GRUENING PARK LIFT STATION
STAND ALONE LIFT STATION

Contract No. BE21-264

File No. 1826

CITY AND BOROUGH OF JUNEAU
ALASKA'S CAPITAL CITY

ENGINEERING DEPARTMENT

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SECTION 00030 NOTICE INVITING BIDS

OBTAINING CONTRACT DOCUMENTS. The Contract Documents are entitled:

Gruening Park Lift Station Stand Alone Lift Station
Contract No. BE21-264

The Contract Documents may be downloaded for free at the CBJ Engineering Department webpage at: https://juneau.org/engineering-public-works/current-bids-and-rfps

PRE-BID CONFERENCE. Prospective Bidders are encouraged to attend a Pre-Bid conference of the proposed WORK, which will be conducted by the OWNER and ENGINEER, at 10:00 a.m. on June 24, 2021, via teleconference. The object of the conference is to acquaint Bidders with the bid documents and site conditions. Prospective bidders intending to participate shall email contracts@juneau.org by 4:30 p.m., June 23, 2021, to obtain the call-in instructions.

DESCRIPTION OF WORK. The WORK covered in the Contract Documents includes installing approximately 50 linear feet of 12-inch diameter High-Density Polyethylene (HDPE) pressure sewer; installation of approximately 70 linear feet of 12-inch diameter Polyvinyl Chloride (PVC) gravity sewer and new sewer manhole; demolition of an existing sewage lift station including the wet well, valve vault, and associated electrical work; installation of a new a sewage pump station with submersible pumps, new wet well, valve vault, along with associated electrical work; and, installation of a new portable generator, pump controls, pump controls rack, along with associated electrical work; and site development including earthwork and paving with associated site utilities; and other miscellaneous items of work.

COMPLETION OF WORK. The WORK must be completed by October 1, 2021

DEADLINE FOR BIDDER QUESTIONS: 4:30 p.m. on June 29, 2021.

DEADLINE FOR BIDS: Sealed bids must be received by the Purchasing Division **prior to 2:00 p.m., Alaska Time on July 6, 2021,** or such later time as may be announced by addendum at any time prior to the deadline. Bids will be time and date stamped by the Purchasing Division, which will establish the official time of receipt of bids. Bids will be opened immediately thereafter in the Assembly Chambers of the Municipal Building, 155 S. Seward Street, unless otherwise specified. Bidders may attend this bid opening on the conference call line 907-713-2140, with participant code 258358.

Bid documents delivered in person or by **courier** service must be delivered to:

PHYSICAL LOCATION:
City and Borough of Juneau, Purchasing Division
105 Municipal Way, Room 300
Juneau, AK 99801

Bid documents delivered by **U.S. Postal Service** must be mailed to:

MAILING ADDRESS:
City and Borough of Juneau, Purchasing Division
155 South Seward Street
Juneau, AK 99801

Please affix the label below to outer envelope in the lower left hand corner.

IMPORTANT NOTICE TO BIDDER		
To submit your Bid: 1. Print your company name and address on the upper left corner of your envelope. **2. Complete this label and place it on the lower left corner of your envelope.**		
S **E** **A** **L** **E** **D**	**BID NUMBER:** BE21-264 **SUBJECT:** Gruening Park Lift Station Stand Alone Lift Station **DEADLINE DATE:** _____ **PRIOR TO 2:00PM ALASKA TIME**	**B** **I** **D**

Mailing/delivery times to Alaska may take longer than other areas of the U.S. Late bids will not be accepted and will be returned.

SITE OF WORK. The site of the WORK is located off Glacier Highway near Northwood Drive.

BIDDING, CONTRACT, or TECHNICAL QUESTIONS. All communications relative to this WORK, prior to opening Bids, shall be directed to the following:

Greg Smith, Contract Administrator
CBJ Engineering Department, 3rd Floor, Marine View Center
Email: greg.smith@juneau.org
Telephone: (907) 586-0800 ext. 4194
Fax: (907) 586-4530

BID SECURITY. Each Bid shall be accompanied by a certified or cashier's check or Bid Bond, in the amount of 5% percent of the Bid, payable to the City and Borough of Juneau, Alaska, as a guarantee that the Bidder, if its Bid is accepted, will promptly execute the Agreement. A Bid shall not be considered unless one of the forms of Bidder's security is enclosed with it.

CONTRACTOR'S LICENSE. All contractors are required to have a current Alaska Contractor's License, prior to submitting a Bid, and a current Alaska Business License prior to award.

BID TO REMAIN OPEN. The Bidder shall guarantee the Bid for a period of 120 Days from the date of Bid opening. Any component of the Bid including the additive alternate may be awarded anytime during the 120 Days.

OWNER'S RIGHTS RESERVED. The OWNER reserves the right to reject any or all Bids, to waive any informality in a Bid, and to make award to the lowest responsive, responsible Bidder as it may best serve the interests of the OWNER.

OWNER: City and Borough of Juneau

By: _____ 6/11/2021
Greg Smith, Contract Administrator — Date

END OF SECTION

SECTION 00100 - INSTRUCTIONS TO BIDDERS

1.0 DEFINED TERMS. Terms used in these Instructions to Bidders and the Notice Inviting Bids, which are defined in the General Conditions, have the meanings assigned to them in the General Conditions. The term "Bidder" means one who submits a Bid directly to the OWNER, as distinct from a sub-bidder, who submits a Bid to a Bidder.

2.0 INTERPRETATIONS AND ADDENDA.

A. INTERPRETATIONS. All questions about the meaning or intent of the Contract Documents are to be directed to the Engineering Contracts Administrator. Interpretations or clarifications considered necessary by the Engineering Contracts Administrator in response to such questions will be issued by Addendum, mailed, faxed, or delivered to all parties recorded by the Engineering Contracts Administrator, or OWNER, as having received the Contract Documents. Questions received less than seven Days prior to the Deadline for Bids may not be answered. Only questions answered by formal written Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect.

B. ADDENDA. Addenda may be issued to modify the Contract Documents as deemed advisable by the OWNER. Addenda may be faxed or, if addendum format warrants, addenda may be posted to the CBJ Engineering Department website. In any event, notification of addendum issuance will be faxed to planholders. Hard copies are available upon request. The OWNER will make all reasonable attempts to ensure that all planholders receive notification of Addenda, however, it is strongly recommended by the OWNER that bidders independently confirm the contents, number, and dates of each Addendum prior to submitting a Bid.

3.0 FAIR COMPETITION. More than one Bid from an individual, firm, partnership, corporation, or association under the same or different names will not be considered. If the OWNER believes that any Bidder is interested in more than one Bid for the WORK contemplated, all Bids in which such Bidder is interested will be rejected. If the OWNER believes that collusion exists among the Bidders, all Bids will be rejected.

4.0 RESPONSIBILITY OF BIDDERS. Only responsive Bids from responsible Bidders will be considered. A Bid submitted by a Bidder determined to be not responsible may be rejected. The OWNER may find a bidder to be not responsible for any one of the following reasons, but is not limited in its responsibility analysis to the following factors:

A. Evidence of bid rigging or collusion;

B. Fraud or dishonesty in the performance of previous contracts;

C. Record of integrity;

D. More than one bid for the same work from an individual, firm, or corporation under the same or different name;

E. Unsatisfactory performance on previous or current contracts;

F. Failure to pay, or satisfactorily settle, all bills due for labor and material on previous contracts;

G. Uncompleted work that, in the judgment of the OWNER, might hinder or prevent the bidder's prompt completion of additional work, if awarded;

H. Failure to reimburse the OWNER for monies owed on any previous contracts;

I. Default under previous contracts;

J. Failure to comply with any qualification requirements of the OWNER; special standards for responsibility, if applicable, will be specified. These special standards establish minimum standards or experience required for a responsible Bidder on a specific contract;

K. Engaging in any activity that constitutes a cause for debarment or suspension under the CBJ Procurement Code 53.50 or submitting a bid during a period of debarment;

L. Lack of skill, ability, financial resources, or equipment required to perform the contract; or

M. Lack of legal capacity to contract.

N. Bidders must be registered as required by law and in good standing for all amounts owed to the OWNER per Paragraph 21.0 of this Section.

O. Failure to submit <u>all</u> completed documents as required and specified on the Bid Form, Section 00300.

Nothing contained in this section deprives the OWNER of its discretion in determining the lowest responsible bidder. Before a Bid is considered for award, a Bidder may be requested to submit information documenting its ability and competency to perform the WORK, according to general standards of responsibility and any special standards which may apply. It is Bidder's responsibility to submit sufficient, relevant, and adequate information. OWNER will make its determination of responsibility and has no obligation to request clarification or supplementary information.

5.0 NON-RESPONSIVE BIDS. Only responsive Bids will be considered. Bids may be considered non-responsive and may be rejected. Some of the reasons a Bid may be rejected for being non-responsive are:

A. If a Bid is received by the CBJ Purchasing Division after the Deadline for Bids.

B. If the Bid is on a form other than that furnished by the OWNER, or legible copies thereof; or if the form is altered or any part thereof is detached; or if the Bid is improperly signed.

C. If there are unauthorized additions, conditional or alternate Bids, or irregularities of any kind which may tend to make the bid incomplete, indefinite, ambiguous as to its meaning, or in conflict with the OWNER's Bid document.

D. If the Bidder adds any unauthorized conditions, limitations, or provisions reserving the right to accept or reject any award, or to enter into a contract pursuant to an award. This does not exclude a Bid limiting the maximum gross amount of awards acceptable to any one Bidder at any one Bid opening, provided that any selection of awards will be made by the OWNER.

E. If the Bid does not contain a Unit Price for each pay item listed, except in the case of

authorized alternate pay items.

F. If the Bidder has not acknowledged receipt of each Addendum.

G. If the Bidder fails to furnish an acceptable Bid guaranty with the Bid.

H. If any of the Unit Prices Bid are excessively unbalanced (either above or below the amount of a reasonable Bid) to the potential detriment of the OWNER.

I. If a Bid modification does not conform to Article 15.0 of this Section.

6.0 BIDDER'S EXAMINATION OF CONTRACT DOCUMENTS AND SITE. It is the responsibility of each Bidder before submitting a Bid:

A. To examine thoroughly the Contract Documents, and other related data identified in the Bidding documents (including "technical data" referred to below):

1. To visit the site to become familiar with and to satisfy the Bidder as to the general and local conditions that may affect cost, progress, or performance, of the WORK,
2. To consider federal, state and local laws and regulations that may affect cost, progress, or performance of the WORK,
3. To study and carefully correlate the Bidder's observations with the Contract Documents, and other related data; and
4. To notify the ENGINEER of all conflicts, errors, or discrepancies in or between the Contract Documents and such other related data.

7.0 REFERENCE IS MADE TO THE SUPPLEMENTARY GENERAL CONDITIONS FOR IDENTIFICATION OF:

A. Those reports of explorations and tests of subsurface conditions at the site which have been utilized by the Engineer of Record in the preparation of the Contract Documents. The Bidder may rely upon the accuracy of the technical data contained in such reports, however, the interpretation of such technical data, including any interpolation or extrapolation thereof, together with non-technical data, interpretations, and opinions contained therein or the completeness thereof is the responsibility of the Bidder.

B. Those Drawings of physical conditions in or relating to existing surface and subsurface conditions (except underground utilities) which are at or contiguous to the site have been utilized by the Engineer of Record in the preparation of the Contract Documents. The Bidder may rely upon the accuracy of the technical data contained in such Drawings, however, the interpretation of such technical data, including any interpolation or extrapolation thereof, together with nontechnical data, interpretations, and opinions contained in such Drawings or the completeness thereof is the responsibility of the Bidder.

C. Copies of such reports and Drawings will be made available by the OWNER to any Bidder on request if said reports and Drawings are not bound herein. Those reports and Drawings are not part of the Contract Documents, but the technical data contained therein upon which the Bidder is entitled to rely, as provided in Paragraph SGC-4.2 of the Supplementary General Conditions, are incorporated herein by reference.

D. Information and data reflected in the Contract Documents with respect to underground utilities at or contiguous to the site is based upon information and data furnished to the OWNER and the Engineer of Record by the owners of such underground utilities or others, and the OWNER does not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary General Conditions, or in Section 01530 - Protection and Restoration of Existing Facilities of the General Requirements.

E. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders on subsurface conditions, underground utilities and other physical conditions, and possible changes in the Contract Documents due to differing conditions appear in Paragraphs 4.2, 4.3, and 4.4 of the General Conditions.

F. Before submitting a Bid, each Bidder will, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests, and studies and obtain any additional information and data which pertain to the physical conditions (surface, subsurface, and underground utilities) at or contiguous to the site or otherwise which may affect cost, progress, or performance of the WORK and which the Bidder deems necessary to determine its Bid for performing the WORK in accordance with the time, price, and other terms and conditions of the Contract Documents.

G. On request in advance, the OWNER will provide each Bidder access to the site to conduct such explorations and tests as each Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and shall clean up and restore the site to its former condition upon completion of such explorations.

H. The lands upon which the WORK is to be performed, rights-of-way and easements for access thereto and other lands designated for use by the CONTRACTOR in performing the WORK are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by the CONTRACTOR. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by the OWNER unless otherwise provided in the Contract Documents.

I. The submission of a Bid will constitute an incontrovertible representation by the Bidder that the Bidder has complied with every requirement of Article 6.0, "Bidder's Examination of Contract Documents and Site" herein, that without exception the Bid is premised upon performing the WORK required by the Contract Documents and such means, methods, techniques, sequences, or procedures of construction as may be indicated in or required by the Contract Documents, and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the WORK.

8.0 BID FORM.

A. The Bid shall be made on the Bid Schedule(s) bound herein, or on the yellow Bid packet provided, or on legible and complete copies thereof, and shall contain the following: Sections 00300, 00310, the required Bid Security, and any other documents required in Section 00300 – Bid.

B. All blanks on the Bid Form and Bid Schedule must be completed in ink or typed.

C. Bids by corporations must be executed in the corporate name by the president, a vice-president (or other corporate officer). The corporate address and state of incorporation must appear below the signature.

D. Bids by partnerships must be executed in the partnership name and be signed by a managing partner, and the official address of the partnership must appear below the signature.

E. The Bidder's Bid must be signed. All names must be printed or typed below the signature.

F. The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid form. Failure to acknowledge Addenda may render Bid non-responsive and may cause its rejection.

G. The address to which communications regarding the Bid are to be directed must be shown.

9.0 QUANTITIES OF WORK. The quantities of WORK, or material, stated in Unit Price items of the Bid are supplied only to give an indication of the general scope of the WORK; the OWNER does not expressly or by implication agree that the actual amount of WORK, or material, will correspond therewith, and reserves the right after award to increase or decrease the amount of any Unit Price item of the WORK by an amount up to and including 25 percent of any Bid item, without a change in the Unit Price, and shall include the right to delete any Bid item in its entirety, or to add additional Bid items up to and including an aggregate total amount not to exceed 25 percent of the Contract Price (see Section 00700 - General Conditions, Article 10 Changes In the WORK).

10.0 SUBSTITUTE OR "OR-EQUAL" ITEMS. Substitution requests are not accepted during the bidding process. The procedure for the submittal of substitute or "or-equal" products is specified in Section 01300 – Contractor Submittals.

11.0 SUBMISSION OF BIDS. The Bid shall be delivered by the time and to the place stipulated in Section 00030 - Notice Inviting Bids. It is the Bidder's sole responsibility to see that its Bid is received in proper time. Oral, telegraphic, emailed, or faxed Bids will not be considered. The envelope enclosing the sealed Bids shall be plainly marked in the upper left-hand corner with the name and address of the Bidder and shall also include the label included in Section 00030 – Notice Inviting Bids. The Bid Security shall be enclosed in the same envelope with the Bid

12.0 BID SECURITY, BONDS, AND INSURANCE. Each Bid shall be accompanied by a certified, or cashier's check, or approved Bid Bond in an amount of at least 5 percent of the total Bid price. The "total Bid price" is the amount of the Base Bid, plus the amount of alternate Bids, if any, which total to the maximum amount for which the CONTRACT could be awarded. Said check or Bond shall be made payable to the OWNER and shall be given as a guarantee that the Bidder, if offered the WORK, will enter into an Agreement with the OWNER, and will furnish the necessary insurance certificates, Payment Bond, and Performance Bond; each of said Bonds, if required, and insurance amounts shall be as stated in the Supplementary General Conditions. In case of refusal or failure to enter into said Agreement, the check or Bid Bond, as the case may be, may be forfeited to the OWNER. If the Bidder elects to furnish a Bid Bond as its Bid security, the Bidder shall use the Bid Bond form bound herein, or one conforming substantially to it in form. Bid Bonds must be accompanied by a legible Power of Attorney.

13.0 RETURN OF BID SECURITY. The OWNER will return all Bid security checks (certified or cashier's) accompanying such of the Bids as are not considered in making the award. All other Bid securities will be held until the Agreement has been executed. Following execution of the Agreement, all other Bid security checks will be returned to the respective Bidders whose Bids they accompanied and Bid security bonds will be appropriately discarded.

14.0 DISCREPANCIES IN BIDS. In the event there is more than one Pay Item in a Bid Schedule, the Bidder shall furnish a price for all Pay Items in the schedule, and failure to do so may render the Bid non-responsive and cause its rejection. In the event there are Unit Price Pay Items in a Bid Schedule and the "amount" indicated for a Unit Price Bid Item does not equal the product of the Unit Price and quantity, the Unit Price shall govern and the amount will be corrected accordingly, and the Bidder shall be bound by said correction. In the event there is more than one Pay Item in a Bid Schedule and the total indicated for the schedule does not agree with the sum of the prices Bid on the individual items, the prices Bid on the individual items shall govern and the total for the schedule will be corrected accordingly, and the Bidder shall be bound by said correction.

15.0 BID MODIFICATIONS AND UNAUTHORIZED ALTERNATIVE BIDS.

A. Any bidder may deliver a modification to a bid in person, by mail or fax (907-586-4561), provided that such modification is received by the Purchasing Division no later than the deadline for bids. Modifications will be time and date stamped by the Purchasing Division, which will establish the official time of receipt of the modification. The modification must not reveal the bid price but should be in the form of an addition or subtraction or other modification so that the final prices will not be known until the sealed bid is opened.

The Bid modifications shall be provided on the **Bid Modification Form** located at the end of this Section. Submittal of any other form by the vendor may deem the modification unacceptable by the OWNER **A mail or fax modification should not reveal the Bid price but should provide the addition or subtraction or other modification so that the final prices will not be known by the City and Borough until the sealed Bid is opened.** Submitted Modification forms shall include the modification to the unit price or lump sum amount of each pay item modified.

FAX DISCLAIMER: It is the responsibility of the bidder to submit modifications in a timely manner. Bidders' use of a fax machine to modify their bid shall be at bidders' sole risk. The Purchasing Division will attempt to keep the fax machine in good working order but will not be responsible for bid modifications that are late due to mechanical failure, a busy fax machine, or any other cause arising from bidder's use of a fax machine, even if bidder submits a transmission report or provides other confirmation indicating that the bidder transmitted a bid modification prior to the deadline. The City will not be responsible for its failure to receive the modification whether such failure is caused by equipment or human error, or otherwise. Bidders are therefore strongly encouraged to confirm receipt of their bid modification with the Purchasing Division (907-586-5215) prior to deadline.

