Valdez Oil Spill Trust. "Official action" means a recommendation, decision, approval, disapproval, vote, or other similar action or inaction. Possible remedies for violating the bar include penalties against the former public officer and voiding the state grant, contract or lease in which the former public officer is involved.

Additionally, former public officers may not disclose or use information acquired in the course of their official duties that could in any way result in a benefit to the former public officers or their families, if the information has not been disseminated to the public or is confidential by law, without appropriate authorization. *See* AS 39.52.140.

Each current or former public officer is responsible for determining whether he or she may serve in the listed capacity on this project without violating the Ethics Act. A form that a former public officer may use to certify their eligibility is attached. Current public officers may seek advice from their designated ethics supervisors concerning the scope and application of the Ethics Act. Former public officers may, in writing, request advice from the Office of the Attorney General, Ethics Attorney concerning the application of the Ethics Act to their participation in this project. It is the responsibility of the individual and the proposer to seek resolution in a timely manner of any question concerning the individual's eligibility.

**Former Employee's Certification of Eligibility**
**Under the Alaska Executive Branch Ethics Act**
**(AS 39.52.140, AS 39.52.180)**

I am a former employee of the State of Alaska and left state service within the last two years. My last position with the state was [*job title*] with the [*name of state agency and administrative unit*]. I propose to work on [*describe state contract or other matter*] on behalf of [*name of current employer*]. This work will not involve any matter (a) that was under consideration by the state administrative unit that I served, and (b) in which I participated personally and substantially during my state service through the exercise of official action ("official action" means a recommendation, decision, approval, disapproval, vote, or other similar action or inaction). I am therefore eligible to participate in this [*contract or matter*] under the Alaska Executive Branch Ethics Act. I also understand that as a former public officer I may not disclose or use information acquired in the course of my official duties that could in any way result in a benefit to me or my family, if the information has not been disseminated to the public, or that is confidential by law, without appropriate authorization.

I certify under penalty of perjury that the foregoing is true.

Dated: _____, 20__, at _____, Alaska.

_____
[*name of former state employee*]

STATE OF ALASKA )
) ss.
_____ JUDICIAL DISTRICT )

On this _____ day of _____, 20__, [*name of former state employee*], whom I know to be the individual described in and who executed this certification, personally appeared before me and acknowledged that [s]he signed the certification as [her or his] free and voluntary act.

IN WITNESS WHEREOF, I have placed my signature and affixed my official seal.

_____
Notary Public in and for Alaska
My commission expires: _____

*If no notary or other official (judge, magistrate, U.S. postmaster or municipal clerk) is available, omit the notary certificate and include the following statement in the text*: A notary or other official empowered to administer oaths is unavailable.

## ARTICLE B1 PURPOSE

### B1.1 Background

The Alaska Energy Authority (AEA) owns Bradley Lake Hydroelectric Project (Project) which was completed in 1991. The Federal Energy Regulatory Commission (FERC) licensed project (P-8221) is located at the northeast end of Kachemak Bay about 27 miles from Homer, Alaska. The Project is the largest hydroelectric facility in the state of Alaska with a nominal rating of 120 MW. Facilities include a concrete faced rockfill dam 125 feet in height and 600 feet in length, three and a half mile long power tunnel, powerhouse, barge dock, permanent housing, airstrip, 20 miles of transmission lines and four small diversion systems. In 2020, the West Fork Upper Battle Creek Diversion project was completed to increase the annual energy. Also in 2020, AEA purchased the Sterling to Quartz 115 kV transmission line and added it to the Bradley Lake project but not to the license. Exhibit A FERC project description is attached.

A Bradley Project Management Committee (BPMC) was formed in 1993 with representatives from each of the power purchasers and Alaska Energy Authority. The BPMC is responsible for the management, operation, maintenance, and improvement of the project, subject to the non-delegable duties of the Alaska Energy Authority. The Project is operated by Homer Electric Association for AEA.

Services may include providing facility inspection, licensing or regulatory technical assistance, engineering design services, safety inspections, training of project personnel on license or regulatory compliance, and annual document preparation. Proposers are to have expertise with the design and construction of hydroelectric facilities (dam, power plant, and electrical transmission), FERC license amendments, hydrology, surveying, and general heavy civil construction.

AEA has started the amendment process of amending the license for an expansion project (Dixon Diversion Project). The feasibility and licensing work for a potential Dixon Diversion Project will be in a separate RFP. Some minor work on Dixon Diversion Project may occur under this contract.

## ARTICLE B2 DEFINITIONS

B2.1 "AGC" means Associated General Contractors of America, 1957 "E" Street, N.W., Washington DC, 20006.

B2.2 "Authority" means the Alaska Energy Authority (AEA).

B2.3 “Construction Contractor” means either: 1) a contractor selected by competitive solicitation through a design – bid – build or Design/Build contract process; or 2) a Construction Management contractor under contract with the Authority who has been assigned to complete the construction of a project.

B2.4 Contracting Officer means the procurement staff assigned to particular project.

B2.5 "Contractor", "Architect", "Architect/Engineer", "Engineer", "A/E", or similar terms mean the entity, other than the Authority, who is a party to this agreement.

B2.6 "Project Manager" means the individual who manages the design and construction agreements for the Authority.

B2.7 “Resident Engineer” means the individual acting under the direction of the Project Manager to administer the construction contract and to monitor construction work for conformance with the

contract documents. The Resident Engineer is typically a contractor that oversees the construction administration, on-site observation, quality assurance, and materials acceptance testing services.

## ARTICLE B3 ADMINISTRATIVE REQUIREMENTS AND STANDARDS

### B3.1 General.

The term contracts established with this solicitation will initially be for three years with the option for the Authority to renew for three additional one-year periods subject to availability of funds and need. Contracts may be extended for additional years to complete existing NTPs.

Execution of this Agreement does not guarantee any project assignments. If one or more of the Term Agreements is terminated for any reason, the Authority reserves the right to transfer existing projects to the remaining Term Contractors.

The Authority intends to have one primary engineering contractor and one secondary engineering contractor. The contractor with the highest evaluation score shall be the prime contractor. Assignments will be tasked to each contractor at the discretion of the Authority. Assignments will not automatically rotate between Contractors.

If agreement on scope, schedule, or costs for a specific project/NTP cannot be reached, the Authority reserves the right to terminate negotiations and award the work to another Contractor under contract with the Authority or solicit proposals for these services from other sources.

Any changes to scope, schedule or budget requires an NTP amendment and is not effective until a signed amendment is issued. The Authority shall not be obligated to the Contractor in any way if the Contractor acts on communications issued by anyone other than the Authority's Project Manager or his designee.

### B3.2 Project Staff

All services must be performed by or under the direct supervision of the following individuals. Only prior written approval from the Authority shall accomplish replacement of, or addition to, the Project Staff named below:

| Name | Company | Project Responsibilities |
|---|---|---|

(To be determined and incorporated into each final term contract)

### B3.3 Professional Registration

All reports, plans, specification, estimates and similar work products provided by the Contractor shall be prepared by or under the supervision of the Registered Alaskan Engineer or Land Surveyor in responsible charge for the services. These Engineers or Land Surveyors shall be currently registered in the State of Alaska and they shall sign, seal and certify as to the accuracy of each final work product for which they are responsible.

## B3.4 Billing Reports

The Contractor shall provide a report with each monthly billing for months in which services are performed. The report shall specifically describe the services and other items *for which the billing is submitted*, shall be submitted within two weeks of the end of the month in question, and shall estimate the percent the services are complete. Any delayed costs from previous billing periods that are included in the current billing must be clearly explained in the report.

## B3.5 Correspondence

All correspondence prepared by the Contractor shall bear the Authority and/or Federal Project name and numbers. The Contractor shall direct all correspondence and oral communications relating to contractual matters to the Authority's designated Project Manager.

## B3.6 Deliverables

Each Notice to Proceed for a specific project shall describe required Contractor deliverables including: Design narratives, calculations, specifications, drawings, etc.

Documents, reports, specifications, estimates etc. shall be printed with solid black letters on white, 8.5 inch x 11-inch bond or photocopy paper. Other size paper may be used for illustrations if they are folded to 8.5 inch x 11-inch size. Original documents and reports shall be printed on one side of the paper only and shall be ready for copying. All documents shall be page numbered.

When the Contract calls for multiple copies of documents or reports, the copies may be printed on both sides of the paper. All copies - except for originals - shall be bound.

The cover of all documents and reports shall include the following information:

a. Name of document or report.
b. Date.
c. Indicate whether draft or final.
d. Project Name. Bradley Lake Hydroelectric Project
e. Authority and Federal Project Number(s). P-8221
f. Prepared for: Alaska Energy Authority
g. Prepared by:
h. Map and/or picture of project area.

Provide electronic copies: final drawings in AutoCAD and PDF, specifications and documents in MS Word and PDF, data in excel, all other documents in PDF.

## B3.7 Plans, Maps, and Plats

Plans, Maps, and Plats shall be submitted in hard paper copies and as electronic pdf files, unless otherwise specified in the NTP or by the Project Manager. (Utilizing U.S. standard units, not metric)

## B3.8 Revisions

The Contractor shall modify work products in response to direction from the Authority. Corrections, adjustments, or modifications necessitated by the review/approval process, but which do not substantially affect the scope, complexity, or character of the services, shall be considered a normal part of the Contractor's services.

### B3.9 Errors and Omissions

Except as described in this Statement of Services, work products shall be essentially complete when submitted to the Authority. Contractors shall perform an independent in-house review of all work products before submitting them to the Authority. The in-house review is intended to prevent the need for the Authority's Project Manager to have to correct calculations, grammar, spelling, and other common errors. Work products having significant errors or omissions will not be accepted until such problems are corrected. Errors that are brought to the attention of the Contractor to correct but are not corrected in subsequent reviews will be corrected at the Contractor's expense.

### B3.10 Review Meetings

Following each review the Authority may provide written comments (email is acceptable) and may hold a meeting to discuss the issues. The Contractor's personnel who are in responsible charge for the work products under review shall attend the meeting and they may be asked to interpret and provide explanations of the content.

### B3.11 Comment Resolution

The Contractor shall provide a written response with subsequent submittals that address all written and oral comments from the Authority. All changes from previous submittals shall be clearly explained.

### B3.12 Attend Meetings, Coordination, Presentations

The Contractor shall attend meetings and coordinate with the Authority as required to:

- Identify project requirements and make related presentations.
- Meet with regulatory agencies as required to obtain required reviews and approvals.
- Meet with other Contractors hired by the Authority to review studies or designs produced under this Agreement.

## ARTICLE B4 BASIC SCOPE OF SERVICES

This article describes services for a typical project, actual services to be described in each NTP. Program specific requirements follow in Article B5.

### B4.1 General

Under this term agreement, the Contractors shall provide engineering and licensing services for Alaska Energy Authority owned Bradley Lake Hydroelectric Project. Scope will include dam, generation plant, and transmission line inspections and engineering, safety inspection, license amendments and permitting support, project progress inspections, and preparing documents for submission to FERC. Contractor shall be familiar with FERC Dam Safety and Inspections regulations, guidelines and manuals.

### B4.2 Engineering Services

Contractor may be requested to perform the following engineering tasks:

- Feasibility studies - The Contractor shall carry out feasibility studies of project improvements at the direction of AEA. Possible project improvements involve diversion dams, hydrological flow management, or other opportunities.
- Site research – Contractor may be requested to determine & document the ownership of various land parcels.