B. Conditioned bids, limitations, or provisos attached to the Bid or bid modification will render it unauthorized and cause its rejection as being non-responsive. The completed Bid forms shall be without interlineations, alterations, or erasures in the printed text. All changes shall be initialed by the person signing the Bid. Alternative Bids will not be considered unless called for.

16.0 WITHDRAWAL OF BID. Prior to the Deadline for Bids, the Bid may be withdrawn by the Bidder by means of a written request, signed by the Bidder or its properly authorized representative. Such written request must be delivered to the place stipulated in the Notice Inviting Bids for receipt of Bids.

17.0 AWARD OF CONTRACT.

A. Award of a contract, if it is awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Technical Specifications and will be made to the lowest responsive, responsible Bidder whose Bid complies with all the requirements prescribed. Unless otherwise specified, any such award will be made within the period stated in the Notice Inviting Bids that the Bids are to remain open. Unless otherwise indicated, a single award will be made for all the Bid items in an individual Bid Schedule.

B. If the OWNER has elected to advertise this Project with a Base Bid and Alternates, the OWNER may elect to award the contract for the Base Bid, or the Base Bid in combination with one or more Alternates selected by the OWNER. In either case, award shall be made to the responsive, responsible bidder offering the lowest total Bid for the WORK to be awarded.

C. Low Bidder will be determined on the basis of the lowest total of the Base Bid plus combinations of Alternates in order of priority as listed below within the limits of available funding.

Priority No.

1. Base Bid and Additive Alternate No. 1
2. Base Bid only

18.0 EXECUTION OF AGREEMENT.

A. All Bids of value greater than $1,000,000 must be approved by the CBJ Assembly. After the CBJ Assembly has approved the award and after the Bid protest period, the OWNER will issue a Notice of Intent to Award to the approved Bidder. The Bidder to whom award is made shall execute a written Agreement with the OWNER on the Agreement form, Section 00500, collect insurance, and shall furnish all certificates and Bonds required by the Contract Documents within 10 Days (calendar) from the date of the Notice of Intent to Award letter.

B. Failure or refusal to enter into the Agreement as herein provided or to conform to any of the stipulated requirements in connection therewith shall be just cause for annulment of the award and forfeiture of the Bid security. If the lowest responsive, responsible Bidder refuses or fails to execute the Agreement, the OWNER may award the contract to the second lowest responsive, responsible Bidder. If the second lowest responsive, responsible Bidder refuses or fails to execute the Agreement, the OWNER may award the contract to the third lowest responsive, responsible Bidder. On the failure or refusal of such second or third lowest Bidder to execute the Agreement, each such Bidder's Bid securities shall be likewise forfeited to the OWNER.

19.0 LIQUIDATED DAMAGES. Provisions for liquidated damages if any, are set forth in Section 00500 - Agreement.

20.0 FILING A PROTEST.

A. A Bidder may protest the proposed award of a competitive sealed Bid by the City and Borough of Juneau. The protest shall be executed in accordance with CBJ Ordinance 53.50.062 PROTESTS and CBJ Ordinance 53.50.080 ADMINISTRATION OF PROTEST. The entire text of the CBJ Purchasing Ordinance can be accessed at the CBJ website, *http://www.juneau.org/law/code/code.php*, or call the CBJ Purchasing Division at (907) 586-5215 for a copy of the ordinance.

B. Late protests shall not be considered by the CBJ Purchasing Officer.

21.0 CONTRACTOR'S GOOD STANDING WITH CBJ FINANCE DEPARTMENT: Contractors must be in good standing with the CBJ prior to award, and prior to any contract renewals, and in any event no later than ***seven business days*** following notification by the CBJ of intent to award. **Good standing** means: all amounts owed to the CBJ are current and the Contractor is not delinquent with respect to any taxes, fees, assessment, or other monies due and owed the CBJ, or a Confession of Judgment has been executed and the Contractor is in compliance with the terms of any stipulation associated with the Confession of Judgment, including being current as to any installment payments due; and Contractor is current in all CBJ reporting obligations (such as sales tax registration and reporting and business personal property declarations). Failure to meet these requirements may be cause for rejection of your bid. To determine if your business is in good standing, or for further information, contact the CBJ Finance Department's Sales Tax Division at (907) 586-5215 for sales tax issues, Assessor's Office at (907)586-5215 for business personal property issues, or Collections Division at (907) 586-5215 for all other accounts.

22.0 PERMITS AND LICENSES. The CONTRACTOR is responsible for all WORK associated with meeting any local, state, and/or federal permit and licensing requirements.

CITY AND BOROUGH OF JUNEAU
PURCHASING DIVISION
FAX NO. 907-586-4561

BID MODIFICATION FORM

Modification Number: _____ Modification Page ____ of ____

Note: All modifications shall be made to the original bid amount(s). If more than one Modification form is submitted by any one bidder, changes from all Modification forms submitted will be combined and applied to the original bid. Changes to the modified Bid amounts will be calculated by the OWNER. Bidder may use multiple modification pages if required.

PAY ITEM NO.	PAY ITEM DESCRIPTION	MODIFICATIONS TO UNIT PRICE OR LUMP SUM (*indicate* +/-)

Base Bid Total Increase or Decrease: $_____

PAY ITEM No.	ALTERNATE PAY ITEM DESCRIPTION	MODIFICATIONS TO LUMP SUM (*indicate* +/-)

Alternate Total Increase or Decrease: $_____

_____
Name of Bidding Firm

_____
Responsible Party Signature

_____
Printed Name (must be an authorized signatory for Bidding Firm)

END OF SECTION

SECTION 00300 - BID

BID TO: THE CITY AND BOROUGH OF JUNEAU

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with the OWNER on the form included in the Contract Documents (as defined in Article 7 of Section 00500 - Agreement) to perform the WORK as specified or indicated in said Contract Documents entitled

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2. Bidder accepts all of the terms and conditions of the Contract Documents, including without limitation those in the "Notice Inviting Bids" and "Instructions to Bidders," dealing with the disposition of the Bid Security.

3. This Bid will remain open for the period stated in the "Notice Inviting Bids" unless otherwise required by law. Bidder will enter into an Agreement within the time and in the manner required in the "Notice Inviting Bids" and the "Instructions to Bidders," and will furnish insurance certificates, Payment Bond, Performance Bond, and any other documents as may be required by the Contract Documents.

4. Bidder has familiarized itself with the nature and extent of the Contract Documents, WORK, site, locality where the WORK is to be performed, the legal requirements (federal, state and local laws, ordinances, rules, and regulations), and the conditions affecting cost, progress or performance of the WORK and has made such independent investigations as Bidder deems necessary.

5. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

6. To all the foregoing, and including all Bid Schedule and information required of Bidder contained in this Bid Form, said Bidder further agrees to complete the WORK required under the Contract Documents within the Contract Time stipulated in said Contract Documents, and to accept in full payment therefore the Contract Price based on the total bid price(s) named in the aforementioned Bid Schedule.

7. Bidder has examined copies of all the Contract Documents including the following Addenda (receipt of all of which is hereby acknowledged by the Undersigned):

Addenda No.	Date Issued	Addenda No.	Date Issued

Give number and date of each Addenda above. Failure to acknowledge receipt of all Addenda may cause the Bid to be non-responsive and may cause its rejection.

8. The Bidder has read this Bid and agrees to the conditions as stated herein by signing its signature in the space provided below.

Dated: _____	Bidder: _____ (Company Name)
Alaska CONTRACTOR's Business License No: _____	By: _____ (Signature)
Alaska CONTRACTOR's License No: _____	Printed Name: _____
Telephone No: _____	Title: _____
Fax No: _____	Address: _____ (Street or P.O. Box)
E-mail: _____	_____ (City, State, Zip)

9. TO BE CONSIDERED, ALL BIDDERS MUST COMPLETE AND INCLUDE THE FOLLOWING AT THE TIME OF THE DEADLINE FOR BIDS. **MISSING DOCUMENTS WILL DEEM THIS BID NON-RESPONSIVE:**

- Bid, Section 00300 (includes Addenda receipt statement)
- Completed Bid Schedule, Section 00310
- Bid Security (Bid Bond, Section 00320, or by a certified or cashier's check as stipulated in the Notice Inviting Bids, Section 00030)
- **Contractor Financial Responsibility, Section 00370**

10. The apparent low Bidder is required to complete and submit the following documents by 4:30 p.m. on the ***fifth business day*** following the date of the Posting Notice.

- Subcontractor Report, Section 00360

The apparent low Bidder who fails to submit the completed Subcontractor Report within the time specified in Section 00360 – Subcontractor Report, may be found to be not a responsible Bidder and may be required to forfeit the Bid security. The OWNER may then consider the next lowest Bidder for award of the contract.

11. The successful Bidder will be required to submit, ***within ten Days (calendar)*** after the date of the "Notice of Intent to Award" letter, the following executed documents:

- Agreement Forms, Section 00500
- Performance Bond, Section 00610
- Payment Bond, Section 00620
- Certificates of Insurance, (CONTRACTOR) Section 00700 and Section 00800

END OF SECTION

SECTION 00310 - BID SCHEDULE

BASE BID

PAY ITEM NO.	PAY ITEM DESCRIPTION	PAY UNIT	APPROX. QUANTITY	UNIT PRICE		AMOUNT	
				DOLLARS	CENTS	DOLLARS	CENTS
1505.1	Mobilization	Lump Sum	All Req'd	LUMP	SUM		
1570.1	Erosion and Sediment Control	Lump Sum	All Req'd	LUMP	SUM		
2050.1	Demolition of Existing Lift Station	Lump Sum	All Req'd	LUMP	SUM		
2201.1	Clearing and Grubbing	Lump Sum	All Req'd	LUMP	SUM		
2202.1	Excavation	CY	550				
2202.2	Borrow	CY	440				
2202.3	Shot Rock Borrow	CY	370				
2202.4	Sideslope Grading	Lump Sum	All Req'd	LUMP	SUM		
2202.5	Mining Area Restoration and Road Cleaning Guarantee	Contingent Sum	All Req'd	CONT.	SUM	$5,000	00
2203.1	Sheeting, Boring, and Bracing	Lump Sum	All Req'd	LUMP	SUM		
2204.1	2-Inch Minus Shot Rock w/ Base Course	CY	120				
2401.1	Sanitary Sewer Pipe, 12-Inch PVC	LF	65				
2401.2	Pressure Sewer Pipe (Force Main), 12-Inch HDPE	LF	70				
2402.1	Sanitary Sewer Drop Manhole, Type I	Lump Sum	All Req'd	LUMP	SUM		
2602.1	12-Inch Eccentric Plug Valve	Lump Sum	All Req'd	LUMP	SUM		
2702.1	Construction Surveying	Lump Sum	All Req'd	LUMP	SUM		
2707.1	6' Temporary Chain Link Fence	Lump Sum	All Req'd	LUMP	SUM		
2801.1	AC Pavement, Type II-A, Class B	Ton	113				
2806.1	Remove Existing Asphalt Surfacing	Lump Sum	All Req'd	LUMP	SUM		
11176.1	Gruening Park Lift Station	Lump Sum	All Req'd	LUMP	SUM		
11176.2	Gruening Park Control Panel Rack	Lump Sum	All Req'd	LUMP	SUM		
16000.1	Gruening Park Lift Station Electrical	Lump Sum	All Req'd	LUMP	SUM		
16000.2	Gruening Park Portable Generator	Lump Sum	All Req'd	LUMP	SUM		
16000.3	Gruening Park Lift Station Electrical AEL&P and ACS Services	Lump Sum	All Req'd	LUMP	SUM		

TOTAL BASE BID _____

Additive Alternate No. 1				UNIT PRICE		AMOUNT	
PAY ITEM NO.	PAY ITEM DESCRIPTION	PAY UNIT	APPROX. QUANTITY	DOLLARS	CENTS	DOLLARS	CENTS
2605.1	2-Inch Water Service	Lump Sum	All Req'd	LUMP	SUM		

TOTAL ADDITIVE ALTERNATE NO. 1 _____

COMPANY NAME: _____

SECTION 00320 - BID BOND

KNOW ALL PERSONS BY THESE PRESENTS, that_____

_____ as Principal, and _____

as Surety, are held and firmly bound unto **THE CITY AND BOROUGH OF JUNEAU** hereinafter called "OWNER," in the sum of _____

_____dollars, (not less than five percent of the total amount of the Bid) for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, said Principal has submitted a Bid to said OWNER to perform the WORK required under the Bid Schedule of the OWNER's Contract Documents entitled.

Gruening Park Lift Station Stand Alone Lift Station
Contract No. BE21-264

NOW THEREFORE, if said Principal is awarded a contract by said OWNER and, within the time and in the manner required in the "Notice Inviting Bids" and the "Instructions to Bidders" enters into a written Agreement on the form of Agreement bound with said Contract Documents, furnishes the required certificates of insurance, and furnishes the required Performance Bond and Payment Bond, then this obligation shall be null and void, otherwise it shall remain in full force and effect. In the event suit is brought upon this bond by said OWNER and OWNER prevails, said Surety shall pay all costs incurred by said OWNER in such suit, including a reasonable attorney's fee to be fixed by the court.

SIGNED AND SEALED, this _____ day of _____, 20___

(SEAL)_____ (SEAL)_____
(Principal) (Surety)

By:_____ By:_____
(Signature) (Signature)

END OF SECTION

SECTION 00360 - SUBCONTRACTOR REPORT

LIST OF SUBCONTRACTORS (AS 36.30.115)

The apparent low Bidder must submit a list of Subcontractors that the Bidder proposes to use in the performance of this contract ***on the fifth business day*** following the Posting Notice of Bids. If the fifth day falls on a weekend or holiday, the report is due by close of business on the next business Day following the weekend or holiday. The Subcontractor Report list must include each Subcontractor's name, address, location, evidence of valid Alaska Business License, and valid Alaska Contractor's Registration under AS 08.18. ***If no Subcontractors are to be utilized in the performance of the WORK, write in ink or type "NONE" on line (1) below.***

	SUBCONTRACTOR ADDRESS	[1] AK Contractor License No. [2] AK Business License No.	[1] Contact Name [2] Phone No.	Type of Work	Contract Amount	✓ if DBE
1.		[1] [2]			$	☐
2.		[1] [2]			$	☐
3.		[1] [2]			$	☐
4.		[1] [2]			$	☐

I certify that the above listed Alaska Business License(s) and CONTRACTOR Registration(s), if applicable, were valid at the time Bids were opened for this Project.

_____
CONTRACTOR, Authorized Signature

_____
CONTRACTOR, Printed Name

_____
COMPANY

SECTION 00360 - SUBCONTRACTOR REPORT

A. A Bidder may replace a listed Subcontractor if the Subcontractor:

1. fails to comply with AS 08.18;
2. files for bankruptcy or becomes insolvent;
3. fails to execute a contract with the Bidder involving performance of the WORK for which the Subcontractor was listed and the Bidder acted in good faith;
4. fails to obtain bonding;
5. fails to obtain insurance acceptable to the OWNER;
6. fails to perform the contract with the Bidder involving work for which the Subcontractor was listed;
7. must be substituted in order for the CONTRACTOR to satisfy required state and federal affirmative action requirements;
8. refuses to agree or abide with the Bidder's labor agreement; or
9. is determined by the OWNER not to be responsible.
10. is not in "Good Standing" with the OWNER as required in Article 21.0 in Section 00100 – Instructions to Bidders.

B. If a Bidder fails to list a Subcontractor or lists more than one Subcontractor for the same portion of WORK, the Bidder shall be considered to have agreed to perform that portion of WORK without the use of a Subcontractor and to have represented the Bidder to be qualified to perform that WORK.

C. A Bidder who attempts to circumvent the requirements of this section by listing as a Subcontractor another contractor who, in turn, sublets the majority of the WORK required under the contract violates this section.

D. If a contract is awarded to a Bidder who violates this section, the OWNER may:

1. cancel the contract; or
2. after notice and a hearing, assess a penalty on the Bidder in an amount that does not exceed 10 percent of the value of the subcontract at issue.

E. On the Subcontractor Report, the apparent low Bidder must list all Subcontractors anticipated to perform WORK on the project.

F. An apparent low Bidder who fails to submit a completed Subcontractor Report within the time specified in this section may be found to be not a responsible Bidder and may be required to forfeit the Bid security. The OWNER will then consider the next lowest Bidder for award of the contract.

END OF SECTION

SECTION 00370 - CONTRACTOR'S FINANCIAL RESPONSIBILITY

To be considered, all bidders must complete and include this form ***at the time of the deadline for bids***. Attach additional sheets as necessary to respond to questions.

PROJECT: BE21-264 - Gruening Park Lift Station Stand Alone Lift Station

As the General Contractor on this project, I intend to subcontract _____% of the total value of this contract.

A. EXPERIENCE

1. Have you ever failed to complete a contract due to insufficient resources?
[ ] No [ ] Yes If YES, explain:

_____
_____
_____
_____

2. Describe arrangements you have made to finance this work:

_____
_____
_____
_____

3. Have you had previous construction contracts or subcontracts with the City and Borough of Juneau?
[ ] Yes [ ] No

4. Describe your most recent or current contract, its completion date, and scope of work:

_____
_____
_____
_____
_____
_____

5. List below, and/or as an attachment to this questionnaire, other construction projects you have completed, dates of completion, scope of work, and total contract amount for each project completed in the past twelve months.

_____
_____
_____
_____
_____

6. Per Alaska Statute 36.90.210, on previous awarded public contracts (including contracts still in progress), have you ever failed to pay a subcontractor or material supplier **within eight working days** after receiving payment from the Owner (for projects occurring within the last 3 years)?

[ ] Yes [ ] No If yes, please attach a detailed explanation for **each** occurrence.

B. EQUIPMENT

1. Describe below, and/or as an attachment, the equipment you have available and intend to use for this project.

ITEM	QUANTITY	MAKE	MODEL	SIZE/CAPACITY	PRESENT MARKET VALUE

2. Do you propose to purchase any equipment for use on this project not listed on table B-1?

[ ] No [ ] Yes If YES, describe type, quantity, and approximate cost:

_____
_____
_____
_____

3. Do you propose to rent any equipment for this work not listed on table B-1?

[ ] No [ ] Yes If YES, describe type and quantity:

_____
_____
_____
_____
_____
_____

4. Is your bid based on firm offers for all materials necessary for this project?
[ ] Yes [ ] No If NO, please explain:

_____
_____
_____
_____
_____
_____

I hereby certify that the above statements are true and complete.

_____ _____
Contractor Name and Title of Person Signing

_____ _____
Signature Date

SECTION 00500 - AGREEMENT

THIS AGREEMENT is between THE CITY AND BOROUGH OF JUNEAU (hereinafter called OWNER) and _____ (hereinafter called CONTRACTOR) OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1. WORK.

CONTRACTOR shall complete the WORK as specified or as indicated under the Bid Schedule of the OWNER's Bid Documents entitled **Contract No. BE21-264, Gruening Park Lift Station Stand Alone Lift Station.**

The WORK is generally described as follows: installing approximately 50 linear feet of 12-inch diameter High-Density Polyethylene (HDPE) pressure sewer; installation of approximately 70 linear feet of 12-inch diameter Polyvinyl Chloride (PVC) gravity sewer and new sewer manhole; demolition of an existing sewage lift station including the wet well, valve vault, and associated electrical work; installation of a new a sewage pump station with submersible pumps, new wet well, valve vault, along with associated electrical work; and, installation of a new portable generator, pump controls, pump controls rack, along with associated electrical work; and site development including earthwork and paving with associated site utilities; and other miscellaneous items of work.

The WORK to be paid under this contract shall include the following: Base Bid and Additive Alternate No. 1 as shown in Section 00310 - Bid Schedule.

ARTICLE 2. CONTRACT COMPLETION TIME.

Work shall be completed by October 1, 2021.

ARTICLE 3. DATE OF AGREEMENT

The date of this Agreement will be the date of the last signature on page three of this section.

ARTICLE 4. LIQUIDATED DAMAGES.

OWNER and the CONTRACTOR recognize that time is of the essence of this Agreement and that the OWNER will suffer financial loss if the WORK is not completed within the time specified in Article 2 herein, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense, and difficulties involved in proving in a legal proceeding the actual damages suffered by the OWNER if the WORK is not completed on time. Accordingly, instead of requiring any such proof, the OWNER and the CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) the CONTRACTOR shall pay the OWNER **$500** for each Day that expires after the completion time specified in Article 2 herein. The amount of liquidated damages specified above is agreed to be a reasonable estimate based on all facts known as of the date of this Agreement.

ARTICLE 5. CONTRACT PRICE.

OWNER shall pay CONTRACTOR for completion of the WORK in accordance with the Contract Documents in the amount set forth in the Bid Schedule. The CONTRACTOR agrees to accept as full and complete payment for all WORK to be done in this contract for: **Contract No. BE21-264, Gruening Park Lift Station Stand Alone Lift Station** those Unit Price amounts as set forth in the Bid Schedule in the Contract Documents for this Project.

The total amount of this contract shall be_____($_____), except as adjusted in accordance with the provisions of the Bid Documents.

ARTICLE 6. PAYMENT PROCEDURES.

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by the ENGINEER as provided in the General Conditions.

Progress payments will be paid in full in accordance with Article 14 of the General Conditions until ninety (90) percent of the Contract Price has been paid. The remaining ten (10) percent of the Contract Price may be retained, in accordance with applicable Alaska State Statutes, until final inspection, completion, and acceptance of the Project by the OWNER.

ARTICLE 7. CONTRACT DOCUMENTS.

The Contract Documents which comprise the entire Agreement between OWNER and CONTRACTOR concerning the WORK consist of this Agreement (pages 00500-1 to 00500-6, inclusive) and the following sections of the Contract Documents:

- Table of Contents (pages 00005-1 to 00005-2, inclusive)
- Notice Inviting Bids (pages 00030-1 to 00030-2, inclusive).
- Instructions to Bidders (pages 00100-1 to 00100-9, inclusive).
- Bid (pages 00300-1 to 00300-2, inclusive).
- Bid Schedule (pages 00310-1 to 00310-2, inclusive).
- Bid Bond (page 00320-1, inclusive) or Bid Security.
- Subcontractor Report (pages 00360-1 to 00360-2, inclusive).
- Contractor Financial Responsibility (pages 00370-1 to 00370-3, inclusive).
- Performance Bond (pages 00610-1 to 00610-2, inclusive).
- Payment Bond (pages 00620-1 to 00620-2, inclusive).
- Insurance Certificate(s).
- General Conditions (pages 00700-1 to 00700-48, inclusive).
- Supplementary General Conditions (pages 00800-1 to 00800-6, inclusive).
- Alaska Labor Standards, Reporting, and Prevailing Wage Determination (page 00830-1 and Appendix A, inclusive).
- Permits, (page 00852-1 to page 00852-18, inclusive).
- Standard Details (page 00853-1).
- Special Provisions (pages 1 to 124 inclusive)
- Standard Specifications for Civil Engineering Projects and Subdivision Improvements December 2003 with current Errata Sheets.
- Drawings consisting of 20 sheets, as listed in the Table of Contents.
- Addenda numbers _____ to ____, inclusive.
- Change Orders which may be delivered or issued after the Date of the Agreement and which are not attached hereto.

There are no Contract Documents other than those listed in this Article 7. The Contract Documents may only be amended by Change Order as provided in Paragraph 3.3 of the General Conditions.

ARTICLE 8. MISCELLANEOUS.

Terms used in this Agreement which are defined in Article 1 of the General Conditions will have the meanings indicated in the General Conditions.

No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation monies that may become due and monies that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

OWNER and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents. This Agreement shall be governed by the laws of the State of Alaska. Jurisdiction shall be in the State of Alaska, First Judicial District.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have caused this Agreement to be executed on the date listed below by OWNER.

OWNER:

City and Borough of Juneau

(Signature)

By: Duncan Rorie Watt, City & Borough Manager
(Printed Name)

Date:

OWNER's address for giving notices:

155 South Seward Street

Juneau, Alaska 99801

907-586-0800 ext. 4194 907-586-4530
(Telephone) (Fax)

CONTRACTOR:

(Company Name)

(Signature)

By:
(Printed Name, Authority or Title)

CONTRACTOR Signature Date:

CONTRACTOR's address for giving notices:

(Telephone) (Fax)

(E-mail address)

Contractor License No.

CERTIFICATE
(if Corporation)

STATE OF)
) SS:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Board of Directors of the

_____a corporation existing under the laws of

the State of_____, held on _____, 20____, the following resolution was duly passed and adopted:

"RESOLVED, that _____, as _____ President of the Corporation, be and is hereby authorized to **execute the Agreement** with the CITY AND BOROUGH OF JUNEAU and this corporation and that the execution thereof, attested by the Secretary of the Corporation, and with the Corporate Seal affixed, shall be the official act and deed of this Corporation."

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the corporation this _____ day of _____, 20____.

_____
Secretary

(SEAL)

CERTIFICATE
(if Partnership)

STATE OF)
) SS:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Partners of the

_____ a partnership existing under the laws of the State

of _____, held on _____, 20___, the following resolution was duly passed and adopted:

"RESOLVED, that _____, as _____ of the Partnership, be and is hereby authorized to **execute the Agreement** with the CITY AND BOROUGH OF JUNEAU and this partnership and that the execution thereof, attested by the _____shall be the official act and deed of this Partnership."

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand this _____, day of _____, 20_____.

_____
Secretary

(SEAL)

CERTIFICATE
(if Joint Venture)

STATE OF)
) SS:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Principals of the

_____ a joint venture existing under the laws of the

State of _____, held on _____, 20___, the following resolution was duly passed and adopted:

"RESOLVED, that _____, as _____ of the Joint Venture, be and is hereby authorized to **execute the Agreement** with the CITY AND BOROUGH OF JUNEAU and this joint venture and that the execution thereof, attested by the _____ shall be the official act and deed of this Joint Venture."

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand this _____, day of _____, 20___.

_____
Secretary

(SEAL)

END OF SECTION

SECTION 00610 - PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS: That we _____
(Name of Contractor)
_____ a _____
(Corporation, Partnership, Individual)

hereinafter called "Principal" and _____
(Surety)
of _____, State of _____hereinafter called the "Surety," are held and firmly bound to the CITY AND BOROUGH of JUNEAU, ALASKA hereinafter called "OWNER,"
(Owner) (City and State)
for the penal sum of _____

_____dollars ($_____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the CONTRACTOR has entered into a certain contract with the OWNER, the effective date of which is (CBJ Contracts Office to fill in effective date) _____, a copy of which is hereto attached and made a part hereof for the construction of:

Gruening Park Lift Station Stand Alone Lift Station
CBJ Contract No. BE21-264

NOW, THEREFORE, if the Principal shall truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof, which may be granted by the OWNER, with or without notice to the Surety, and if it shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed thereunder or the specifications accompanying the same shall in any wise affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the Specifications.

PROVIDED, FURTHER, that no final settlement between the OWNER and the Principal shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

Gruening Park Lift Station Stand Alone Lift Station
CBJ Contract No. BE21-264

IN WITNESS WHEREOF, this instrument is issued in two (2) identical counterparts, each one of which shall be deemed an original.

CONTRACTOR:

By:_____
(Signature)

_____
(Printed Name)

_____
(Company Name)

_____
(Mailing Address)

_____
(City, State, Zip Code)

SURETY:

By: _____ Date Issued:_____
(Signature of Attorney-in-Fact)

_____
(Printed Name)

_____
(Company Name)

_____
(Mailing Address)

_____
(City, State, Zip Code)

(Affix SURETY'S SEAL)

NOTE: If CONTRACTOR is Partnership, all Partners must execute bond.

END OF SECTION

SECTION 00620 - PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS: That we _____
(Name of Contractor)
_____ a _____
(Corporation, Partnership, Individual)

hereinafter called "Principal" and _____
(Surety)
of _____, State of _____hereinafter called the "Surety," are held and firmly bound to the CITY AND BOROUGH of JUNEAU, ALASKA hereinafter called "OWNER,"
(Owner) (City and State)
for the penal sum of _____

_____dollars ($_____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the CONTRACTOR has entered into a certain contract with the OWNER, the effective date of which is (CBJ Contracts Office to fill in effective date) _____, a copy of which is hereto attached and made a part hereof for the construction of:

Gruening Park Lift Station Stand Alone Lift Station
CBJ Contract No. BE21-264

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, Subcontractors, and corporations furnishing materials for, or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and all insurance premiums on said work, and for all labor performed in such WORK, whether by Subcontractor or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any wise affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the Specifications.

PROVIDED, FURTHER, that no final settlement between the OWNER and the Principal shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

Gruening Park Lift Station Stand Alone Lift Station
CBJ Contract No. BE21-264

IN WITNESS WHEREOF, this instrument is issued in two (2) identical counterparts, each one of which shall be deemed an original.

CONTRACTOR:

By:_____
(Signature)

_____
(Printed Name)

_____
(Company Name)

_____
(Mailing Address)

_____
(City, State, Zip Code)

SURETY:

By: _____ Date Issued:_____
(Signature of Attorney-in-Fact)

_____
(Printed Name)

_____
(Company Name)

_____
(Mailing Address)

_____
(City, State, Zip Code)

(Affix SURETY'S SEAL)

NOTE: If CONTRACTOR is Partnership, <u>all</u> Partners must execute bond.

END OF SECTION

SECTION 00700 - GENERAL CONDITIONS

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(Revised 03-2003)

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ARTICLE 1 DEFINITIONS

Wherever used in these General Conditions or in the Contract Documents the following terms have the meanings indicated which are applicable to both the singular and plural thereof. Where an entire word is capitalized in the definitions and is found not capitalized in the Contract Documents it has the ordinary dictionary definition.

Addenda - Written or graphic instruments issued prior to the opening of Bids which make additions, deletions, or revisions to the Contract Documents.

Agreement - The written contract between the OWNER and the CONTRACTOR covering the WORK to be performed; other documents are attached to the Agreement and made a part thereof as provided therein.

Application for Payment - The form furnished by the ENGINEER which is to be used by the CONTRACTOR to request progress or final payment and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

Asbestos - Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

Bid - The offer or proposal of the Bidder submitted on the prescribed form setting forth the price or prices for the WORK.

Bonds - Bid, Performance, and Payment Bonds and other instruments which protect against loss due to inability or refusal of the CONTRACTOR to perform its contract.

CBJ Project Manager - The authorized representative of the City and Borough of Juneau Engineering Department, as OWNER, who is responsible for administration of the contract.

Change Order - A document recommended by the ENGINEER, which is signed by the CONTRACTOR and the OWNER and authorizes an addition, deletion, or revision in the WORK, or an adjustment in the Contract Price or the Contract Time, issued on or after the Effective Date of the Agreement.

Contract Documents - The Table of Contents, Notice Inviting Bids, Instructions to Bidders, Bid Forms (including the Bid, Bid Schedule(s), Information Required of Bidder, Bid Bond, and all required certificates and affidavits), Agreement, Performance Bond, Payment Bond, General Conditions, Supplementary General Conditions, Technical Specifications, Drawings, Permits, and all Addenda, and Change Orders executed pursuant to the provisions of the Contract Documents.

Contract Price - The total monies payable by the OWNER to the CONTRACTOR under the terms and conditions of the Contract Documents.

Contract Time - The number of successive calendar Days stated in the Contract Documents for the completion of the WORK.

CONTRACTOR - The individual, partnership, corporation, joint-venture or other legal entity with whom the OWNER has executed the Agreement.

Day - A calendar day of 24 hours measured from midnight to the next midnight.

Defective WORK - WORK that is unsatisfactory, faulty, or deficient; or that does not conform to the Contract Documents; or that does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents; or WORK that has been damaged prior to the ENGINEER's recommendation of final payment.

Drawings - The Drawings, plans, maps, profiles, diagrams, and other graphic representations which indicate the character, location, nature, extent, and scope of the WORK and which have been prepared by the ENGINEER and are referred to in the Contract Documents. Shop Drawings are not within the meaning of this paragraph.

Effective Date of the Agreement - The date indicated in the Agreement on which it becomes effective, but if no such date is indicated it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

Engineer of Record - The individual, partnership, corporation, joint-venture or other legal entity named as such in the Contract Documents.

ENGINEER - The ENGINEER is the firm or person(s) selected by the City and Borough of Juneau (CBJ) to perform the duties of project inspection and management. CBJ will inform the CONTRACTOR of the identity of the ENGINEER at or before the Notice to Proceed.

Field Order - A written order issued by the ENGINEER which may or may not involve a change in the WORK.

General Requirements - Division 1 of the Technical Specifications.

Hazardous Waste - The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 9603) as amended from time to time.

Holidays - The CBJ legal holidays occur on:

1. New Year's Day - January 1
2. Martin Luther King's Birthday - Third Monday in January
3. President's Day - Third Monday in February
4. Seward's Day - Last Monday in March
5. Memorial Day - Last Monday in May
6. Independence Day - July 4
7. Labor Day - First Monday in September
8. Alaska Day - October 18
9. Veteran's Day - November 11
10. Thanksgiving Day - Fourth Thursday and the following Friday in November
11. Christmas Day – December 25

If any holiday listed above falls on a Saturday, Saturday and the preceding Friday are both legal holidays. If the holiday should fall on a Sunday, Sunday and the following Monday are both legal holidays.

Inspector - The authorized representative of the ENGINEER assigned to make detailed inspections for conformance to the Contract Documents. Any reference to the Resident Project Representative in this document shall mean the Inspector.

Laws and Regulations; Laws or Regulations - Any and all applicable laws, rules, regulations, ordinances, codes, and/or orders of any and all governmental bodies, agencies, authorities and courts having jurisdiction.

Mechanic's Lien - A form of security, an interest in real property, which is held to secure the payment of an obligation. When referred to in these Contract Documents, "Mechanic's Lien" or "lien" means "Stop Notice".

Milestone - A principal event specified in the Contract Documents relating to an intermediate completion date of a portion of the WORK, or a period of time within which the portion of the WORK should be performed prior to Substantial Completion of all the WORK.

Notice of Award - The written notice by the OWNER to the apparent successful bidder stating that the apparent successful bidder has complied with all conditions for award of the contract.

Notice of Completion - A form signed by the ENGINEER and the CONTRACTOR recommending to the OWNER that the WORK is Substantially Complete and fixing the date of Substantial Completion. After acceptance of the WORK by the OWNER's governing body, the form is signed by the OWNER and filed with the County Recorder. This filing starts the 30-day lien filing period on the WORK.

Notice to Proceed - The written notice issued by the OWNER to the CONTRACTOR authorizing the CONTRACTOR to proceed with the WORK and establishing the date of commencement of the Contract Time.

Notice of Intent to Award - The written notice by the OWNER to the apparent successful bidder stating that upon compliance by the apparent successful bidder with the requirements listed therein, within the time specified, the OWNER will enter into an Agreement.

OWNER - The City and Borough of Juneau (CBJ), acting through its legally designated officials, officers, or employees.

Partial Utilization - Use by the OWNER or a substantially completed part of the WORK for the purpose for which it is intended prior to Substantial Completion of all the WORK.

PCB's - Polychlorinated biphenyls.

PERMITTEE – See definition for CONTRACTOR.

Petroleum - Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Wastes and crude oils.

Project - The total construction of which the WORK to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.

Radioactive Material - Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

Shop Drawings - All Drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for the CONTRACTOR and submitted by the CONTRACTOR, to the ENGINEER, to illustrate some portion of WORK.

Specifications - Same definition as "Technical Specifications" hereinafter.

Stop Notice - A legal remedy for Subcontractors and suppliers who contribute to public works, but who are not paid for their WORK, which secures payment from construction funds possessed by the OWNER. For public property, the Stop Notice remedy is designed to substitute for mechanic's lien rights.

Sub-Consultant - The individual, partnership, corporation, joint-venture or other legal entity having a direct contract with ENGINEER, or with any of its Consultants to furnish services with respect to the Project.

Subcontractor - An individual, partnership, corporation, joint-venture or other legal entity having a direct contract with the CONTRACTOR, or with any of its Subcontractors, for the performance of a part of the WORK at the site.

Substantial Completion - Refers to when the WORK has progressed to the point where, in the opinion of the ENGINEER as evidenced by Notice of Completion as applicable, it is sufficiently complete, in accordance with the Contract Documents, so that the WORK can be utilized for the purposes for which it is intended; or if no such notice is issued, when final payment is due in accordance with Paragraph 14.8. The terms "substantially complete" and "substantially completed" as applied to any WORK refer to substantial completion thereof.

Supplementary General Conditions (SGC) - The part of the Contract Documents which make additions, deletions, or revisions to these General Conditions.

Supplier - A manufacturer, fabricator, supplier, distributor, materialman, or vendor.

Technical Specifications - Divisions 1 through 16 of the Contract Documents consisting of the General Requirements and written technical descriptions of products and execution of the WORK.

Underground Utilities - All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: water, sewage and drainage removal, electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, traffic, or other control systems.

WORK, Work - The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. WORK is the result of performing, or furnishing labor and furnishing and incorporating materials and equipment into the construction, and performing or furnishing services and furnishing documents, all as required by the Contract Documents.

ARTICLE 2 PRELIMINARY MATTERS

2.1 DELIVERY OF BONDS/INSURANCE CERTIFICATES. When the CONTRACTOR delivers the signed Agreements to the OWNER, the CONTRACTOR shall also deliver to the OWNER such Bonds and Insurance Policies and Certificates as the CONTRACTOR may be required to furnish in accordance with the Contract Documents.

2.2 COPIES OF DOCUMENTS. The OWNER shall furnish to the CONTRACTOR the required number of copies of the Contract Documents specified in the Supplementary General Conditions.