- Cost estimating - The Contractor shall provide cost estimates, beyond estimates required in basic services, for Authority projects at any level of design. Estimates shall include accurate quantity surveys and cost estimates for all design disciplines, including civil, architectural, structural, mechanical, and electrical. The Contractor shall work with other firms on contract to the Authority that provide specialized services such as engineering, architectural, economic/financial analysis, environmental investigations, regulatory compliance, electric utility design/repairs, and legal services.
- Conceptual design review and inspections - The Contractor shall provide quality assurance services during the construction of the project including:

    a. Pre-construction design review by construction inspector(s).

    b. Provide a construction observation plan, which identifies critical inspections, and tests, which are recommended to provide a reasonable level of quality assurance during construction.

    c. On-site construction observation by qualified inspector(s), as required to assure quality construction, which meets the requirements of the Contract Documents.

    d. Inspector(s) provided by the Contractor shall have thorough knowledge of materials, applicable construction methods, and the requirements of the Contract Documents. Project Manager may require the Contractor to replace inspector(s) who do not meet the above requirements.

    e. Participate in Substantial Completion inspection and Final Completion inspection with all design disciplines represented. Contractor shall prepare a list of work items required by the Contract Documents, which are incomplete, defective, or otherwise unacceptable. Assist Authority in determination as to whether work is substantially complete or finally complete in accordance with the Contract Documents.
- Presentations
- Regulatory Plan Development - The Contractor shall develop federal, state, and/or local required regulatory plans.
- Health and Safety Inspection – Contractor should have the ability to perform an inspection of workplace hazards, after accident inspection,
- Dam Safety Inspections – Contractor shall perform inspections of main dam and diversions dams following FERC regulations, guideline and manuals.
- Power plant, airfield, and road inspections – Contractor shall perform inspections and provide inspection reports and/or technical assistance in resolving issues.
- Surveying – Contractor shall perform dam movement surveys and other surveying as required.

**B4.3 Licensing and Permitting Services**

The contractor shall annually prepare documents for submission to FERC and other Federal and State agencies. Documents may include:

- Dam Safety documents – Technical reports such as revising the Probable Failure Mode Analysis (PFMA), Supporting Technical Information (STI), procedures, Annual Dam Safety & Surveillance Monitoring Report (DSSMR), Dam Safety & Surveillance Monitoring Plan (DSSMP), and maybe provide sub for Part 12.
- License amendments – The Contractor shall perform studies and prepare draft and final amendments to the Bradley Lake Hydroelectric Project license. Contractor shall present information on amendment to public and agency personnel.
- Water flow documentation – Water flows into and out of the project must be reported to the Department of Natural Resource. Project must stay in compliance with the license terms for

minimum flow releases down the Bradley River and Battle Creek. Any deviation must be documented and explained.

- 404 permits – Contractor shall prepare periodic project applications for submission to the Army Corp of Engineers for doing work.
- Environmental – Obtain, monitor, modify, and file as required, on behalf of the Authority, all sewer, water, landfill, rights-of-way and other permits required for the operation, maintenance, repair and improvement of Authority projects.

## ARTICLE B5 ADDITIONAL SERVICES

### B5.1 General

The Contractor shall provide services described within this Article only if the services are specifically authorized by a Notice to Proceed.

### B5.2 Special Meetings / Presentations

The Contractor shall provide design presentations or attend meetings as requested by the Project Manager.

### B5.5 As-Built Surveys

As needed, provide an As-Built survey stamped by a registered land surveyor. Provide an electronic drawing file (AutoCAD and PDF) to Authority.

### B5.9 Third Party Review and Other Support:

The Contractor shall perform third party design (peer) review of other contractors' work that are under contract to the Authority, its agents, or clients.

# EXHIBIT A

PROJECT DESCRIPTION

# 1.0 PROJECT DESCRIPTION

## 1.1 GENERAL

The Bradley Lake Hydroelectric Project is located on the Kenai Peninsula at the northeast end of Kachemak Bay about 27 miles from Homer. The project contributes to the electrical generating capacity of Alaska's Railbelt serving customers from the Kenai Peninsula to Fairbanks.

Major elements of the project include a concrete faced rockfill dam to raise the level of Bradley Lake about 100 feet, an ungated spillway having discharge capacity of 23,800 cfs at pool elevation 1190.6, a diversion tunnel which also serves as a low level outlet, a submerged intake leading to the power tunnel which, including the vertical shaft, is 19,152 ft. long, a surface powerhouse located on the shore of Kachemak Bay and a tailrace channel into the bay. All elevations given in this report are referred to Bradley Lake Project Datum, at which zero is equal to 13.63 ft. above MLLW at Bear Cove. Add 9.76 ft at Bradley Dam vertical control station “Venus” to convert Project Datum to NAVD88 elevations.

The two unit plant has a nominal generating capacity of 120 MW at 917 ft. net head. Each generating unit consists of a six jet, vertical shaft Pelton turbine driving a 63 MVA generator at 0.95 power factor. The penstock for a future third unit was also constructed as part of the initial project development.

Usable storage in Bradley Lake at full pool (El 1180) is about 280,000 acre ft. The project is connected to the existing Kenai Peninsula transmission and distribution system via a 20-mile overhead transmission line, consisting of two parallel 115 KV lines. The lines run through the Fox River Delta to connect with Homer Electric Association's Fritz Creek to Soldotna Transmission line. A summary of pertinent project data is given on Table 1.

## 1.2 HISTORY OF DEVELOPMENT

The power generation potential of Bradley Lake was first studied by the U.S. Corps of Engineers and presented in a report dated March 1955. The project was authorized by Congress in 1962, but despite its feasibility federal funds were not available for its construction. The Alaska Energy Authority (then Alaska Power Authority) assumed responsibility for the project in 1982. Preliminary plans were developed and field investigations started in 1982. In April 1984, the Authority submitted an application for license to the Federal Energy Regulatory Commission (FERC). The license to construct the project was issued on December 31, 1985.