2.3 COMMENCEMENT OF CONTRACT TIME; NOTICE TO PROCEED. The Contract Time will start to run on the commencement date stated in the Notice to Proceed.

2.4 STARTING THE WORK

A. The CONTRACTOR shall begin to perform the WORK within 10 days after the commencement date stated in the Notice to Proceed, but no WORK shall be done at the site prior to said commencement date.

B. Before undertaking each part of the WORK, the CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. The CONTRACTOR shall promptly report in writing to the ENGINEER any conflict, error, or discrepancy which the CONTRACTOR may discover and shall obtain a written interpretation or clarification from the ENGINEER before proceeding with any WORK affected thereby.

C. The CONTRACTOR shall submit to the ENGINEER for review those documents called for under Section 01300 - CONTRACTOR Submittals in the General Requirements.

2.5 PRE-CONSTRUCTION CONFERENCE. The CONTRACTOR is required to attend a Pre-Construction Conference. This conference will be attended by the ENGINEER and others as appropriate in order to discuss the WORK in accordance with the applicable procedures specified in the General Requirements, Section 01010 - Summary of WORK in the General Requirements.

2.6 FINALIZING CONTRACTOR SUBMITTALS. At least 7 days before submittal of the first Application for Payment a conference attended by the CONTRACTOR, the ENGINEER and others as appropriate will be held to finalize the initial CONTRACTOR submittals in accordance with the General Requirements. As a minimum the CONTRACTOR's representatives should include the project manager and schedule expert. The CONTRACTOR should plan on this meeting taking no less than 8 hours. If the submittals are not finalized at the end of the meeting, additional meetings will be held so that the submittals can be finalized prior to the submittal of the first application for payment. No application for payment will be processed until CONTRACTOR submittals are finalized.

ARTICLE 3 CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.1 INTENT

A. The Contract Documents comprise the entire Agreement between the OWNER and the CONTRACTOR concerning the WORK. The Contract Documents shall be construed as a whole in accordance with Alaska Law.

B. It is the intent of the Contract Documents to describe the WORK, functionally complete, to be constructed in accordance with the Contract Documents. Any work, materials, or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result shall be supplied whether or not specifically called for. When words or phrases which have a well-known technical or construction industry or trade meaning are used to describe work, materials, or equipment such words or phrases shall be interpreted in accordance with that meaning, unless a definition has been provided in Article 1 of the General Conditions. Reference to standard specifications, manuals, or codes of any technical society, organization, or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids, except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual, or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of the OWNER, the CONTRACTOR, or the ENGINEER or any of their consultants, agents, or employees from those set forth in the Contract Documents.

C. If, during the performance of the WORK, CONTRACTOR discovers any conflict, error, ambiguity or discrepancy within the Contract Documents or between the Contract Documents and any provision of any such Law or Regulation applicable to the performance of the WORK or of any such standard, specification, manual or code or of any instruction of any Supplier referred to in paragraph 6.5, the CONTRACTOR shall report it to the ENGINEER in writing at once, and the CONTRACTOR shall not proceed with the WORK affected thereby (except in an emergency as authorized by the ENGINEER) until a clarification field order, or Change Order to the Contract Documents has been issued.

3.2 ORDER OF PRECEDENCE OF CONTRACT DOCUMENTS

A. In resolving conflicts resulting from, errors, or discrepancies in any of the Contract Documents, the order of precedence shall be as follows:

1. Permits from other agencies as may be required by law, excepting the definition of “PERMITEE” in these permits.
2. Field Orders
3. Change Orders
4. ENGINEER’s written interpretations and clarifications.
5. Agreement
6. Addenda
7. CONTRACTOR's Bid (Bid Form)
8. Supplementary General Conditions
9. Notice Inviting Bids

10. Instructions to Bidders
11. General Conditions
12. Technical Specifications
13. Drawings

B. With reference to the Drawings the order of precedence is as follows:

1. Figures govern over scaled dimensions
2. Detail Drawings govern over general Drawings
3. Addenda/ Change Order drawings govern over Contract Drawings
4. Contract Drawings govern over standard drawings

3.3 AMENDING AND SUPPLEMENTING CONTRACT DOCUMENTS. The Contract Documents may be amended to provide for additions, deletions, and revisions in the WORK or to modify the terms and conditions thereof by a Change Order (pursuant to Article 10 CHANGES IN THE WORK).

3.4 REUSE OF DOCUMENTS. Neither the CONTRACTOR, nor any Subcontractor or Supplier, nor any other person or organization performing any of the WORK under a contract with the OWNER shall have or acquire any title to or ownership rights in any of the Drawings, Technical Specifications, or other documents used on the WORK, and they shall not reuse any of them on the extensions of the Project or any other project without written consent of the OWNER.

ARTICLE 4 AVAILABILITY OF LANDS; PHYSICAL CONDITIONS; REFERENCE POINTS

4.1 AVAILABILITY OF LANDS. The OWNER shall furnish, as indicated in the Contract Documents, the lands upon which the WORK is to be performed, rights-of-way and easements for access thereto, and such other lands which are designated for the use of the CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by the OWNER, unless otherwise provided in the Contract Documents. Nothing contained in the Contract Documents shall be interpreted as giving the CONTRACTOR exclusive occupancy of the lands or rights-of-way provided. The CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment; provided, that the CONTRACTOR shall not enter upon nor use any property not under the control of the OWNER until a written temporary construction easement, lease or other appropriate agreement has been executed by the CONTRACTOR and the property owner, and a copy of said agreement furnished to the ENGINEER prior to said use; and, neither the OWNER nor the ENGINEER shall be liable for any claims or damages resulting from the CONTRACTOR's unauthorized trespass or use of any such properties.

4.2 PHYSICAL CONDITIONS - SUBSURFACE AND EXISTING STRUCTURES

A. Explorations and Reports. Reference is made to SGC 4.2 Physical Conditions of the Supplementary General Conditions for identification of those reports of explorations and tests of sub-surface conditions at the site that have been utilized by the ENGINEER in the preparation of the Contract Documents. The CONTRACTOR may rely upon the accuracy of the technical data contained in such reports, however, reports are not to be considered complete or comprehensive and nontechnical data, interpretations, and opinions contained in such reports are not to be relied on by the CONTRACTOR. The CONTRACTOR is

responsible for any further explorations or tests that may be necessary and any interpretation, interpolation, or extrapolation that it makes of any information shown in such reports.

B. Existing Structures. Reference is made to SGC 4.2 Physical Conditions of the Supplementary General Conditions for identification of those drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Utilities referred to in Paragraph 4.4 herein) which are at or contiguous to the site that have been utilized by the ENGINEER in the preparation of the Contract Documents. The CONTRACTOR may rely upon the accuracy of the technical data contained in such drawings, however, nontechnical data, interpretations, and opinions contained in such drawings are not to be relied on by the CONTRACTOR. The CONTRACTOR is also responsible for any interpretation, interpolation, or extrapolation that it makes of any information shown in such drawings.

4.3 DIFFERING SITE CONDITIONS

A. The CONTRACTOR shall promptly upon discovery (but in no event later than 14 days thereafter) and before the following conditions are disturbed, notify the ENGINEER, in writing of any:

1. Material that the CONTRACTOR believes may be material that is hazardous waste, as defined in Article 1 of these General Conditions, or asbestos, PCB's, petroleum or any other substance or material posing a threat to human or to the environment.
2. Subsurface or latent physical conditions at the site differing from those indicated.
3. Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in WORK of the character provided for in the contract.

B. The OWNER shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the CONTRACTOR's cost of, or the time required for, performance of any part of the WORK shall issue a Change Order under the procedures described in the contract.

C. In the event that a dispute arises between the OWNER and the CONTRACTOR whether the conditions materially differ, or involved hazardous waste or other materials listed above, or cause a decrease or increase in the CONTRACTOR's cost of, or time required for, performance of any part of the WORK, the CONTRACTOR shall not be excused from any scheduled completion date provided for by the contract, but shall proceed with all WORK to be performed under the contract. The CONTRACTOR shall retain any and all rights provided either by contract or by Law which pertain to the resolution of disputes and protests between the contracting parties.

4.4 PHYSICAL CONDITIONS - UNDERGROUND UTILITIES

A. Indicated. The information and data indicated in the Contract Documents with respect to existing Underground Utilities at or contiguous to the site are based on information and data furnished to the OWNER or the ENGINEER by the owners of such Underground Utilities or by others. Unless it is expressly provided in the Supplementary General Conditions and/or Section 01530 - Protection and Restoration of Existing Facilities of the General Requirements, the OWNER and the ENGINEER shall not be responsible for the accuracy or

completeness of any such information or data, and the CONTRACTOR shall have full responsibility for reviewing and checking all such information and data, for locating all Underground Utilities indicated in the Contract Documents, for coordination of the WORK with the owners of such Underground Utilities during construction, for the safety and protection thereof and repairing any damage thereto resulting from the WORK, the cost of which will be considered as having been included in the Contract Price.

B. Not Indicated. If an Underground Utility is uncovered or revealed at or contiguous to the site which was not indicated in the Contract Documents and which the CONTRACTOR could not reasonably have been expected to be aware of, the CONTRACTOR shall identify the owner of such Underground Utility and give written notice thereof to that owner and shall notify the ENGINEER in accordance with the requirements of the Supplementary General Conditions and Section 01530 - Protection and Restoration of Existing Facilities of the General Requirements.

4.5 REFERENCE POINTS

A. The ENGINEER will provide one bench mark, near or on the site of the WORK, and will provide two points near or on the site to establish a base line for use by the CONTRACTOR for alignment control. Unless otherwise specified in the General Requirements, the CONTRACTOR shall furnish all other lines, grades, and bench marks required for proper execution of the WORK.

B. The CONTRACTOR shall preserve all bench marks, stakes, and other survey marks, and in case of their removal or destruction by its own employees or by its Subcontractor's employees, the CONTRACTOR shall be responsible for the accurate replacement of such reference points by personnel qualified under the Alaska Statute governing the licensing of Architects, Engineers, and Land Surveyors.

4.6 USE OF THE CBJ/STATE LEMON CREEK GRAVEL PIT

A. On City and Borough of Juneau (CBJ) construction projects, the CBJ may make unclassified material available to CONTRACTORs, from the CBJ/State Lemon Creek gravel pit, at a rate less than charged other customers. CONTRACTORs are not required to use material from the CBJ/State pit and the CBJ makes no guarantee as to the quantity or quality of the available material. For this Project, contact Alec Venechuk, CBJ Material Source Manager, at (907) 586-0874 for the current material rates.

B. CONTRACTORs proposing to use gravel from the CBJ/State pit are required to be in good standing for all amounts owed to the CBJ, for previous gravel operations, prior to submitting a mining plan for approval. CONTRACTORs using the pit must comply with Allowable Use Permit USE 2008-00061. Failure to meet these requirements, if so subject, shall be sufficient reason to deny use of the CBJ/State pit as a gravel source. To determine if your company is subject to these requirements, contact the CBJ Engineering Department, Gravel Pit Management, at (907) 586-0874.

C. CONTRACTORs deciding to use material from the CBJ/State pit shall provide an Individual Mining Plan prepared by a professional engineer registered in the State of Alaska. The Individual Mining Plan must be reviewed and approved by the CBJ, prior to commencing

operations within the pit. CONTRACTORs shall also secure a Performance Bond to ensure compliance with contract provisions, including any Individual Mining Plan stipulations. The bond shall remain in full force and effect until a release is obtained from the CBJ.

D. If CONTRACTOR operations for a project do not exceed 500 tons of material, the CONTRACTOR will not be required to provide an Individual Mining Plan prepared by an engineer. However, the CONTRACTOR must submit an Individual Mining Plan that is in compliance with Allowable Use Permit USE 2008-00061 for gravel extraction within the CBJ/State pit. The CONTRACTOR must contact the CBJ Engineering Department for conditions for the extraction.

E. CONTRACTORs using the CBJ material may do primary dry separation (screening) of materials within the pit. Crushing and washing of material will not be allowed. CONTRACTORs shall account for placement of materials removed from the pit. The CBJ may require CONTRACTORs to cross-check weight tickets, submit to an audit, or participate in other measures required by the CBJ to ensure accountability. Unprocessed overburden removed from the pit will not be weighed. All other material mined will be weighed at the CBJ scale. CONTRACTORs will be responsible for loading and/or screening their own material. If asphalt pavement is removed as part of the WORK, CONTRACTORs shall dispose of the material at a to-be-specified location within the pit area, as directed by the CBJ Project Manager.

F. The gravel pit overhead charge shall be paid to the CBJ by the CONTRACTOR within 60 days after removal of all materials from the pit and prior to requesting and/or receiving final payment. Upon completion of each excavation CONTRACTORs shall notify the CBJ, in writing, in sufficient time to perform a field-compliance examination prior to vacating the pit. Any significant deviation from the stipulations of the Individual Mining Plan identified during the field inspection shall be corrected by the CONTRACTOR prior to release of the bond. A signed release from CBJ will be required prior to releasing the CONTRACTOR's bond.

G. If asphalt pavement is removed as part of this WORK, the CONTRACTOR shall dispose of the material at the location designated as the Asphalt Storage Facility, or as directed by the ENGINEER.

H. The CBJ/State pit is a seasonal operation. The hours of operation are from 7:00 a.m. to 6:00 p.m., Monday through Friday, from April 1 through October 15 of the year. CONTRACTORS may obtain gravel on weekends, or during the off-season, by applying for a separate agreement with the City and Borough of Juneau Engineering Department. The CONTRACTOR will be responsible for any additional costs incurred during weekend or off-season operations at the gravel pit.

I. All Contractors/Equipment Operators using the CBJ/State Pit shall be in compliance with Federal Mine Safety and Health Administration regulations for quarry and gravel operations.

ARTICLE 5 BONDS AND INSURANCE

5.1 PERFORMANCE, PAYMENT, AND OTHER BONDS

A. The CONTRACTOR shall furnish, when required, Performance and Payment Bonds on forms provided by the CBJ for the penal sums of 100% of the amount of the Bid award. The surety on each bond may be any corporation or partnership authorized to do business in the State of Alaska as an insurer under AS 21.09. These bonds shall remain in effect for 12 months after the date of final payment and until all obligations and liens under this contract have been satisfied. The CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary General Conditions. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff, Bureau of Government Financial Operations, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

B. If the surety on any Bond furnished by the CONTRACTOR is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the WORK is located, the CONTRACTOR shall within 7 days thereafter substitute another Bond and Surety, which must be acceptable to the OWNER.

C. All Bonds required by the Contract Documents to be purchased and maintained by CONTRACTOR shall be obtained from surety companies that are duly licensed or authorized in the State of Alaska to issue Bonds for the limits so required. Such surety companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary General Conditions. The City Engineer may, on behalf of the OWNER, notify the surety of any potential default or liability.

5.2 INSURANCE

A. The CONTRACTOR shall purchase and maintain the insurance required under this paragraph. Such insurance shall include the specific coverages set out herein and be written for not less than the limits of liability and coverages provided in the Supplementary General Conditions, or required by law, whichever are greater. All insurance shall be maintained continuously during the life of the Agreement up to the date of Final Completion and at all times thereafter when the CONTRACTOR may be correcting, removing, or replacing Defective WORK in accordance with Paragraph 13.6, but the CONTRACTOR's liabilities under this Agreement shall not be deemed limited in any way to the insurance coverage required.

B. All insurance required by the Contract Documents to be purchased and maintained by the CONTRACTOR shall be obtained from insurance companies that are duly licensed or authorized in the State of Alaska to issue insurance policies for the limits and coverages so required. Such insurance companies shall have a current Best's Rating of at least an "A" (Excellent) general policy holder's rating and a Class VII financial size category and shall also meet such additional requirements and qualifications as may be provided in the Supplementary General Conditions.

C. The CONTRACTOR shall furnish the OWNER with certificates showing the type, amount, class of operations covered, effective dates and dates of expiration of policies. All of the policies of insurance so required to be purchased and maintained (or the certificates or other

evidence thereof) shall contain a provision or endorsement that the coverage afforded will not be cancelled, reduced in coverage, or renewal refused until at least 30 days' prior written notice has been given to the OWNER by certified mail. All such insurance required herein (except for Workers' Compensation and Employer's Liability) shall name the OWNER, its Consultants and subconsultants and their officers, directors, agents, and employees as "additional insureds" under the policies. The CONTRACTOR shall purchase and maintain the following insurance:

1. Workers' Compensation and Employer's Liability. This insurance shall protect the CONTRACTOR against all claims under applicable state workers' compensation laws. The CONTRACTOR shall also be protected against claims for injury, disease, or death of employees which, for any reason, may not fall within the provisions of a Workers' Compensation law. This policy shall include an "all states" endorsement. The CONTRACTOR shall require each Subcontractor similarly to provide Workers' Compensation Insurance for all of the latter's employees to be engaged in such WORK unless such employees are covered by the protection afforded by the CONTRACTOR's Workers' Compensation Insurance. In case any class of employees is not protected, under the Workers' Compensation Statute, the CONTRACTOR shall provide and shall cause each Subcontractor to provide adequate employer's liability insurance for the protection of such of its employees as are not otherwise protected.
2. Commercial General Liability. This insurance shall be written in comprehensive form and shall protect the CONTRACTOR against all claims arising from injuries to persons other than its employees or damage to property of the OWNER or others arising out of any act or omission of the CONTRACTOR or its agents, employees, or Subcontractors. The policy shall contain no exclusions for any operations within the scope of this contract.
3. Comprehensive Automobile Liability. This insurance shall be written in comprehensive form and shall protect the CONTRACTOR against all claims for injuries to members of the public and damage to property of others arising from the use of motor vehicles, and shall cover operation on or off the site of all motor vehicles licensed for highway use, whether they are owned, non-owned, or hired. Coverage for hired motor vehicles should include endorsement covering liability assumed under this Agreement.
4. Subcontractor's Commercial General Liability Insurance and Commercial Automobile Liability Insurance. The CONTRACTOR shall either require each of its Subcontractors to procure and to maintain Subcontractor's Commercial General Liability and Property Damage Insurance and Vehicle Liability Insurance of the type and in the amounts specified in the Supplementary General Conditions or insure the activities of its Subcontractors in the CONTRACTOR's own policy, in like amount.
5. Builder's Risk. This insurance shall be of the "all risks" type, shall be written in completed value form, and shall protect the CONTRACTOR, the OWNER, and the ENGINEER, against risks of damage to buildings, structures, and materials and equipment. The amount of such insurance shall be not less than the insurable value of the WORK at completion. Builder's risk insurance shall provide for losses to be payable to the CONTRACTOR and the OWNER, as their interests may appear. The policy shall contain a provision that in the event of payment for any loss under the coverage provided, the insurance company shall have no rights of recovery against the

CONTRACTOR, the OWNER, and the ENGINEER. The Builder's Risk policy shall insure against all risks of direct physical loss or damage to property from any external cause including flood and earthquake. Allowable exclusions, if any, shall be as specified in the Supplementary General Conditions.

ARTICLE 6 CONTRACTOR'S RESPONSIBILITIES

6.1 SUPERVISION AND SUPERINTENDENCE

A. The CONTRACTOR shall supervise, inspect, and direct the WORK competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the WORK in accordance with the Contract Documents. The CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incidental thereto. The CONTRACTOR shall be responsible to see that the completed WORK complies accurately with the Contract Documents.

B. The CONTRACTOR shall designate in writing and keep on the WORK site at all times during its progress a technically qualified, English-speaking superintendent, who is an employee of the CONTRACTOR and who shall not be replaced without written notice to the OWNER and the ENGINEER. The superintendent will be the CONTRACTOR's representative at the site and shall have authority to act on behalf of the CONTRACTOR. All communications given to the superintendent shall be as binding as if given to the CONTRACTOR. The CONTRACTOR shall issue all its communications to the OWNER through the ENGINEER and the ENGINEER only.

C. The CONTRACTOR's superintendent shall be present at the site of the WORK at all times while WORK is in progress. Failure to observe this requirement shall be considered suspension of the WORK by the CONTRACTOR until such time as such superintendent is again present at the site.

6.2 LABOR, MATERIALS, AND EQUIPMENT

A. The CONTRACTOR shall provide competent, suitably qualified personnel to survey and lay out the WORK and perform construction as required by the Contract Documents. The CONTRACTOR shall furnish, erect, maintain, and remove the construction plant and any temporary works as may be required. The CONTRACTOR shall at all times maintain good discipline and order at the site. Except in connection with the safety or protection of persons or the WORK or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all WORK at the site shall be performed during regular working hours, and the CONTRACTOR will not permit overtime work or the performance of work on Saturday, Sunday, or any legal holiday without the OWNER's written consent. The CONTRACTOR shall apply for this consent through the ENGINEER.

B. Except as otherwise provided in this Paragraph, the CONTRACTOR shall receive no additional compensation for overtime work, i.e., work in excess of 8 hours in any one calendar day or 40 hours in any one calendar week, even though such overtime work may be required under emergency conditions and may be ordered by the ENGINEER in writing. Additional compensation will be paid the CONTRACTOR for overtime work only in the

event extra work is ordered by the ENGINEER and the Change Order specifically authorizes the use of overtime work and then only to such extent as overtime wages are regularly being paid by the CONTRACTOR for overtime work of a similar nature in the same locality.

C. All costs of inspection and testing performed during overtime work by the CONTRACTOR which is allowed solely for the convenience of the CONTRACTOR shall be borne by the CONTRACTOR. The OWNER shall have the authority to deduct the cost of all such inspection and testing from any partial payments otherwise due to the CONTRACTOR.

D. Unless otherwise specified in the Contract Documents, the CONTRACTOR shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up, and completion of the WORK.

E. All materials and equipment to be incorporated into the WORK shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Specifications shall expressly run to the benefit of the OWNER. If required by the ENGINEER, the CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with the instructions of the applicable Supplier except as otherwise provided in the Contract Documents; but no provisions of any such instructions will be effective to assign to the ENGINEER, or any of the ENGINEER consultants, agents, or employees, any duty or authority to supervise or direct the furnishing or performance of the WORK or any duty or authority to undertake responsibility contrary to the provisions of Paragraphs 9.9C and 9.9D.

F. The CONTRACTOR shall at all times employ sufficient labor and equipment for prosecuting the several classes of WORK to full completion in the manner and time set forth in and required by these specifications. All workers shall have sufficient skill and experience to perform property the WORK assigned to them. Workers engaged in special WORK, or skilled WORK, shall have sufficient experience in such WORK and in the operation of the equipment required to perform all WORK, properly and satisfactorily.

G. Any person employed by the CONTRACTOR or by any Subcontractor who, in the opinion of the ENGINEER, does not perform the WORK in a proper and skillful manner, or is intemperate or disorderly shall, at the written request of the ENGINEER, be removed forthwith by the CONTRACTOR or Subcontractor employing such person, and shall not be employed again in any portion of the WORK without the approval of the ENGINEER. Should the CONTRACTOR fail to remove such person or persons as required above, or fail to furnish suitable and sufficient personnel for the proper prosecution of the WORK, the ENGINEER may suspend the WORK by written notice until such orders are complied with.

6.3 ADJUSTING PROGRESS SCHEDULE. The CONTRACTOR shall submit monthly updates of the progress schedule to the ENGINEER for acceptance in accordance with the provisions in Section 01300 - CONTRACTOR Submittals in the General Requirements.

6.4 SUBSTITUTES OR "OR-EQUAL" ITEMS. The CONTRACTOR shall submit proposed substitutes or "or-equal" items in accordance with the provisions in Section 01300 - CONTRACTOR Submittals in the General Requirements.

6.5 CONCERNING SUBCONTRACTORS, SUPPLIERS, AND OTHERS.

A. The CONTRACTOR shall be responsible to the OWNER and the ENGINEER for the acts and omissions of its Subcontractors and their employees to the same extent as CONTRACTOR is responsible for the acts and omissions of its own employees. Nothing contained in this Paragraph shall create any contractual relationship between any Subcontractor and the OWNER or the ENGINEER nor relieve the CONTRACTOR of any liability or obligation under the prime contract.

B. The CONTRACTOR shall perform not less than 40% of the WORK with its own forces (i.e., without subcontracting). The 40% requirement shall be understood to mean that the CONTRACTOR shall perform, with its own organization, WORK amounting to at least 40% of the awarded contract amount. The 40% requirement will be calculated based upon the total of the subcontract amounts submitted for contract award, and any other information requested by the OWNER from the apparent low bidder.

6.6 PERMITS

A. Unless otherwise provided in the Supplementary General Conditions, the CONTRACTOR shall obtain and pay for all construction permits and licenses from the agencies having jurisdiction, including the furnishing of insurance and bonds if required by such agencies. The enforcement of such requirements under this contract shall not be made the basis for claims for additional compensation. The OWNER shall assist the CONTRACTOR, when necessary, in obtaining such permits and licenses. The CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the WORK, which are applicable at the time of opening of Bids. The CONTRACTOR shall pay all charges of utility owners for connections to the WORK.

B. These Contract Documents may require that the WORK be performed within the conditions and/or requirements of local, state and/or federal permits. These permits may be bound within the Contract Documents, included within the Contract Documents by reference, or included as part of the WORK, as designated in this Section. The CONTRACTOR is responsible for completing the WORK required for compliance with all permit requirements; this WORK is incidental to other items in the Contract Documents. Any reference to the PERMITTEE in the permits shall mean the CONTRACTOR. If any permits were acquired by the OWNER, this action was done to expedite the start of construction. If the CONTRACTOR does not complete the WORK within the specified permit window, the CONTRACTOR shall be responsible for the permit extension, and for completing any additional requirements placed upon the permit.

C. The OWNER shall apply for, and obtain, the necessary building permit for this Project, however, the CONTRACTOR is responsible for scheduling and coordinating all necessary inspections. The CBJ Inspection number is 586-1703. All other provisions of this Section remain in effect.

6.7 PATENT FEES AND ROYALTIES. The CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the WORK or the incorporation in the WORK of any invention, design, process, product, software or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the WORK and if to the actual knowledge of the OWNER or the ENGINEER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by the OWNER in the Contract Documents. The CONTRACTOR shall indemnify, defend and hold harmless the OWNER and the ENGINEER and anyone directly or indirectly employed by either of them from and against all claims, damages, losses, and expenses (including attorneys' fees and court costs) arising out of any infringement of patent rights or copyrights incident to the use in the performance of the WORK or resulting from the incorporation in the WORK of any invention, design, process, product, or device not specified in the Contract Documents, and shall defend all such claims in connection with any alleged infringement of such rights.

6.8 LAWS AND REGULATIONS. The CONTRACTOR shall observe and comply with all federal, state, and local laws, ordinances, codes, orders, and regulations which in any manner affect those engaged or employed on the WORK, the materials used in the WORK, or the conduct of the WORK. If any discrepancy or inconsistency should be discovered in this contract in relation to any such law, ordinance, code, order, or regulation, the CONTRACTOR shall report the same in writing to the ENGINEER. The CONTRACTOR shall indemnify, defend, and hold harmless the OWNER, the ENGINEER, and their officers, agents, and employees against all claims or liability arising from violation of any such law, ordinance, code, order, or regulation, whether by CONTRACTOR or by its employees, Subcontractors, or third parties. Any particular law or regulation specified or referred to elsewhere in the Contract Documents shall not in any way limit the obligation of the CONTRACTOR to comply with all other provisions of federal, state, and local laws and regulations.
The OWNER may, per AS 36.30, audit the CONTRACTOR's or Subcontractor(s) records that are related to the cost or pricing data for this contract, all related Change Orders, and/or contract modifications.

6.9 TAXES. The CONTRACTOR shall pay all sales, consumer, use, and other similar taxes required to be paid by the CONTRACTOR in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the WORK.

6.10 USE OF PREMISES. The CONTRACTOR shall confine construction equipment, the storage of materials and equipment, and the operations of workers to (1) the Project site, (2) the land and areas identified in and permitted by the Contract Documents, and (3) the other land and areas permitted by Laws and Regulations, rights-of-way, permits, leases and easements. The CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any land or areas contiguous thereto, resulting from the performance of the WORK. Should any claim be made against the OWNER or the ENGINEER by any such owner or occupant because of the performance of the WORK, the CONTRACTOR shall promptly attempt to settle with such other party by agreement or otherwise resolve the claim through litigation. The CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify, defend, and hold the OWNER and the ENGINEER harmless from and against all claims, damages, losses, and expenses (including, but not limited to, fees of engineers attorneys, and other professionals and court costs) arising directly, indirectly, or consequentially out of any action, legal or equitable, brought by any such owner or occupant against the OWNER, the ENGINEER, their Consultants, Sub-consultants, and the officers,

directors, employees and agents of each and any of them to the extent caused by or based upon the CONTRACTOR's performance of the WORK.

6.11 SAFETY AND PROTECTION

A. The CONTRACTOR shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the WORK. The CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all employees on the WORK and other persons and organizations who may be affected thereby;
2. all the WORK and materials and equipment to be incorporated therein, whether in storage on or off the site; and
3. other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

B. The CONTRACTOR shall comply with all applicable Laws and Regulations whether referred to herein or not) of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury, or loss and shall erect and maintain all necessary safeguards for such safety and protection. The CONTRACTOR shall notify owners of adjacent property and utilities when prosecution of the WORK may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. The CONTRACTOR shall designate a qualified and experienced safety representative at the site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and program.

D. Materials that contain hazardous substances or mixtures may be required on the WORK. A Material Safety Data Sheet shall be requested by the CONTRACTOR from the manufacturer of any hazardous product used.

E. Material usage shall be accomplished with strict adherence to all safety requirements and all manufacturer's warnings and application instructions listed on the Material Safety Data Sheet and on the product container label.

F. The CONTRACTOR shall be responsible for coordinating communications on any exchange of Material Safety Data Sheets or other hazardous material information that is required to be made available to, or exchanged between, or among, employers at the site in accordance with Laws or Regulations.

G. The CONTRACTOR shall notify the ENGINEER if it considers a specified product or its intended usage to be unsafe. This notification must be given to the ENGINEER prior to the product being ordered, or if provided by some other party, prior to the product being incorporated in the WORK.

6.12 SHOP DRAWINGS AND SAMPLES

A. After checking and verifying all field measurements and after complying with applicable procedures specified in the General Requirements, the CONTRACTOR shall submit to the ENGINEER for review, all Shop Drawings in accordance with Section 01300 - CONTRACTOR Submittals in the General Requirements.

B. The CONTRACTOR shall also submit to the ENGINEER for review all samples in accordance with Section 01300 - CONTRACTOR Submittals in the General Requirements.

C. Before submittal of each shop drawing or sample, the CONTRACTOR shall have determined and verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar data with respect thereto and reviewed or coordinated each Shop Drawing or sample with other Shop Drawings and samples and with the requirements of the WORK and the Contract Documents.

6.13 CONTINUING THE WORK. The CONTRACTOR shall carry on the WORK and adhere to the progress schedule during all disputes or disagreements with the OWNER. No work shall be delayed or postponed pending resolution of any disputes or disagreements, except as the CONTRACTOR and the OWNER may otherwise agree in writing.

6.14 INDEMNIFICATION

A. To the fullest extent permitted by Laws and Regulations, the CONTRACTOR shall indemnify, defend, and hold harmless the OWNER, the ENGINEER, their Consultants, Sub-consultants and the officers, directors, employees, and agents of each and any of them, against and from all claims and liability arising under, by reason of or incidentally to the contract or any performance of the WORK, but not from the sole negligence or willful misconduct of the OWNER, and the ENGINEER. Such indemnification by the CONTRACTOR shall include but not be limited to the following:

1. Liability or claims resulting directly or indirectly from the negligence or carelessness of the CONTRACTOR, its employees, or agents in the performance of the WORK, or in guarding or maintaining the same, or from any improper materials, implements, or appliances used in its construction, or by or on account of any act or omission of the CONTRACTOR, its employees, agents, or third parties;
2. Liability or claims arising directly or indirectly from bodily injury, occupational sickness or disease, or death of the CONTRACTOR’s or Subcontractor’s own employees engaged in the WORK resulting in actions brought by or on behalf of such employees against the OWNER, and the ENGINEER;
3. Liability or claims arising directly or indirectly from or based on the violation of any law, ordinance, regulation, order, or decree, whether by the CONTRACTOR, its employees, or agents;
4. Liability or claims arising directly or indirectly from the use or manufacture by the CONTRACTOR, its employees, or agents in the performance of this contract of any copyrighted or non-copyrighted composition, secret process, patented or non-patented invention, computer software, article, or appliance, unless otherwise specifically stipulated in this contract.

5. Liability or claims arising directly or indirectly from the breach of any warranties, whether express or implied, made to the OWNER or any other parties by the CONTRACTOR, its employees, or agents;
6. Liabilities or claims arising directly or indirectly from the willful or criminal misconduct of the CONTRACTOR, its employees, or agents; and,
7. Liabilities or claims arising directly or indirectly from any breach of the obligations assumed herein by the CONTRACTOR.

B. The CONTRACTOR shall reimburse the ENGINEER and the OWNER for all costs and expenses, (including but not limited to fees and charges of engineers, attorneys, and other professionals and court costs including all costs of appeals) incurred by said OWNER, and the ENGINEER in enforcing the provisions of this Paragraph 6.14.

C. The indemnification obligation under this Paragraph 6.14 shall not be limited in any way by any limitation of the amount or type of damages, compensation, or benefits payable by or for the CONTRACTOR or any such Subcontractor or other person or organization under workers' compensation acts, disability benefit acts, or other employee benefit acts.

6.15 CONTRACTOR'S DAILY REPORTS. The CONTRACTOR shall complete a daily report indicating total manpower for each construction trade, major equipment on site, each Subcontractor's manpower, weather conditions, etc., involved in the performance of the WORK. The daily report shall be completed on forms provided by the ENGINEER and shall be submitted to the ENGINEER at the conclusion of each workday. The report should comment on the daily progress and status of the WORK within each major component of the WORK. These components will be decided by the ENGINEER. CONTRACTOR shall record the name, affiliation, time of arrival and departure, and reason for visit for all visitors to the location of the WORK.

6.16 ASSIGNMENT OF CONTRACT. The CONTRACTOR shall not assign, sublet, sell, transfer, or otherwise dispose of the contract or any portion thereof, or its right, title, or interest therein, or obligations thereunder, without the written consent of the OWNER except as imposed by law. If the CONTRACTOR violates this provision, the contract may be terminated at the option of the OWNER. In such event, the OWNER shall be relieved of all liability and obligations to the CONTRACTOR and to its assignee or transferee, growing out of such termination.

6.17 CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTY AND SERVICES. It is understood that any turn-on or turn-off, line locates and any other work or assistance necessary by the CBJ Water Utilities Division, will be at the CONTRACTOR's expense unless otherwise stated in the bid documents. All cost must be agreed to prior to any related actions, and will be considered incidental to the project cost. Billing to the CONTRACTOR will be direct from the CBJ Water Utilities Division.

6.18 OPERATING WATER SYSTEM VALVES

A. The CONTRACTOR shall submit a written request, to the ENGINEER, for approval to operate any valve on any in-service section of the CBJ water system. The request must be submitted at least 24-hours prior to operating any valves. The CBJ Water Utilities Division reserves the right to approve or deny the request. The request shall specifically identify each valve to be operated, the time of operation, and the operation to be performed. The

CONTRACTOR shall obtain the written approval of the ENGINEER for any scheduled operation before operating any valve.

B. The CONTRACTOR shall be responsible for all damages, both direct and consequential, to the City or any other party, caused by unauthorized operation of any valve of the CBJ water system.

6.19 CONTRACTOR'S WORK SCHEDULE LIMITATIONS. Construction of Buildings and Projects. It is unlawful to operate any pile driver, power shovel, pneumatic hammer, derrick, power hoist, or similar heavy construction equipment before 7:00 a.m. or after 10:00 p.m., Monday through Friday, or before 9:00 a.m. or after 10:00 p.m., Saturday and Sunday, unless a permit shall first be obtained from the City and Borough Building Official. Such permit shall be issued by the Building Official only upon a determination that such operation during hours not otherwise permitted hereunder is necessary and will not result in unreasonable disturbance to surrounding residents.

ARTICLE 7 OTHER WORK

7.1 RELATED WORK AT SITE

A. The OWNER may perform other work related to the Project at the site by the OWNER's own forces, have other work performed by utility owners, or let other direct contracts therefor which may contain General Conditions similar to these. If the fact that such other work is to be performed was not noted in the Contract Documents, written notice thereof will be given to the CONTRACTOR prior to starting any such other work.

B. The CONTRACTOR shall afford each other contractor who is a party to such a direct contract and each utility owner (or the OWNER, if the OWNER is performing the additional work with the OWNER's employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such work, and shall properly connect and coordinate the WORK with theirs. The CONTRACTOR shall do all cutting, fitting, and patching of the WORK that may be required to make its several parts come together properly and integrate with such other work. The CONTRACTOR shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of the ENGINEER and the others whose work will be affected.

C. If the proper execution or results of any part of the CONTRACTOR's work depends upon the work of any such other contractor or utility owner (or OWNER), the CONTRACTOR shall inspect and report to the ENGINEER in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for such proper execution and results. The CONTRACTOR's failure to report such delays, defects, or deficiencies will constitute an acceptance of the other work as fit and proper for integration with the CONTRACTOR's work except for latent or nonapparent defects and deficiencies in the other work.

7.2 COORDINATION. If the OWNER contracts with others for the performance of other work on the Project at the site, the person or organization who will have authority and responsibility for coordination of the activities among the various prime contractors will be identified in the Supplementary General Conditions, and the specific matters to be covered by such authority and

responsibility will be itemized and the extent of such authority and responsibilities will be provided in the Supplementary General Conditions.