The first major contract, "Site Preparation" was let in 1986 and was completed in 1987. This contract included on-site access roads, barge dock, Airstrip, permanent facilities, construction camp and diversion tunnel. Following a one year hold on project construction, the General Civil Construction and Transmission Line Clearing Contracts were awarded in June 1988. The Powerhouse Construction Contract was awarded in December 1988 and the Transmission Line Construction Contract was awarded in June 1989. The General Civil Construction and the Powerhouse contracts were completed in August 1991.

The Alaska Energy Authority issued a contract for supply of the turbines and generators in 1987, and issued a contract for supply of the SCADA control systems in July 1989. Smaller contracts were also issued for transmission line surveying, geotechnical surveys, and construction of the Middle Fork, Nuka, and East Fork Upper Battle Creek Diversion structures.

The diversion tunnel was closed in October 1990, however all inflow to the reservoir was released through the fish water bypass lines. Actual storage in the lake started in Spring 1991 when enough water was available to meet downstream minimum flow requirements. A contract for Site Rehabilitation was issued in June 1991. Both units were released to dispatch in August 1991, and the Project was declared in commercial operation September 1, 1991. Construction of the project was completed on November 21, 1991, with the completion of the Site Rehabilitation work.

The license for the Bradley Lake Project, FERC No. 8221 was amended September 6, 2016 for addition of the West Fork Upper Battle Creek (WFUBC) Diversion consisting of a diversion dam and pipeline that captures flow from WFUBC and discharges the flow to Bradley Lake at the location of the East Fork Upper Battle Creek Diversion, increasing the water supply to the Bradley Lake Project. The Authority signed the contract for construction of the WFUBC Diversion Project on January 11, 2018 and construction began in May 2018. The WFUBC Diversion Project was substantially complete on July 22, 2020 and water diversion began on that date. The WFUBC Diversion Project attained final completion in October 2020.

# 2.0 DESIGN

## 2.1 GEOLOGY

Except for the transmission line, all major elements of the project are founded on or in the bedrock. The geology of the site is composed of Upper Mesozoic Age metamorphic rocks of the McHugh Complex. Most probably this melange is composed of turbidites which have been slightly to moderately metamorphosed. Rock types encountered are graywacke, argillite, chert, dacite, metatuff, and greenstone. The graywacke, argillite and mixtures of these rocks are dominant. Chert occurs as nodules and lenses in the argillite and metatuff with some massive beds up to 15 ft. thick. The diabase occurs as intrusive dikes generally 10 to 20 ft. in width with some dikes about 40 ft. thick. The metatuff is metamorphosed, volcanic pyroclastic debris. Frequently it is intermixed with the argilite but some layers up to 15 ft. thick were encountered. Overall, it constitutes less than 5% of the rock mass. The greenstone is metamorphosed volcanics. It constitutes less than 3% of the rock mass.

Except where severely weathered, the argillite is moderately hard to hard. The graywacke, chert, dacite and greenstone are hard to very hard. Foliation (cleavage) is poorly developed in the argillite and bedding, when identifiable, is poorly preserved. The graywacke is massive and displays neither bedding nor foliation. The chert, dacite and metatuffs are generally massive and show no foliation.

Jointing is well developed. It is widely spaced in the graywacke and moderately to widely spaced in the argillite. Generally, three or more sets are observed resulting in blocky structures. There are some open joints in the abutment of the dam and spillway, especially in the rock knob between these structures. Hvdrosplitting tests made along the tunnel alignment showed low in situ horizontal stresses ranging from 0.9 to 0.5 of overburden

pressure at the depth tested. Open vertical joints striking about parallel to the tunnel (N60° W) were observed during tunnel construction at depths of rock cover of as much as 1200 ft.

## 2.2 GEOLOGIC HAZARDS

The Pacific Plat is subducting under the North American Plate south of the coast of Alaska. The Aleutian Arc trench marks the surface juncture of the two plates. This trench trends northeast-southwest and is located about 185 miles southeast of the site at its nearest approach. The Pacific Plate is moving north relative to the North American plate. The subduction zone dips northwest and the upper contact of the subduction plate, the Benioff zone, lies at a depth of about 30 miles beneath the surface at the site. The Benioff zone is the locus of great earthquakes.

Major faults in the general site area are the Border Ranges fault which lies under Kachemak Bay and the Eagle River Fault which crosses Bradley Lake near its head. Both faults trend NE-SW (about N45°E) parallel to regional structure. Three smaller faults lie within the site area crossing the power tunnel between the intake and the powerhouse. These are the Bull Moose Fault, the Bradley River Fault, and the Bear Cub Fault. These tend approximately north-south. The Bull Moose and Bradley River are the larger of these faults. Where crossed by the power tunnel they consisted of a series of gouge-filled anastamosing shears, a few feet to possibly 20 ft. wide, separated by sound rock and extending over a width of 300 to 400 ft. Lineations and minor shears parallel these faults.

Seismicity of the site was investigated by Woodward-Clyde Consultants, "Report on Bradley Lake Hydroelectric Project Design Earthquake Study," 1981. They recommended an MCE earthquake spectrum normalized to zero period horizontal acceleration of 0.75g with a duration of 25 seconds for design of critical, water retaining structures. Vertical acceleration was taken at 2/3 horizontal. This spectrum has been the basis of investigation and design of the dam, spillway and powerhouse. Dynamic analyses of the dam and spillway were made using Finite Element analyses. The time-history used an accelerogram whose spectrum envelopes the Woodward- Clyde spectrum. This was constructed by combining two appropriate shorter earthquake records. This hybrid earthquake has a duration of 28 seconds.

The nearest active volcanoes are Mt. St. Augustine and Mt. Redoubt which are more than 100 miles from the site across Cook Inlet. Renewed activity poses no direct threat to the project other than possible development of a tsunami due to large mudflows or slides from Mt. St. Augustine and ash falls from both.