ARTICLE 8 OWNER'S RESPONSIBILITIES

8.1 COMMUNICATIONS

A. The OWNER shall issue all its communications to the CONTRACTOR through the ENGINEER.

B. The CONTRACTOR shall issue all its communications to the OWNER through the ENGINEER.

8.2 PAYMENTS. The OWNER shall make payments to the CONTRACTOR as provided in Paragraphs 14.5, 14.8, 14.9 and 14.10.

8.3 LANDS, EASEMENTS, AND SURVEYS. The OWNER's duties in respect of providing lands and easements and providing surveys to establish reference points are set forth in Paragraphs 4.1 and 4.5.

8.4 CHANGE ORDERS. The OWNER shall execute Change Orders as indicated in Paragraph 10.1F.

8.5 INSPECTIONS AND TESTS. The OWNER's responsibility in respect of inspections, tests, and approvals is set forth in Paragraph 13.3.

8.6 SUSPENSION OF WORK. In connection with the OWNER's right to stop WORK or suspend WORK, see Paragraphs 13.4 and 15.1.

8.7 TERMINATION OF AGREEMENT. Paragraphs 15.2 and 15.3 deal with the OWNER's right to terminate services of the CONTRACTOR.

ARTICLE 9 ENGINEER'S STATUS DURING CONSTRUCTION

9.1 OWNER'S REPRESENTATIVE. The ENGINEER will be the OWNER's representative during the construction period. The duties and responsibilities and the limitations of authority of the ENGINEER as the OWNER's representative during construction are set forth in the Contract Documents.

9.2 VISITS TO SITE. The ENGINEER will make visits to the site during construction to observe the progress and quality of the WORK and to determine, in general, if the WORK is proceeding in accordance with the Contract Documents. Exhaustive or continuous on-site inspections to check the quality or quantity of the WORK will not be required of the ENGINEER. The ENGINEER will not, during such visits, or as a result of such observations of the CONTRACTOR's WORK in progress, supervise, direct, or have control over the CONTRACTOR's WORK.

9.3 PROJECT REPRESENTATION. The ENGINEER may furnish an Inspector to assist in observing the performance of the WORK. The duties, responsibilities, and limitations of authority are as follows:

A. Duties, Responsibilities and Limitations of Authority of Inspector

General. The Inspector, who is the ENGINEER's Agent, will act as directed by and under the supervision of the ENGINEER and will confer with the ENGINEER regarding its actions. The Inspector's dealings in matters pertaining to the on-site WORK shall, in general, be only with the ENGINEER and the CONTRACTOR, and dealings with Subcontractors shall only be through or with the full knowledge of the CONTRACTOR. Written communication with the OWNER will be only through or as directed by the ENGINEER.

Duties and Responsibilities. The Inspector may:

1. Review the progress schedule, list of Shop Drawing submittals and schedule of values prepared by the CONTRACTOR and consult with the ENGINEER concerning their acceptability.
2. Attend pre-construction conferences. Arrange a schedule of progress meetings and other job conferences as required in consultation with the ENGINEER and notify those expected to attend in advance. Attend meetings and maintain and circulate copies of minutes thereof.
3. Serve as the ENGINEER's liaison with the CONTRACTOR, working principally through the CONTRACTOR's superintendent and assist said superintendent in understanding the intent of the Contract Documents. Assist the ENGINEER in serving as the OWNER's liaison with the CONTRACTOR when the CONTRACTOR's operations affect the OWNER's on-site operations.
4. As requested by the ENGINEER, assist in obtaining from the OWNER additional details or information, when required at the site for proper execution of the WORK.
5. Receive and record date of receipt of Shop Drawings and samples, receive samples which are furnished at the site by the CONTRACTOR and notify the ENGINEER of their availability for examination.
6. Conduct on-site observations of the WORK in progress to assist the ENGINEER in determining if the WORK is proceeding in accordance with the Contract Documents.
7. Report to the ENGINEER whenever the Inspector believes that any WORK is unsatisfactory, faulty, or defective or does not conform to the Contract Documents, or does not meet the requirements of any inspection, tests or approval required to be made or has been damaged prior to final payment; and advise the ENGINEER when the Inspector believes WORK should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection, or approval.
8. Verify that the tests, equipment, and systems startups and operating and maintenance instruction are conducted as required by the Contract Documents and in presence of the required personnel, and that the CONTRACTOR maintains adequate records thereof; observe, record and report to the ENGINEER appropriate details relative to the test procedures and start-ups.
9. Accompany visiting inspectors representing public or other agencies having jurisdiction over the WORK, record the outcome of these inspections, and report to the ENGINEER.
10. Transmit to the CONTRACTOR the ENGINEER's clarifications and interpretations of the Contract Documents.
11. Consider and evaluate the CONTRACTOR's suggestions for modifications in the Contract Documents and report them with recommendations to the ENGINEER.
12. Maintain at the job site orderly files for correspondence, reports of job conferences, Shop Drawings and sample submittals, reproductions of original Contract Documents including all addenda, Change Orders, field orders, additional Drawings issued

subsequent to the execution of the contract, the ENGINEER's clarifications and interpretations of the Contract Documents, progress reports, and other related documents.

13. Keep a diary or log book, recording hours on the job site, weather conditions, data relative to questions of extras or deductions, list all project visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of performing and observing test procedures. Send copies to the ENGINEER.
14. Record names, addresses, and telephone numbers of the CONTRACTOR, Subcontractors, and major suppliers of materials and equipment.
15. Furnish the ENGINEER with periodic reports as required of progress of the WORK and the CONTRACTOR's compliance with the accepted progress schedule and schedule of CONTRACTOR submittals.
16. Consult with the ENGINEER in advance of scheduled major tests, inspections, or start of important phases of the WORK.
17. Report immediately to the ENGINEER upon the occurrence of any accident.
18. Review applications for payment with the CONTRACTOR for compliance with the established procedure for their submittal and forward them with recommendations to the ENGINEER, noting particularly their relation to the schedule of values, WORK completed, and materials and equipment delivered at the site but not incorporated in the WORK.
19. During the course of the WORK, verify that certificates, maintenance and operation manuals, and other data required to be assembled and furnished by the CONTRACTOR are applicable to the items actually installed; and deliver this material to the ENGINEER for its review and forwarding to the OWNER prior to final acceptance of the WORK.
20. Before the ENGINEER prepares a Certificate of Substantial Completion/Notice of Completion, as applicable, review the CONTRACTOR's punch list items requiring completion or correction and add any items that CONTRACTOR has omitted.
21. Conduct final inspection in the company of the ENGINEER, the OWNER, and the CONTRACTOR, and prepare a final punch list of items to be completed or corrected.
22. Verify that all items on the punch list have been completed or corrected and make recommendations to the ENGINEER concerning acceptance.

Limitations of Authority. Except upon written instruction of the ENGINEER, the Inspector:

1. Shall not authorize any deviation from the Contract Documents or approve any substitute material or equipment.
2. Shall not exceed limitations on the ENGINEER's authority as set forth in the Contract Documents.
3. Shall not undertake any of the responsibilities of the CONTRACTOR, Subcontractors or CONTRACTOR's superintendent, or expedite the WORK.
4. Shall not advise on or issue directions relative to any aspect of the means, methods, techniques, sequences, or procedures of construction unless such is specifically called for in the Contract Documents.
5. Shall not advise on or issue directions as to safety precautions and programs in connection with the WORK.

9.4 CLARIFICATIONS AND INTERPRETATIONS. The ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract

Documents (in the form of Drawings or otherwise) as the ENGINEER may determine necessary, which shall be consistent with, or reasonably inferred from, the overall intent of the Contract Documents.

9.5 AUTHORIZED VARIATIONS IN WORK. The ENGINEER may authorize variations in the WORK from the requirements of the Contract Documents. These may be accomplished by a Field Order and will require the CONTRACTOR to perform the WORK involved in a manner that minimizes the impact to the WORK and the contract completion date. If the CONTRACTOR believes that a Field Order justifies an increase in the Contract Price or an extension of the Contract Time, the CONTRACTOR may make a claim therefor as provided in Article 11 or 12.

9.6 REJECTING DEFECTIVE WORK. The ENGINEER will have authority to reject WORK which the ENGINEER believes to be defective and will also have authority to require special inspection or testing of the WORK as provided in Paragraph 13.3G, whether or not the WORK is fabricated, installed, or completed.

9.7 CONTRACTOR SUBMITTALS, CHANGE ORDERS, AND PAYMENTS

A. In accordance with the procedures set forth in the General Requirements, the ENGINEER will review all CONTRACTOR submittals, including Shop Drawings, samples, substitutes, or "or equal" items, etc., in order to determine if the items covered by the submittals will, after installation or incorporation in the WORK, conform to the requirements of the Contract Documents and be compatible with the design concept of the completed project as a functioning whole as indicated by the Contract Documents. The ENGINEER's review will not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions or programs incident thereto.

B. In connection with the ENGINEER's responsibilities as to Change Orders, see Articles 10, 11, and 12.

C. In connection with the ENGINEER's responsibilities in respect of Applications for Payment, see Article 14.

9.8 DECISIONS ON DISPUTES

A. The ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the WORK thereunder. Claims, disputes, and other matters relating to the acceptability of the WORK; the interpretation of the requirements of the Contract Documents pertaining to the performance of the WORK; and those claims under Articles 11 and 12 in respect to changes in the Contract Price or Contract Time will be referred initially to the ENGINEER in writing with a request for formal decision in accordance with this paragraph, which the ENGINEER will render in writing within 30 days of receipt of the request. Written notice of each such claim, dispute, and other matter will be delivered by the CONTRACTOR to the ENGINEER promptly (but in no event later than 30 days) after the occurrence of the event giving rise thereto. Written supporting data will be submitted to the ENGINEER within 60 days after such occurrence unless the ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim.

B. The rendering of a decision by the ENGINEER with respect to any such claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment as provided in Paragraph 14.12) will be a condition precedent to any exercise by the OWNER or the CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Law or Regulations in respect of any such claim, dispute, or other matter.

9.9 LIMITATION ON ENGINEER'S RESPONSIBILITIES

A. Neither the ENGINEER's authority to act under this Article or other provisions of the Contract Documents nor any decision made by the ENGINEER in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of the ENGINEER to the CONTRACTOR, any Subcontractor, any Supplier, any surety for any of them, or any other person or organization performing any of the WORK.

B. Whenever in the Contract Documents the terms "as ordered," "as directed," "as required," "as allowed," "as reviewed," "as approved," or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper," or "satisfactory" or adjectives of like effect or import are used to describe a requirement, direction, review, or judgment of the ENGINEER as to the WORK, it is intended that such requirement, direction, review, or judgment will be solely to evaluate the WORK for compliance with the requirements of the Contract Documents, and conformance with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents, unless there is a specific statement indicating otherwise. The use of any such term or adjective shall not be effective to assign to the ENGINEER any duty or authority to supervise or direct the performance of the WORK or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.9C or 9.9D.

C. The ENGINEER will not supervise, direct, control, or have authority over or be responsible for the CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of the CONTRACTOR to comply with Laws and Regulations, applicable to the performance of the WORK. The ENGINEER will not be responsible for the CONTRACTOR's failure to perform the WORK in accordance with the Contract Documents.

D. The ENGINEER will not be responsible for the acts or omissions of the CONTRACTOR nor of any Subcontractor, supplier, or any other person or organization performing any of the WORK.

ARTICLE 10 CHANGES IN THE WORK

10.1 GENERAL

A. Without invalidating the Agreement and without notice to any surety, the OWNER may at any time or from time to time, order additions, deletions, or revisions in the WORK; these will be authorized by a written Field Order and/or a Change Order issued by the ENGINEER.

B. If the CONTRACTOR believes that it is entitled to an increase or decrease in the Contract Price, or an extension or shortening in the Contract Time as the result of a Field Order, a claim may be made as provided in Articles 11 and 12.

C. If the OWNER and CONTRACTOR agree on the value of any work, or the amount of Contract Time that should be allowed as a result of a Field Order, upon receiving written notice from the ENGINEER, the CONTRACTOR shall proceed so as to minimize the impact on and delays to the work pending the issuance of a Change Order.

D. If the OWNER and the CONTRACTOR are unable to agree as to the extent, if any, of an increase or decrease in the Contract Price or an extension or shortening of the Contract Time that should be allowed as a result of a Field Order, the ENGINEER can direct the CONTRACTOR to proceed on the basis of Time and Materials so as to minimize the impact on and delays to WORK, and a claim may be made therefor as provided in Articles 11 and 12.

E. The CONTRACTOR shall not be entitled to an increase in the Contract Price nor an extension of the Contract Time with respect to any work performed that is not required by the Contract Documents as amended, modified, supplemented by Change Order, except in the case of an emergency and except in the case of uncovering work as provided in Paragraph 13.3G.

F. The OWNER and the CONTRACTOR shall execute appropriate Change Orders covering:

1. changes in the WORK which are ordered by the OWNER pursuant to Paragraph 10.1A;
2. changes required because of acceptance of Defective WORK under Paragraph 13.7;
3. changes in the Contract Price or Contract Time which are agreed to by the parties; or
4. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by the ENGINEER pursuant to Paragraph 9.8.

G. If notice of any change is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be the CONTRACTOR's responsibility, and the amount of each applicable Bond shall be adjusted accordingly.

10.2 ALLOWABLE QUANTITY VARIATIONS

A. In the event of an increase or decrease in Bid item quantity of a unit price contract, the total amount of WORK actually done or materials or equipment furnished shall be paid for according to the unit price established for such WORK under the Contract Documents, wherever such unit price has been established; provided, that an adjustment in the Contract Price may be made for changes which result in an increase or decrease in excess of 25% of

the estimated quantity of any major item of the WORK. Major Item is defined as any bid item amount that is ten percent (10%) or more of the total contract amount.

B. In the event a part of the WORK is to be entirely eliminated and no lump sum or unit price is named in the Contract Documents to cover such eliminated work, the price of the eliminated work shall be agreed upon in writing by the OWNER and the CONTRACTOR. If the OWNER and the CONTRACTOR fail to agree upon the price of the eliminated work, said price shall be determined in accordance with the provisions of Article 11.

ARTICLE 11 CHANGE OF CONTRACT PRICE

11.1 GENERAL

A. The Contract Price constitutes the total compensation payable to the CONTRACTOR for performing the WORK. All duties, responsibilities, and obligations assigned to or undertaken by the CONTRACTOR to complete the WORK shall be at its expense without change in the Contract Price.

B. The Contract Price may only be changed by a Change Order. Any claim for an increase in the Contract Price shall be based on written notice delivered by the CONTRACTOR to the ENGINEER promptly (but in no event later than 7 days) after the start of the occurrence or the event giving rise to the claim and stating the general nature of the claim. Notice of the amount of the claim with supporting data shall be delivered within 14 days after such occurrence (unless the ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the CONTRACTOR's written statement that the amount claimed covers all known amounts (direct, indirect, and consequential) to which the CONTRACTOR is entitled as a result of said occurrence or event. All claims for adjustment in the Contract Price shall be determined by the ENGINEER in accordance with Paragraph 9.8A if the OWNER and the CONTRACTOR cannot otherwise agree on the amount involved. No claim for an adjustment in the Contract Price will be valid if not submitted in accordance with this Paragraph 11.1B.

C. The value of any WORK covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:

1. Where the WORK involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved.
2. By mutual acceptance of a lump sum, which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.4.
3. On the basis of the cost of WORK (determined as provided in Paragraphs 11.3) plus a CONTRACTOR's fee for overhead and profit (determined as provided in Paragraph 11.4).

11.2 COSTS RELATING TO WEATHER. The CONTRACTOR shall have no claims against the OWNER for damages for any injury to WORK, materials, or equipment, resulting from the action of the elements. If, however, in the opinion of the ENGINEER, the CONTRACTOR has made all reasonable efforts to protect the materials, equipment and work, the CONTRACTOR may be granted a reasonable extension of Contract Time to make proper repairs, renewals, and replacements of the work, materials, or equipment.

11.3 COST OF WORK (BASED ON TIME AND MATERIALS)

A. General. The term "cost of work" means the sum of all costs necessarily incurred and paid by the CONTRACTOR for labor, materials, and equipment in the proper performance of extra work. Except as otherwise may be agreed to in writing by the OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project; shall include only the following items, and shall not include any of the costs itemized in Paragraph 11.5 EXCLUDED COSTS.

B. Labor. The costs of labor will be the actual cost for wages prevailing for each craft or type of workers performing the extra work at the time the extra work is done, plus employer payments of payroll taxes, worker's compensation insurance, liability insurance, health and welfare, pension, vacation, apprenticeship funds, and other direct costs resulting from Federal, State or local laws, as well as assessments or benefits required by lawful collective bargaining agreements. Labor costs for equipment operators and helpers shall be paid only when such costs are not included in the invoice for equipment rental. The labor costs for forepersons shall be proportioned to all of their assigned work and only that applicable to extra work shall be paid. Non-direct labor costs including superintendence shall be considered part of the mark-up set out in paragraph 11.4.

C. Materials. The cost of materials reported shall be at invoice or lowest current price at which materials are locally available and delivered to the job in the quantities involved, plus the cost of freight, delivery and storage, subject to the following:

1. Trade discounts available to the purchaser shall be credited to the OWNER notwithstanding the fact that such discounts may not have been taken by the CONTRACTOR.
2. For materials secured by other than a direct purchase and direct billing to the purchaser, the cost shall be deemed to be the price paid to the actual supplier as determined by the ENGINEER. Mark-up except for actual costs incurred in the handling of such materials will not be allowed.
3. Payment for materials from sources owned wholly or in part by the purchaser shall not exceed the price paid by the purchaser for similar materials from said sources on extra work items or the current wholesale price for such materials delivered to the work site, whichever price is lower.
4. If in the opinion of the ENGINEER the cost of material is excessive, or the CONTRACTOR does not furnish satisfactory evidence of the cost of such material, then the cost shall be deemed to be the lowest current wholesale price for the quantity concerned delivered to the work site less trade discount. The OWNER reserves the right to furnish materials for the extra work and no claim shall be allowed by the CONTRACTOR for costs and profit on such materials.

D. Equipment. The CONTRACTOR will be paid for the use of equipment at the rental rate listed for such equipment specified in the Supplementary General Conditions. Such rental rate will be used to compute payments for equipment whether the equipment is under the CONTRACTOR's control through direct ownership, leasing, renting, or another method of acquisition. The rental rate to be applied for use of each item of equipment shall be the rate resulting in the least total cost to the OWNER for the total period of use. If it is deemed

necessary by the CONTRACTOR to use equipment not listed in the publication specified in the Supplementary General Conditions, an equitable rental rate for the equipment will be established by the ENGINEER. The CONTRACTOR may furnish cost data which might assist the ENGINEER in the establishment of the rental rate.