The coast of Alaska has been subjected to tsunami generated by uplift due to offshore earthquakes. This hazard was investigated by Stone & Webster Engineering Corp. in a report presented to this Board (September 1987). This report indicated an annual probability (combined earthquake and volcanic activity) of about 0.007 for a wave height at the powerhouse reaching El 25 BLP Datum (38.63 MLLW datum). The powerhouse is designed to withstand water to this level without damage.

The hazards of seiche in Bradley Lake due to earthquake and the possibility of a wave generated in the lake by a liquefaction generated slide in the Bradley Glacier delta were investigated. It was concluded waves from these sources would not damage the dam or spillway. The mountain sides surrounding Bradley Lake are bare rock which has been scoured by late Pleistocene and recent glaciation. Minor rockfalls may result from earthquake but slides which could cause overtopping are not a hazard. The Kachemak and Nuka glaciers are sufficiently far from the lake that ice falls or slides which might result from earthquake would not reach the lake.

## 2.3 MAIN DAM

The dam is a concrete faced, rockfill structure. Top of the embankment is El 1190. A parapet wall at the upstream face extends to El 1194. Normal full pool (crest of the spillway) is El 1180 and pool level under PMF is El 1190.6. The parapet wall is designed to provide wave protection during floods. The face slab is 12 inches thick, constant top to bottom. The toe plinth varies in width along its contact with the rock from 10.5 ft. to 13.3 ft. Minimum thickness varies from 3 ft. to 2.25 ft. depending on location and head. The face slab is underlain by a 12 ft. wide zone of crushed rock grading from fines (passing No. 200 mesh) to 3 inch size.

The toe plinth is founded on rock for its fall length. General rock level in the river bottom is about El 1065 giving a nominal dam height to the top of the embankment of 125 ft. However, a narrow channel was found along the right side of the river bottom. This was excavated to bedrock, at its lowest point at El 1032, over a length of 28 ft. centered on the toe plinth and backfilled with concrete. Thus the dam is actually 158 ft. high above the lowest point in the bedrock. The rock surface drops slightly south of the left abutment under the gate shaft bench. In this area the rock is covered by overburden and some rock fill. A concrete wall was constructed across this bench. This extends down to rock for its full length of about 175 ft. A single line grout curtain is located along it.

The single line ground curtain extends the full length of the toe plinth and into the abutments. Maximum hole depth is 110 ft. In general the rock was tight and takes were small. However several open joints were found in the abutments. These were grouted to refusal and check holes drilled and grouted.

Alternative types of dams considered in selecting a concrete face rock fill included a thick arch structure, a concrete gravity dam or a central core embankment dam. The concrete face rockfill was selected because of its excellent resistance to earthquake, relative cost, lack of suitable earth core material, and topographic constraints, especially space for the upstream cofferdam. Slopes upstream and downstream were established at 1.6H to 1V to restrict deformation under the MCE 90.75 *g* horizontal to acceptable limits.

## 2.4 SPILLWAY

The spillway is an ungated concrete gravity section with side slopes of 3H to 1OV' upstream and 8H to 10V downstream.

Crest length is 175 ft. at elevation 1180.00. Overall length of the spillway is 275 ft. Spillway discharge at PMF would be 23,800 cfs at a lake level of El 1190.6. A drainage and grouting gallery extends the full length of the spillway at or just above rock level. Access to this gallery is from the left abutment. A single line grout curtain having a depth of 30 to 50 ft. below rock surface inclined 20° upstream and fanning into both abutments was constructed. Drain holes are 3 inches diameter, five feet on centers, and 30 ft. deep except at the right abutment where a fan of holes 50 ft. to 60 ft. long were drilled. All seepage from the spillway drainage system is collected and discharged over a vee notch weir to permit monitoring.

Ice loading causes some tension in the upstream face at about El 1170. Accordingly reinforcing was placed in the upstream face. Dynamic analyses using the hybrid accelogram confirmed that stresses arc within allowable and no lateral displacement of the spillway would occur under the MCE.

The spillway was model tested at Colorado State University. The model extended from well upstream of the power tunnel intake to well downstream of the main dam. Water velocities

along the toe of the main dam were measured and riprap along the downstream toe sized to prevent erosion in the event of spillway operations.

## 2.5 POWER TUNNEL & INTAKE

The power tunnel system consists of an upper tunnel 738 ft. long extending from the intake through the upper elbow, a vertical shaft 647 ft. deep and a lower elbow and lower tunnel with a total length of 17,767 ft. The lower tunnel is on a 1.67% grade. The intake channel is about 350 ft. long, and the bottom at the intake is at El 1030. Dual high-pressure gates are installed in the upper tunnel about 520 ft. downstream of the tunnel portal in a vertical drywell. The gates are hydraulically actuated. An accumulator bank rides on the hydraulic system. This is sized to permit closing each gate without recharging even in the event of complete loss of power.

Provision is made for stoplogs at the intake portal. The same stoplogs can also be used at the intake portal of the diversion tunnel. A rock trap is provided just upstream of the intake portal.

The downstream 435 ft. of the lower tunnel is designated the manifold section. This section contains three wye-branch penstocks which extend to the powerhouse. Two are in service and one is closed by a hemispherical head to be used for a future third unit. The downstream end of the manifold is closed with a hemispherical head which can he removed as necessary for access to the tunnel. The manifold-penstock section and downstream portion of the tunnel for 2725 ft. upstream of the manifold are steel liner encased in concrete. Inside diameter of this section is 11 ft. Four drain pipes are located outside of the steel liner in the concrete encasement. Drain holes extend from these drains into rock at intervals of 10 and 20 ft. Seepage from these drains is collected and passed through the powerhouse where it can be measured. The remainder of the lower tunnel is 13 ft. ID with a 12 inch thick concrete lining. The vertical shaft and upper tunnel are 11 ft. ID lined with concrete.

The manifold-penstock section was pressure tested at 960 psi (1.9 times static head) for 1 hour before encasing it in concrete. There were no indications of distress, and distortions were very small and acceptable.

In situ horizontal stresses in the rock are low. To protect against possible hvdro-splitting of the rock by leakage from the tunnel, the steel lining was carried to Sta. 31+58 where rock cover was equal to 0.8 of the static head. The concrete lining was reinforced to Sta 38+60. From Sta. 31+60 to Sta. 35+60 the rock was high pressure grouted (500 psi) using squeeze grouting procedures. Selected areas of the remainder of the lower tunnel were also reinforced. High pressure grouting (250 psi) was done from Sta 35+60 to 38+60 and at selected areas to Sta 64+00 to ensure that open joints intersecting or close to the tunnel were filled with high strength grout. The tunnel was first filled to the then reservoir level, El 1076, in May 1991. A falling head test for a 12 hour duration was made in late May which showed an average leakage of only 58 gpm.

## 2.6 POWERHOUSE

The powerhouse has a concrete substructure with steel framed superstructure. It is founded entirely in rock, and the tailrace excavation is in rock for a modest distance away from the powerhouse. The powerhouse has been designed for safety against excessive structural stresses, sliding, overturning or flotation. Loading conditions include MCE, (0.75g) DBE (0.35 g), high tides, storm high tide, tsunami, and various plant conditions such as in operation, servicing, and construction including appropriate factors of safety.

## 2.7 DIVERSION TUNNEL

The diversion tunnel is approximately 407.5 ft. long and is located in the high rock spur between the spillway and the main darn. It has been converted to a low level outlet which is normally closed by a dual system of high pressure slide gates located in a deep dry well shaft. The tunnel is lined with concrete from the upstream portal to downstream of the gate shaft. Gate operation is by hydraulic actuators. There is a bank of accumulators which can open each gate completely in the event of loss of all power. The gates discharge through a steel penstock 10.5 ft. in diameter which extends past the downstream portal of the tunnel. Two 28 inch diameter steel pipes encased in concrete extend through the entire length of the tunnel. These discharge through a system of 7 motor operated valves of different sizes so arranged that fish water releases can be made from the reservoir as necessary to maintain required flows in the Lower Bradley River of 40 to 100 cfs at Riffle Reach.

## 2.8 DIVERSIONS INTO BRADLEY LAKE

As a part of the original development of the Project, the Middle Fork of the Bradley River, a portion of the outflow from the Nuka Glacier, and the East Fork of Upper Battle Creek were diverted into the reservoir. The Battle Creek Diversion was expanded to include the West Fork of Upper Battle Creek (WFUBC) with construction of the WFUBC Diversion Project occurring in 2018-2020.

### 2.8.1 Middle Fork Diversion

The Middle Fork Diversion is located approximately one mile north of Bradley Lake in an adjacent drainage at elevation 2160 on the Middle Fork Tributary of the Bradley River. The Diversion consists of a small intake basin and two reaches of open channel approximately 760 feet and 483 feet long, separated by a stilling basin which is located in a natural bog area, all of which were established by excavation. The Diversion conveys water from the Middle Fork of the Bradley River to Marmot Creek, a tributary to Bradley Lake, and operates in all seasons.

### 2.8.2 Nuka Diversion

Glacial melt forms a pond called Nuka Pool at the terminus of the Nuka Glacier. Nuka Pool lies on the divide between two drainages, discharging water both into the Upper Bradley River and into the Nuka River. Water discharged into the Upper Bradley River flows to Bradley Lake and that which is discharged to the Nuka River flows to the Kenai Fiords National Park.

The purpose of the Nuka Diversion is to cause the glacial melt water flowing through the Nuka Pool to flow in the upper Bradley River, except of an initial increment of flow which must be provided to the Nuka River in accordance with the June 1986 Contract between the Alaska Energy Authority and the U.S. Department of Interior. In compliance with this Contract, the design must assure that when flows are available in the Nuka Pool, 5 cfs will be diverted to the Nuka River prior to any diversion of water to the Upper Bradley River.

To accomplish this, flow from the Nuka Pool to the Upper Bradley River passes over a long, uniform weir constructed by modifying the naturally occurring rock weir at the pool outlet. At the Nuka River outlet of the pool, water is constrained to flow through a 12-inch steel pipe in a gabion dike. This pipe has been sized such that it will discharge 5 cfs when the Nuka Pool level is at the elevation of the Bradley-side weir crest and flow is about to commence to the Upper Bradley River. No flow is allowed to enter the Upper Bradley River from the Nuka Pool until 5 cfs enters the

Nuka River. A second, identical pipe is also provided. This second pipe ensures flows if the first pipe becomes inoperative and needs to be repaired. It may also be used to augment flows.

### 2.8.3 Upper Battle Creek Diversion

The East Fork Upper Battle Creek (EFUBC) Diversion is located at elevation 1342 approximately 0.7 miles south-southeast of Bradley Lake Darn and diverts a small tributary of Upper Battle Creek into the reservoir adding 0.9 square miles of drainage area to the Project.

As part of the construction of the WFUBC Diversion, the EFUBC Diversion consists of a small. talus dike along the west side of the channel directing flows to a new (2018) excavated channel at the base of a waterfall. The flow is directed to join the WFUBC discharge in the first of three interconnected ponds as the flow drops about 150 feet to Bradley Lake. During the initial construction of EFUBC Diversion approximately 300 feet of ditch was excavated at the first pond to reverse the direction of the flow into the reservoir.

The WFUBC Diversion was constructed in 2018-2020. The diversion captures flows from the 7.56 square mile WFUBC basin above the diversion. The diversion operates from spring thaw until winter freeze-up and is shut down during the winter. A 30-inch bypass gate and pipe serve to maintain the minimum instream flows of 5 to 25 cubic feet per second. The next 600 cfs of flow is diverted from the Battle Creek drainage to Bradley Lake through a pipeline that conveys the water to the EFUBC Diversion area. Stream flows exceeding the pipeline capacity flow over the spillway and remain in the Battle Creek drainage.