1. All equipment shall, in the opinion of the ENGINEER, be in good working condition and suitable for the purpose for which the equipment is to be used.
2. Before construction equipment is used on the extra work, the CONTRACTOR shall plainly stencil or stamp an identifying number thereon at a conspicuous location, and shall furnish to the ENGINEER, in duplicate, a description of the equipment and its identifying number.
3. Unless otherwise specified, manufacturer's ratings and manufacturer approved modifications shall be used to classify equipment for the determination of applicable rental rates. Equipment which has no direct power unit shall be powered by a unit of at least the minimum rating recommended by the manufacturer.
4. Individual pieces of equipment or tools having a replacement value of $200 or less, whether or not consumed by use, shall be considered to be small tools and no payment will be made therefor.
5. Rental time will not be allowed while equipment is inoperative due to breakdowns.
6. Equipment Rental Rates. Unless otherwise agreed in writing, the CONTRACTOR will be paid for the use of equipment at the rental rate listed for such equipment specified in the current edition of the following reference publication: "Rental Rate Blue Book" as published by Dataquest (a company of the Dunn and Bradstreet Corporation), 1290 Ridder Park Drive, San Jose, CA 95131, telephone number (800) 227-8444.

E. Equipment on the Work Site. The rental time to be paid for equipment on the work site shall be the time the equipment is in productive operation on the extra work being performed and, in addition, shall include the time required to move the equipment to the location of the extra work and return it to the original location or to another location requiring no more time than that required to return it to its original location; except, that moving time will not be paid if the equipment is used on other than the extra work, even though located at the site of the extra work. Loading and transporting costs will be allowed, in lieu of moving time, when the equipment is moved by means other than its own power, except that no payment will be made for loading and transporting costs when the equipment is used at the site of the extra work on other than the extra work. The following shall be used in computing the rental time of equipment on the work site.

1. When hourly rates are listed, any part of an hour less than 30 minutes of operation shall be considered to be 1/2-hour of operation, and any part of an hour in excess of 30 minutes will be considered one hour of operation.
2. When daily rates are listed, any part of a day less than 4 hours operation shall be considered to be 1/2-day of operation. When owner-operated equipment is used to perform extra work to be paid for on a time and materials basis, the CONTRACTOR will be paid for the equipment and operator, as set forth in Paragraphs (3), (4), and (5), following.
3. Payment for the equipment will be made in accordance with the provisions in Paragraph 11.3D, herein.
4. Payment for the cost of labor and subsistence or travel allowance will be made at the rates paid by the CONTRACTOR to other workers operating similar equipment already

on the work site, or in the absence of such labor, established by collective bargaining agreements for the type of worker and location of the extra work, whether or not the operator is actually covered by such an agreement. A labor surcharge will be added to the cost of labor described herein in accordance with the provisions of Paragraph 11.3B, herein, which surcharge shall constitute full compensation for payments imposed by state and federal laws and all other payments made to or on behalf of workers other than actual wages.

5. To the direct cost of equipment rental and labor, computed as provided herein, will be added the allowances for equipment rental and labor as provided in Paragraph 11.4, herein.

F. Specialty Work. Specialty work is defined as that work characterized by extraordinary complexity, sophistication, or innovation or a combination of the foregoing attributes which are unique to the construction industry. The following shall apply in making estimates for payment for specialty work:

1. Any bid item of WORK to be classified as Specialty Work shall be listed as such in the Supplementary General Conditions. Specialty work shall be performed by an entity especially skilled in the work to be performed. After validation of invoices and determination of market values by the ENGINEER, invoices for specialty work based upon the current fair market value thereof may be accepted without complete itemization of labor, material, and equipment rental costs.
2. When the CONTRACTOR is required to perform work necessitating special fabrication or machining process in a fabrication or a machine shop facility away from the job site, the charges for that portion of the work performed at the off-site facility may, by agreement, be accepted as specialty work and accordingly, the invoices for the work may be accepted without detailed itemization.
3. All invoices for specialty work will be adjusted by deducting all trade discounts offered or available, whether the discounts were taken or not. In lieu of the allowances for overhead and profit specified in Paragraph 11.4, herein, an allowance of 5 percent will be added to invoices for specialty work.

G. Sureties. All work performed hereunder shall be subject to all of the provisions of the Contract Documents and the CONTRACTOR's sureties shall be bound with reference thereto as under the original Agreement. Copies of all amendments to surety bonds or supplemental surety bonds shall be submitted to the OWNER for review prior to the performance of any work hereunder.

11.4 CONTRACTOR'S FEE

A. Extra work ordered on the basis of time and materials will be paid for at the actual necessary cost as determined by the ENGINEER, plus allowances for overhead and profit. The allowance for overhead and profit shall include full compensation for superintendence, bond and insurance premiums, taxes, field office expense, extended overhead, home office overhead, and all other items of expense or cost not included in the cost of labor, materials, or equipment provided for under Paragraph 11.3. The allowance for overhead and profit will be made in accordance with the following schedule:

Actual Overhead and Profit Allowance

Labor	15 percent
Materials	10 percent
Equipment	10 percent

To the sum of the costs and mark-ups provided for in this Article, one percent shall be added as compensation for bonding.

B. It is understood that labor, materials, and equipment may be furnished by the CONTRACTOR or by the Subcontractor on behalf of the CONTRACTOR. When all or any part of the extra work is performed by a Subcontractor, the allowance specified herein shall be applied to the labor, materials, and equipment costs of the Subcontractor, to which the CONTRACTOR may add 5 percent of the Subcontractor's total cost for the extra work. Regardless of the number of hierarchical tiers of Subcontractors, the 5 percent increase above the Subcontractor's total cost which includes the allowances for overhead and profit specified herein may be applied one time only.

11.5 EXCLUDED COSTS. The term "Cost of the Work" shall not include any of the following:

A. Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnership and sole proprietorships), general managers, engineers, estimators, attorneys' auditors, accountants, purchasing and contracting agents, expenditures, timekeepers, clerks and other personnel employed by CONTRACTOR whether at the site or in CONTRACTOR's principal or a branch office for general administration of the work, or not specifically covered by paragraph 11.3, all of which are to be considered administrative costs covered by the CONTRACTOR's fee.

B. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the site.

C. Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the WORK and charges against CONTRACTOR for delinquent payments.

D. Cost of premiums for all bonds and for all insurance whether or not CONTRACTOR is required by the Contract Documents to purchase and maintain the same (except for the cost of premiums covered by paragraph 11.4 above).

E. Costs due to the negligence of CONTRACTOR , any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of Defective WORK, disposal of materials or equipment wrongly supplied and making good any damage to property.

F. Other overhead or general expense costs of any kind and the cost of any item not specifically and expressly included in paragraph 11.4.

ARTICLE 12 CHANGE OF CONTRACT TIME

12.1 GENERAL

A. The Contract Time may only be changed by a Change Order. Any claim for an extension of the Contract Time (or Milestones) shall be based on written notice delivered by the CONTRACTOR to the ENGINEER promptly (but in no event later than 30 days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within 60 days after such occurrence (unless the ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the CONTRACTOR's written statement that the adjustment claimed is the entire adjustment to which the CONTRACTOR has reason to believe it is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Time shall be determined by the ENGINEER in accordance with Paragraph 9.8 if the OWNER and the CONTRACTOR cannot otherwise agree. No claim for an adjustment in the Contract Time will be valid if not submitted in accordance with the requirements of this Paragraph 12.1A. An increase in Contract Time does not mean that the Contractor is due an increase in Contract Price. Only compensable time extensions will result in an increase in Contract Price.

B. All time limits stated in the Contract Documents are of the essence of the Agreement.

C. Where CONTRACTOR is prevented from completing any part of the WORK within the Contract Times (or Milestones) due to delay beyond the control of CONTRACTOR, the Contract Times (or Milestones) will be extended in an amount equal to the time lost on the critical path of the project due to such delay if a claim is made therefor as provided in paragraph 12.1. Delays beyond the control of CONTRACTOR shall include, but not be limited to, acts or neglect by OWNER, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, unprecedented weather conditions or acts of God. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of CONTRACTOR.

D. Where CONTRACTOR is prevented from completing any part of the WORK within the Contract Times (or Milestones) due to delay beyond the control of both OWNER and CONTRACTOR, an extension of the Contract Times (or Milestones) in an amount equal to the time lost on the critical path of the project due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay. In no event shall the OWNER be liable to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from (i) delays caused by or within the control of CONTRACTOR, or (ii) delays beyond the control of both parties including but not limited to fires, floods, epidemics abnormal weather conditions, acts of God or acts or neglect by utility owners or other contractors performing other work as contemplated by Article 7.

12.2 EXTENSIONS OF TIME FOR DELAY DUE TO WEATHER. Contract Time may be extended by the ENGINEER because of delays in completion of the WORK due to unusually severe weather, provided that the CONTRACTOR shall, within 10 days of the beginning of any such delay, notify the ENGINEER in writing of the cause of delay and request an extension of Contract Time. The

ENGINEER will ascertain the facts and the extent of the delay and extend the time for completing the work when, in the ENGINEER's judgment, the findings of fact justify such an extension. Unprecedented, abnormal, or unusually severe weather will be defined as an event, or events, with a greater than 50-year recurrence interval, as determined by the National Weather Service, or equivalent State or Federal agency

ARTICLE 13 WARRANTY AND GUARANTEE; TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

13.1 WARRANTY AND GUARANTEE. The CONTRACTOR warrants and guarantees to the OWNER and the ENGINEER that all work will be in accordance with the Contract Documents and will not be defective. Prompt notice of defects known to the OWNER or ENGINEER shall be given to the CONTRACTOR. All defective work, whether or not in place, may be rejected, corrected, or accepted as provided in this Article 13.

13.2 ACCESS TO WORK. OWNER, ENGINEER, their Consultants, sub-consultants, other representatives and personnel of OWNER, independent testing laboratories and governmental agencies with jurisdictional interests will have access to the WORK at reasonable times for their observation, inspecting and testing. CONTRACTOR shall provide them proper and safe conditions for such access and advise them of CONTRACTOR's site safety procedures and programs so that they may comply therewith as applicable.

13.3 TESTS AND INSPECTIONS

A. The CONTRACTOR shall give the ENGINEER timely notice of readiness of the WORK for all required inspections, tests, or approvals, and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. If Laws or Regulations of any public body having jurisdiction other than the OWNER require any WORK to specifically be inspected, tested, or approved, the CONTRACTOR shall pay all costs in connection therewith. The CONTRACTOR shall also be responsible for and shall pay all costs in connection with any inspection or testing required in connection with the OWNER's or the ENGINEER's acceptance of a Supplier of materials or equipment proposed as a substitution or (or-equal) to be incorporated in the WORK, or of materials or equipment submitted for review prior to the CONTRACTOR's purchase thereof for incorporation in the WORK. The cost of all inspections, tests, and approvals in addition to the above which are required by the Contract Documents shall be paid by the OWNER (unless otherwise specified).

C. The ENGINEER will make, or have made, such inspections and tests as the ENGINEER deems necessary to see that the WORK is being accomplished in accordance with the requirements of the Contract Documents. Unless otherwise specified in the Supplementary General Conditions, the cost of such inspection and testing will be borne by the OWNER. In the event such inspections or tests reveal non-compliance with the requirements of the Contract Documents, the CONTRACTOR shall bear the cost of corrective measures deemed necessary by the ENGINEER, as well as the cost of subsequent reinspection and retesting. Neither observations by the ENGINEER nor inspections, tests, or approvals by others shall relieve the CONTRACTOR from the CONTRACTOR's obligation to perform the WORK in accordance with the Contract Documents.

D. All inspections, tests, or approvals other than those required by Laws or Regulations of any public body having jurisdiction shall be performed by organizations acceptable to the ENGINEER and the CONTRACTOR.

E. If any WORK (including the work of others) that is to be inspected, tested, or approved is covered without written concurrence of the ENGINEER, it must, if requested by the ENGINEER, be uncovered for observation. Such uncovering shall be at the CONTRACTOR's expense unless the CONTRACTOR has given the ENGINEER timely notice of the CONTRACTOR's intention to perform such test or to cover the same and the ENGINEER has not acted with reasonable promptness in response to such notice.

F. If any WORK is covered contrary to the written request of the ENGINEER, it must, if requested by the ENGINEER, be uncovered for the ENGINEER's observation and recovered at the CONTRACTOR's expense.

G. If the ENGINEER considers it necessary or advisable that covered WORK be observed by the ENGINEER or inspected or tested by others, the CONTRACTOR, at the ENGINEER's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as the ENGINEER may require, that portion of the WORK in question, furnishing all necessary labor, material, and equipment. If it is found that such WORK is defective, the CONTRACTOR shall bear all direct, indirect, and consequential costs and damages of such uncovering, exposure, observation, inspection, and testing and of satisfactory reconstruction, including but not limited to fees and charges of engineers, attorneys, and other professionals. However, if such WORK is not found to be defective, the CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, and reconstruction; and, if the parties are unable to agree as to the amount or extent thereof, the CONTRACTOR may make a claim therefor as provided in Articles 11 and 12.

13.4 OWNER MAY STOP THE WORK. If the WORK is defective, or the CONTRACTOR fails to perform work in such a way that the completed WORK will conform to the Contract Documents, the OWNER may order the CONTRACTOR to stop the WORK, or any portion thereof, until the cause for such order has been eliminated; however, this right of the OWNER to stop the WORK shall not give rise to any duty on the part of the OWNER to exercise this right for the benefit of the CONTRACTOR or any other party.

13.5 CORRECTION OR REMOVAL OF DEFECTIVE WORK. If required by the ENGINEER, the CONTRACTOR shall promptly, either correct all defective work, whether or not fabricated, installed, or completed, or, if the WORK has been rejected by the ENGINEER, remove it from the site and replace it with non-defective work. The CONTRACTOR shall bear all direct, indirect and consequential costs and damages of such correction or removal, including but not limited to fees and charges of engineers, attorneys, and other professionals made necessary thereby.

13.6 ONE YEAR CORRECTION PERIOD

A. If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any work is found to be defective, the CONTRACTOR shall promptly, without cost to the OWNER and in accordance with OWNER's written notification, (i) correct such Defective WORK, or, if it has been rejected by the OWNER, remove it from the site and replace it with non-defective work, and (ii) satisfactorily correct or remove and replace any damage to other work of others resulting therefrom. If the CONTRACTOR does not promptly comply with such notification, or in an emergency where delay would cause serious risk of loss or damage, the OWNER may have the Defective WORK corrected or the rejected WORK removed and replaced, and all direct, indirect, and consequential costs and damages of such removal and replacement including but not limited to fees and charges of engineers, attorneys and other professionals will be paid by the CONTRACTOR.

B. Where Defective WORK (and damage to other WORK resulting therefrom) has been corrected, removed or replaced under this paragraph 13.6, the correction period hereunder with respect to such WORK will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

13.7 ACCEPTANCE OF DEFECTIVE WORK. If, instead of requiring correction or removal and replacement of defective work, the OWNER prefers to accept the WORK, the OWNER may do so. The CONTRACTOR shall bear all direct, indirect, and consequential costs attributable to the OWNER's evaluation of and determination to accept such defective work. If any such acceptance occurs prior to final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the WORK, and the OWNER shall be entitled to an appropriate decrease in the Contract Price.

ARTICLE 14 PAYMENTS TO CONTRACTOR AND COMPLETION

14.1 SCHEDULE OF VALUES (LUMP SUM PRICE BREAKDOWN). The schedule of values or lump sum price breakdown established as provided in the General Requirements shall serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to the ENGINEER.

14.2 UNIT PRICE BID SCHEDULE. Progress payments on account of Unit Price work will be based on the number of units completed.

14.3 APPLICATION FOR PROGRESS PAYMENT

A. Unless otherwise prescribed by law, on the 25th of each month, the CONTRACTOR shall submit to the ENGINEER for review, an Application for Payment filled out and signed by the CONTRACTOR covering the WORK completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.

B. The Application for Payment shall identify, as a sub-total, the amount of the CONTRACTOR'S Total Earnings to Date, plus the Value of Materials Stored at the Site which have not yet been incorporated in the WORK, and less a deductive adjustment for

materials installed which were not previously incorporated in the WORK, but for which payment was allowed under the provisions for payment for Materials Stored at the Site, but not yet incorporated in the WORK.

C. The Net Payment Due the CONTRACTOR shall be the above-mentioned subtotal from which shall be deducted the total amount of all previous payments made to the CONTRACTOR. Progress payments will be paid in full in accordance with Article 14 of the General Conditions until 90% of the Contract Price has been paid. The remaining 10% of the Contract Price amount may be withheld until:

1. final inspection has been made;
2. completion of the Project; and
3. acceptance of the Project by the OWNER.

D. The Value of Materials Stored at the Site shall be an amount equal to the specified percent of the value of such materials as set forth in the Supplementary General Conditions. Said amount shall be based upon the value of all acceptable materials and equipment not incorporated in the WORK but delivered and suitably stored at the site or at another location agreed to in writing; provided, each such individual item has a value of more than $5,000.00 and will become a permanent part of the WORK. The Application for Payment shall also be accompanied by an invoice (including shipping), a certification that the materials meet the applicable contract specifications, and any evidence required by the OWNER that the materials and equipment are covered by appropriate property insurance and other arrangements to protect the OWNER's interest therein, all of which will be satisfactory to the OWNER. Payment for materials will not constitute final acceptance. It shall be the CONTRACTOR’s responsibility to protect the material from damage, theft, loss, or peril while in storage. Unless otherwise prescribed by law, the Value of Materials Stored at the Site shall be paid at the invoice amount up to a maximum of 85% of the Contract Price for those items.

14.4 CONTRACTOR'S WARRANTY OF TITLE. The CONTRACTOR warrants and guarantees that title to all work, materials, and equipment covered by an Application for Payment, whether incorporated in the WORK or not, will pass to the OWNER no later than the time of payment free and clear of all liens.

14.5 REVIEW OF APPLICATIONS FOR PROGRESS PAYMENT

A. The ENGINEER will, within 7 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to the OWNER, or return the Application to the CONTRACTOR indicating in writing the ENGINEER's reasons for refusing to recommend payment. In the later case, the CONTRACTOR may make the necessary corrections and resubmit the Application. If the ENGINEER still disagrees with a portion of the Application, it will submit the Application recommending the undisputed portion of the Application to the OWNER for payment and provide reasons for recommending non-payment of the disputed amount. Thirty days after presentation of the Application for Payment with the ENGINEER's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.5B) become due and when due will be paid by the OWNER to the CONTRACTOR.

B. The OWNER may refuse to make payment of the full amount recommended by the ENGINEER because claims have been made against the OWNER on account of the CONTRACTOR's performance of the WORK or Liens have been filed in connection with the WORK or there are other items entitling the OWNER to a credit against the amount recommended, but the OWNER must give the CONTRACTOR written notice within 7 days (with a copy to the ENGINEER) stating the reasons for such action.

14.6 PARTIAL UTILIZATION

A. The OWNER shall have the right to utilize or place into service any item of equipment or other usable portion of the WORK prior to completion of the WORK. Whenever the OWNER plans to exercise said right, the CONTRACTOR will be notified in writing by the OWNER, identifying the specific portion or portions of the WORK to be so utilized or otherwise placed into service.

B. It shall be understood by the CONTRACTOR that until such written notification is issued, all responsibility for care and maintenance of all of the WORK shall be borne by the CONTRACTOR. Upon issuance of said written notice of partial utilization, the OWNER will accept responsibility for the protection and maintenance of all such items or portions of the WORK described in the written notice.