The diversion structure is a rockfill embankment with a concrete core wall. The top of the core wall serves as the spillway crest and the downstream slope of the dam is concrete-faced to protect the rockfill from spillway flows. The spillway crest is at Elevation 1696.0 and the dam height is 22 feet from the foundation to the spillway crest. The abutment walls are at Elevation 1701.0, five feet above the spillway crest. The diversion pipeline inlet is regulated with a 96 inch slide gate. The pipeline consists of 617 feet of fiber reinforced polymer (FRP) intake transition piping ranging in size from 96-inches to 72-inches; the conveyance pipeline is 8,324 feet of 63-inch High Density Polyethylene (HDPE) pipe and the outfall transition is 330 feet of 84-inch FRP pipe. The transitions are buried within the access road and the conveyance pipe is set on the access road bench and covered with gravel. New access roads included a 0.97 mile Lower Access Road from the Bradley Dam Road to the pipeline outfall, and a 1.90 mile Upper Access Road that contains the pipeline from the outfall to the diversion.

## 2.9 Permanent Facilities

To accommodate for the needs of on-site personnel, the project is provided with two 32' x 82' duplex living quarters, a 43' x 50' office/transient worker residence building, a 50' x 160' shop-warehouse and a fenced storage yard which also contains an unheated storage incinerator building.

## 2.10 Project Airstrip

The project airstrip is incorporated into the permanent project road system between the barge dock and permanent facilities.

The strip is 2400 ft. long and 75 ft. wide and is equipped with plane lights, a taxi and parking apron, weather building and warning lights.

The airstrip is designed for VFR use only and is not open to the public.

## 2.11 BARGE DOCK

Water access to the project is from a dock facility consisting of five (S) 53 ft. diameter sheet pile cells placed out into the tidal flats of Kachemak Bay. A rockfill, gravel-surfaced causeway extending some 700 ft. from the shoreline connects the barge dock cells to the project access road at the bay shore. Use of this facility is available only during half tides and greater.

A small, aluminum floating dock is attached to the sheet pile cells to provide mooring for skiffs belonging to the public. This small dock is removed each winter to prevent it from being damaged by ice.

## 2.12 TRANSMISSION LINE

Two parallel and separate single circuit 115 kV transmission lines, each about 20

miles long, connect to the substation at the powerhouse and carry the power generated to the Fritz Creek-Soldotna 115 kV Transmission Line owned by Homer Electric Association. Inc. The point of connection for these two lines is designated as the Bradley Junction.

The Bradley Lake transmission line towers are guyed, X-configuration towers manufactured of Corten type steel. The conductor is 556 kcmil, 42/19 Aluminum/Steel "Special Dove".

## 2.13 ROADS

About 10.8 miles of gravel surface access roads were constructed as part of the original (1989-1991) project and connect the powerhouse, permanent facilities, airstrip, dam site and other project areas. An additional 2.8 miles of gravel surface access roads were constructed in 2018-2020 for the West Fork Upper Battle Creek Diversion, resulting in total gravel roads of 13.6 miles.

## 2.14 INSTRUMENTATION

Settlement and deflection of the main dam are monitored by two rows of monuments set on the upstream face at approximately mid-height of the face and just below the parapet; and three monuments set in the rock fill along the upstream side or the El 1077 berm. Three monuments are set in the crest of the spillway. Instrument pedestals were established along these several lines of monuments. The instrument pedestals are referenced to four primary survey monuments set in rock.

Seepage into the spillway drainage gallery is collected and discharged over a vee notch weir. Main dam leakage is estimated by deducting fish water releases and spillway seepage from the flow recorded at the USGS gaging station just downstream of the dam.

Four exploratory borings along the line of the tunnel have been converted to open standpipe piezometers to measure groundwater levels above the tunnel.

A strong motion seismograph has been installed on rock at the dam. This is linked by telephone to the Geophysical institute of the University of Alaska at Fairbanks. All monitoring of earthquake vibration is done by the institute. Seepage flow from the drain system around the steel lining in the tunnel is monitored in the powerhouse.

## 3.0 INITIAL FILLING OF RESERVOIR

Filling of the reservoir started October 30, 1990, but was suspended shortly thereafter to meet the fisheries minimum flow requirements. As the hydrograph began to rise the following spring, filling was resumed. The initial rate of filling was slow but accelerated during the summer of 1991. Water level reached full pool during a severe storm in late September 1991. Spilling started on September 27 and continued for 8 days with about 0.5 ft. depth passing over the spillway. The winds during this storm were heavy. Waves splashed over the spillway and to some extend over the parapet wall of the dam. These caused no damage.

Measured deflections and settlements of the main dam during filling were very small, maximum displacements being:

| | | |
|---|---|---|
| **Crest Settlement** | 0.02 ft. | |
| **Displacement** | 0.03 ft. | downstream |
| **Upstream face settlement** | 0.04 ft. | |
| **Displacement** | 0.02 ft. | downstream |
| **Downstream bench settlement** | 0.07 ft. | |
| **Displacement** | 0.01 ft. | |

The settlement and deflection of the crest are only about 0.03% of the dam height. There was no detectable seepage through the dam.

## 4.0 POWER HOUSE STARTUP

The units were turned over for pre-operational testing in March 1991. Unit 2 was first rotated on May 15, 1991, and Unit 1 on May 18, 1991. The units were released to Chugach Electric Association in Anchorage, Alaska for dispatch on August 1, 1991, and the plant declared in Commercial Operation on September 1, 1991.

# 5.0 PROJECT LANDS

On the basis of the project boundary shown in Exhibit G, the acreage of the lands belonging to the State of Alaska are tabulated below:

| | | Section | Exhibit G Plate | Project Acres | Transmission Line ROW | Project Acres | Transmission Line ROW |
|---|---|---|---|---|---|---|---|
| T3S | R10W | 27 | G-2 | 9 | 9 | | |
| | | 28 | G-2 | 45 | 45 | | |
| | | 29 | G-2 | 45 | 45 | | |
| | | 30 | G-2 | 42 | 42 | | |
| | | 34 | G-2 | 41 | 41 | | |
| | | 35 | G-2 | 50 | 50 | | |
| | | 36 | G-2 | 35 | 35 | | |
| | | | | | | **267** | **267** |
| T3S | R11W | 21 | G-3 | 12 | 12 | | |
| | | 22 | G-3 | 42 | 42 | | |
| | | 23 | G-3 | 26 | 26 | | |
| | | 25 | G-3 | 42 | 42 | | |
| | | 26 | G-3 | 21 | 21 | | |
| | | 28 | G-3 | 32 | 32 | | |
| | | 29 | G-3 | 42 | 42 | | |
| | | | | | | **217** | **217** |
| T4S | R9W | 6 | G-4 | 39 | 39 | | |
| | | 7 | G-4 | 24 | 24 | | |
| | | 8 | G-4 | 30 | 30 | | |
| | | 17 | G-5 | 43 | 43 | | |
| | | 19 | G-5 | 14 | 14 | | |
| | | 20 | G-5 | 29 | 29 | | |
| | | 30 | G-5 | 56 | 56 | | |
| | | 31 | G-5 | 5 | 5 | | |
| | | | | | | **240** | **240** |
| T4S | R10W | 1 | G-4 | 15 | 15 | | |
| | | 35 | G-6 | 155 | | | |
| | | 36 | G-6 | 121 | 41 | | |
| | | | | | | **291** | **56** |
| T5S | R8W | 19 | G-8 | 386 | | | |
| | | 20 | G-8 | 90 | | | |
| | | 29 | G-8 | 6 | | | |
| | | 30 | G-8 | 136 | | | |
| | | 31 | G-8 | 311 | | | |
| | | | | | | **929** | **0** |
| T5S | R9W | 3 | G-7 | 40 | | | |
| | | 6 | G-7 | 5 | | | |
| | | 7 | G-7 | 130 | | | |
| | | 8 | G-7 | 368 | | | |

| | | Section | Exhibit G Plate | Project Acres | Transmission Line ROW | Project Acres | Transmission Line ROW |
|---|---|---|---|---|---|---|---|
| T5S | R9W | 9 | G-7 | 191 | | | |
| | | 10 | G-7 | 375 | | | |
| | | 11 | G-7 | 7 | | | |
| | | 14 | G-7 | 401 | | | |
| | | 15 | G-7 | 577 | | | |
| | | 16 | G-7 | 238 | | | |
| | | 17 | G-7 | 420 | | | |
| | | 18 | G-7 | 169 | | | |
| | | 19 | G-7 | 208 | | | |
| | | 20 | G-7 | 28 | | | |
| | | 22 | G-8 | 130 | | | |
| | | 23 | G-8 | 547 | | | |
| | | 24 | G-8 | 557 | | | |
| | | 25 | G-8 | 363 | | | |
| | | 26 | G-8 | 15 | | | |
| | | 36 | G-8 | 14 | | | |
| | | | | | | **4,783** | **0** |
| T5S | R10W | 1 | G-6 | 26 | | | |
| | | 2 | G-6 | 129 | | | |
| | | 3 | G-6 | 402 | | | |
| | | 9 | G-6 | 269 | | | |
| | | 10 | G-6 | 399 | | | |
| | | 11 | G-6 | 230 | | | |
| | | 12 | G-7 | 65 | | | |
| | | 13 | G-7 | 42 | | | |
| | | 14 | G-6 | 2 | | | |
| | | | | | | **1,564** | **0** |
| T6S | R8W | 6 | G-8 | 240 | | | |
| | | | | | | **240** | **0** |
| | | | | | | | |
| | | | | | **TOTAL PROJECT ACRES** | **8,531** | **780** |

Table A-1: Bradley Lake Hydroelectric Project Data

| | |
|---|---|
| **Dam** | Concrete-faced rockfill, 600 feet long, 125 feet high, 360,000 cubic yards rockfill, and 10,800 cubic yards concrete |
| **Spillway** | Ungated concrete ogee section, 175 feet long (11,000 cubic yards concrete) |
| **Power Tunnel** | 13-foot nominal diameter, fully concrete lined, approximately 19,152 feet in length |
| **Diversion Tunnel** | 21-foot horseshoe concrete lines/penstock tunnel, 407.5 feet long |
| **Penstock** | Steel, 9-foot diameter with 6 ½ foot diameter branches |
| **Middle Fork Diversion** | 1,517 foot diversion includes upper and lower channels with intake basin and stilling basin |
| **Nuka Diversion** | 2 diversion and control dikes, pilot channel and outlet weir |
| **Battle Creek Diversion** | 300 foot diversion channel with intake basin, talus diversion weir |
| **Airstrip** | Gravel surface airstrip 2,400 ft. long by 75 feet wide incorporated into access road |
| **Annual Firm Energy** | 329 gigawatt hrs. |
| **Average Annual Energy** | 376 gigawatt hrs. |
| **Transmission Line** | 115 kilovolt, two parallel lines, 20 miles long |
| **Barge Dock** | Sheet pile cells, granular fill |
| **Access Roads** | 13.6 miles, gravel |
| **Powerhouse** | Surface, steel superstructure, 160 feet long, 80 feet wide, 92 feet high |
| **Turbines** | 2 each Pelton, vertical shaft, 90,170 horsepower maximum |
| **Generators** | 2 each Rated output at maximum operating pool is 63 MVA |
| **Governors** | 2 each Emerson digital |