C. The CONTRACTOR shall retain full responsibility for satisfactory completion of the WORK, regardless of whether a portion thereof has been partially utilized by the OWNER and the CONTRACTOR's one year correction period shall commence only after the date of Substantial Completion for the WORK.

14.7 SUBSTANTIAL COMPLETION. When the CONTRACTOR considers the WORK ready for its intended use the CONTRACTOR shall notify the OWNER and the ENGINEER in writing that the WORK is substantially complete. The CONTRACTOR will attach to this request a list of all work items that remain to be completed and a request that the ENGINEER prepare a Notice of Completion. Within a reasonable time thereafter, the OWNER, the CONTRACTOR, and the ENGINEER shall make an inspection of the WORK to determine the status of completion. If the ENGINEER does not consider the WORK substantially complete, or the list of remaining work items to be comprehensive, the ENGINEER will notify the CONTRACTOR in writing giving the reasons therefor. If the ENGINEER considers the WORK substantially complete, the ENGINEER will prepare and deliver to the OWNER, for its execution and recording, the Notice of Completion signed by the ENGINEER and CONTRACTOR, which shall fix the date of Substantial Completion.

14.8 FINAL APPLICATION FOR PAYMENT. After the CONTRACTOR has completed all of the remaining work items referred to in Paragraph 14.7 and delivered all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, record as-built documents (as provided in the General Requirements) and other documents, all as required by the Contract Documents, and after the ENGINEER has indicated that the WORK is acceptable, the CONTRACTOR may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by all documentation called for in the Contract Documents, together with complete and legally effective releases or waivers (satisfactory to the OWNER) of all liens arising out of or filed in connection with the WORK.

14.9 FINAL PAYMENT AND ACCEPTANCE

A. If, on the basis of the ENGINEER's observation of the WORK during construction and final inspection, and the ENGINEER's review of the final Application for Payment and accompanying documentation, all as required by the Contract Documents, the ENGINEER is satisfied that the WORK has been completed and the CONTRACTOR's other obligations under the Contract Documents have been fulfilled, the ENGINEER will, within 14 days after receipt of the final Application for Payment, indicate in writing the ENGINEER's recommendation of payment and present the Application to the OWNER for payment.

B. After acceptance of the WORK by the OWNER's governing body, the OWNER will make final payment to the CONTRACTOR of the amount remaining after deducting all prior payments and all amounts to be kept or retained under the provisions of the Contract Documents, including the following items:

1. Liquidated damages, as applicable.
2. Two times the value of outstanding items of correction work or punch list items yet uncompleted or uncorrected, as applicable. All such work shall be completed or corrected to the satisfaction of the OWNER within the time stated on the Notice of Completion, otherwise the CONTRACTOR does hereby waive any and all claims to all monies withheld by the OWNER to cover the value of all such uncompleted or uncorrected items.

14.10 RELEASE OF RETAINAGE AND OTHER DEDUCTIONS

A. After executing the necessary documents to initiate the lien period, and not more than 45 days thereafter (based on a 30-day lien filing period and 15-day processing time), the OWNER will release to the CONTRACTOR the retainage funds withheld pursuant to the Agreement, less any deductions to cover pending claims against the OWNER pursuant to Paragraph 14.5B.

B. After filing of the necessary documents to initiate the lien period, the CONTRACTOR shall have 30 days to complete any outstanding items of correction work remaining to be completed or corrected as listed on a final punch list made a part of the Notice of Completion. Upon expiration of the 45 days, referred to in Paragraph 14.10A, the amounts withheld pursuant to the provisions of Paragraph 14.9B herein, for all remaining work items will be returned to the CONTRACTOR; provided, that said work has been completed or corrected to the satisfaction of the OWNER within said 30 days. Otherwise, the CONTRACTOR does hereby waive any and all claims for all monies withheld by the OWNER under the Contract to cover 2 times the value of such remaining uncompleted or uncorrected items.

14.11 CONTRACTOR'S CONTINUING OBLIGATION. The CONTRACTOR's obligation to perform and complete the WORK in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by the ENGINEER, nor the issuance of a Notice of Completion, nor any payment by the OWNER to the CONTRACTOR under the Contract Documents, nor any use or occupancy of the WORK or any part thereof by the OWNER, nor any act of acceptance by the OWNER nor any failure to do so, nor any review of a Shop Drawing or sample submittal, will constitute an acceptance of work not in accordance with the Contract Documents or a release of the CONTRACTOR's obligation to perform the WORK in accordance with the Contract Documents.

14.12 FINAL PAYMENT TERMINATES LIABILITY OF OWNER. Final payment is defined as the last progress payment made to the CONTRACTOR for earned funds, less monies withheld as applicable, pursuant to Paragraph 14.10A. The acceptance by the CONTRACTOR of the final payment referred to in Paragraph 14.9 herein, shall be a release of the OWNER and its agents from all claims of liability to the CONTRACTOR for anything done or furnished for, or relating to, the WORK or for any act of neglect of the OWNER or of any person relating to or affecting the WORK, except demands against the OWNER for the remainder, if any, of the amounts kept or retained under the provisions of Paragraph 14.9 herein; and excepting pending, unresolved claims filed prior to the date of the Notice of Completion.

ARTICLE 15 SUSPENSION OF WORK AND TERMINATION

15.1 SUSPENSION OF WORK BY OWNER. The OWNER, acting through the ENGINEER, may, at any time and without cause, suspend the WORK or any portion thereof for a period of not more than 90 days by notice in writing to the CONTRACTOR. The CONTRACTOR shall resume the WORK on receipt from the ENGINEER of a notice of resumption of work. The CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension if the CONTRACTOR makes an approved claim therefor as provided in Articles 11 and 12.

15.2 TERMINATION OF AGREEMENT BY OWNER (CONTRACTOR DEFAULT)

A. In the event of default by the CONTRACTOR, the OWNER may give 10 days written notice to the CONTRACTOR of OWNER's intent to terminate the Agreement and provide the CONTRACTOR an opportunity to remedy the conditions constituting the default. It shall be considered a default by the CONTRACTOR whenever CONTRACTOR shall: (1) declare bankruptcy, become insolvent, or assign its assets for the benefit of its creditors; (2) fail to provide materials or quality of work meeting the requirements of the Contract Documents; (3) disregard or violate provisions of the Contract Documents or ENGINEER's instructions; (4) fail to prosecute the WORK according to the approved progress schedule; or, (5) fail to provide a qualified superintendent, competent workers, or materials or equipment meeting the requirements of the Contract Documents. If the CONTRACTOR fails to remedy the conditions constituting default within the time allowed, the OWNER may then issue the Notice of Termination.

B. In the event the Agreement is terminated in accordance with Paragraph 15.2A, herein, the OWNER may take possession of the WORK and may complete the WORK by whatever method or means the OWNER may select. The cost of completing the WORK shall be deducted from the balance which would have been due the CONTRACTOR had the Agreement not been terminated and the WORK completed in accordance with the Contract Documents. If such cost exceeds the balance which would have been due, the CONTRACTOR shall pay the excess amount to the OWNER. If such cost is less than the balance which would have been due, the CONTRACTOR shall not have claim to the difference.

15.3 TERMINATION OF AGREEMENT BY OWNER (FOR CONVENIENCE). The OWNER may terminate the Agreement at any time if it is found that reasons beyond the control of either the OWNER or CONTRACTOR make it impossible or against the OWNER's interests to complete the WORK. In such a case, the CONTRACTOR shall have no claims against the OWNER except: (1) for

the value of work performed up to the date the Agreement is terminated; and, (2) for the cost of materials and equipment on hand, in transit, or on definite commitment, as of the date the Agreement is terminated which would be needed in the WORK and which meet the requirements of the Contract Documents. The value of work performed and the cost of materials and equipment delivered to the site, as mentioned above, shall be determined by the ENGINEER in accordance with the procedure prescribed for the making of the final application for payment and payment under Paragraphs 14.8 and 14.9.

15.4 TERMINATION OF AGREEMENT BY CONTRACTOR. The CONTRACTOR may terminate the Agreement upon 10 days written notice to the OWNER, whenever: 1) the WORK has been suspended under the provisions of Paragraph 15.1, herein, for more than 90 consecutive days through no fault or negligence of the CONTRACTOR, and notice to resume work or to terminate the Agreement has not been received from the OWNER within this time period; or, 2) the OWNER should fail to pay the CONTRACTOR any monies due him in accordance with the terms of the Contract Documents and within 60 days after presentation to the OWNER by the CONTRACTOR of a request therefor, unless within said 10-day period the OWNER shall have remedied the condition upon which the payment delay was based. In the event of such termination, the CONTRACTOR shall have no claims against the OWNER except for those claims specifically enumerated in Paragraph 15.3, herein, and as determined in accordance with the requirements of said paragraph.

ARTICLE 16 MISCELLANEOUS

16.1 GIVING NOTICE. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

16.2 RIGHTS IN AND USE OF MATERIALS FOUND ON THE WORK

A. The CONTRACTOR may use on the Project, with ENGINEER's approval, such stone, gravel, sand, or other material determined suitable by the ENGINEER, as may be found in the excavation. The CONTRACTOR will be paid for the excavation of such material at the corresponding contract unit price. No additional payment will be made for utilizing the material from excavation as borrow, or select borrow.

B. The CONTRACTOR shall replace, at its own expense, with other acceptable material, all of that portion of the excavated material so removed and used which was needed for use on the project. No charge for the materials so used will be made against the CONTRACTOR except that the CONTRACTOR shall be responsible for payment of any royalties required.

C. The CONTRACTOR shall not excavate or remove any material from within the Project location which is not within the grading limits, as indicated by the slope and grade lines, without written authorization from the ENGINEER.

D. In the event the CONTRACTOR has processed materials from OWNER-furnished sources in excess of the quantities required for performance of this contract, including any waste material produced as a by-product, the CBJ may retain possession of such materials without obligation to reimburse the CONTRACTOR for the cost of their production. When such

materials are in a stockpile, the ENGINEER may require: That it remain in stockpile; the CONTRACTOR level such stockpile(s); or that the CONTRACTOR remove such materials and restore the premises to a satisfactory condition at the CONTRACTOR's expense. This provision shall not preclude the CBJ from arranging with the CONTRACTOR to produce material over and above the contract needs, payment for which shall be by written agreement between the CBJ and the CONTRACTOR.

E. Unless otherwise provided, the material from any existing old structure may be used temporarily by the CONTRACTOR in the erection of the new structure. Such material shall not be cut or otherwise damaged except with the approval of the ENGINEER.

16.3 RIGHT TO AUDIT. If the CONTRACTOR submits a claim to the OWNER for additional compensation, the OWNER shall have the right, as a condition to considering the claim, and as a basis for evaluation of the claim, and until the claim has been settled, to audit the CONTRACTOR's books to the extent they are relevant. This right shall include the right to examine books, records, documents, and other evidence and accounting procedures and practices, sufficient to discover and verify all direct and indirect costs of whatever nature claimed to have been incurred or anticipated to be incurred and for which the claim has been submitted. The right to audit shall include the right to inspect the CONTRACTOR's plants, or such parts thereof, as may be or have been engaged in the performance of the WORK. The CONTRACTOR further agrees that the right to audit encompasses all subcontracts and is binding upon Subcontractors. The rights to examine and inspect herein provided for shall be exercisable through such representatives as the OWNER deems desirable during the CONTRACTOR's normal business hours at the office of the CONTRACTOR. The CONTRACTOR shall make available to the OWNER for auditing, all relevant accounting records and documents, and other financial data, and upon request, shall submit true copies of requested records to the OWNER.

16.4 ARCHEOLOGICAL OR HISTORICAL DISCOVERIES. When the CONTRACTOR's operation encounters prehistoric artifacts, burials, remains of dwelling sites, paleontological remains, such as shell heaps, land or sea mammal bones or tusks, or other items of historical significance, the CONTRACTOR shall cease operations immediately and notify the ENGINEER. No artifacts or specimens shall be further disturbed or removed from the ground and no further operations shall be performed at the site until so directed. Should the ENGINEER order suspension of the CONTRACTOR's operations in order to protect an archaeological or historical finding, or order the CONTRACTOR to perform extra work, such order(s) shall be covered by an appropriate contract change document.

16.5 CONSTRUCTION OVER OR ADJACENT TO NAVIGABLE WATERS. All work over, on, or adjacent to navigable waters shall be so conducted that free navigation of the waterways will not be interfered with and the existing navigable depths will not be impaired, except as allowed by permit issued the U.S. Coast Guard and/or the U.S. Army Corps of Engineers, as applicable.

16.6 GRATUITY AND CONFLICT OF INTEREST. The CONTRACTOR agrees to not extend any loan, gratuity or gift of money of any form whatsoever to any employee or elected official of the OWNER, nor will the CONTRACTOR rent or purchase any equipment or materials from any employee or elected official of the OWNER, or to the best of the CONTRACTOR’s knowledge, from any agent of any employee or elected official of the OWNER. Before final payment, the CONTRACTOR shall execute and furnish the OWNER an affidavit certifying that the CONTRACTOR has complied with the above provisions of the contract.

16.7 SUITS OF LAW CONCERNING THE WORK

A. Should a suit of law be entered into, either by the CONTRACTOR (or the CONTRACTOR's surety) against the OWNER, or by the OWNER against the CONTRACTOR (or the CONTRACTOR's surety), the suit of law shall be tried in the First Judicial District of Alaska.

B. If one of the questions at issue is the satisfactory performance of the work by the CONTRACTOR and should the appropriate court of law judge the work of the CONTRACTOR to be unsatisfactory, then the CONTRACTOR (or the CONTRACTOR's surety) shall reimburse the OWNER for all legal and all other expenses (as may be allowed and set by the court) incurred by the OWNER because of the suit of the law and, further, it is agreed that the OWNER may deduct such expense from any sum or sums then, or any that become due the CONTRACTOR under the contract.

16.8 CERTIFIED PAYROLLS

A. All CONTRACTORs or Subcontractor who perform work on a public construction contract for the OWNER shall file a certified payroll with the Alaska Department of Labor before Friday of each week that covers the preceding week (Section 14-2-4 ACLA 1949; am Section 4 ch 142 SLA 1972).

B. In lieu of submitting the State payroll form, the CONTRACTOR's standard payroll form may be submitted, provided it contains the information required by AS 36.05.040 and a statement that the CONTRACTOR is complying with AS 36.10.010.

C. A contractor or subcontractor, who performs work on public construction in the State, as defined by AS 36.95.010(3), shall pay not less than the current prevailing rate of wages as issued by the Alaska Department of Labor before the end of the pay period. (AS 36.05.010).

16.9 PREVAILING WAGE RATES

A. Wage rates for Laborers and Mechanics on Public Contracts, AS 36.05.070. The CONTRACTOR, or Subcontractors, shall pay all employees unconditionally and not less than once a week. Wages may not be less than those stated in Paragraph 16.8C, regardless of the contractual relationship between the CONTRACTOR or Subcontractors and laborers, mechanics, or field surveyors. The scale of wages to be paid shall be posted by the CONTRACTOR in a prominent, easily accessible place at the site of the WORK.

B. Failure to Pay Agreed Wages, AS 36.05.080. If it is found that a laborer, mechanic, or field surveyor employed by the CONTRACTOR or Subcontractor has been, or is being, paid a rate or wages less than the established rate, the OWNER may, by written notice, terminate the CONTRACTOR or Subcontractors right to proceed with the work. The OWNER may prosecute the work to completion by contract or otherwise, and the CONTRACTOR and sureties will be held liable to the OWNER for excess costs for completing the WORK. (Section 2 ch 52 SLA 1959).

C. Listing Contractor's Who Violate Contracts, AS 36.05.090. In addition, a list giving the names of persons who have disregarded the rights of their employees shall be distributed to all departments of State government and all political subdivisions. No person appearing on this

list, and no firm, corporation, partnership or association in which the person has an interest, may work as a CONTRACTOR or Subcontractor on a public construction contract for the State, or a political subdivision of the state, until three years after the date of publication of the list. (Section 3 ch 52 SLA 1959; am Section 9 ch 142 SLA).

16.10 EMPLOYMENT REFERENCE. Workers employed in the execution of the contract by the CONTRACTOR or by any Subcontractor under this contract shall not be required or permitted to labor more than 8 hours a day or 40 hours per week in violation of the provisions of the Alaska Wage and Hour Act, Section 23.10.060.

16.11 COST REDUCTION INCENTIVE

A. At any time within 45 days after the date of the Notice of Award, the CONTRACTOR may submit to the ENGINEER in writing, proposals for modifying the plans, specifications, or other requirements of this contract for the sole purpose of reducing the total cost of construction. The cost reduction proposal shall not impair in any manner the essential functions or characteristics of the project, including but not limited to, service life, economy of operation, ease of maintenance, desired appearance or design and safety standards.

B. The cost reduction proposal shall contain the following information:

1. Description of both the existing contract requirements for performing the WORK and the proposed changes.
2. An itemization of the contract requirements that must be changed if the proposal is adopted.
3. A detailed estimate of the time required and the cost of performing the WORK under both the existing contract and the proposed change.
4. A statement of the date by which the CONTRACTOR must receive the decision from the OWNER on the cost reduction proposal.
5. The contract items of WORK effected by the proposed changes including any quantity variations.
6. A description and estimate of costs the OWNER may incur in implementing the proposed changes, such as test and evaluation and operating and support costs.
7. A prediction of any effects the proposed change would have on future operations and maintenance costs to the OWNER.

C. The provisions of this section shall not be construed to require the OWNER to consider any cost reduction proposal which may be submitted; nor will the OWNER be liable to the CONTRACTOR for failure to accept or act upon any cost reduction proposal submitted, or for delays to the work attributable to the consideration or implementation of any such proposal.

D. If a cost reduction proposal is similar to a change in the plans or specifications for the project under consideration by the OWNER at the time the proposal is submitted, the OWNER will not accept such proposal and reserves the right to make such changes without compensation to the CONTRACTOR under the provisions of this section.

E. The CONTRACTOR shall continue to perform the work in accordance with the requirements of the contract until an executed Change Order incorporating the cost reduction proposal has

been issued. If any executed Change Order has not been issued by the date upon which the CONTRACTOR's cost reduction proposal specifies that a decision should be made by the OWNER, in writing, the cost reduction proposal shall be considered rejected.

F. The OWNER, shall be the sole judge of the acceptability of a cost reduction proposal and of the estimated net savings in Contract Time and construction costs resulting from the adoption of all or any part of such proposal. Should the CONTRACTOR disagree with OWNER's decision on the cost reduction proposal, there is no further consideration. The OWNER reserves the right to make final determination.

G. If the CONTRACTOR's cost reduction proposal is accepted in whole or in part, such acceptance will be made by a contract Change Order, which specifically states that the change is executed pursuant to this cost reduction proposal section. Such Change Order shall incorporate the changes in the plans and specifications which are necessary to permit the cost reduction proposal or such part of it as has been accepted to be put into effect and shall include any conditions upon which the OWNER's approval is based, if such approval is conditional. The Change Order shall also describe the estimated net savings in the cost of performing the work attributable to the cost reduction proposal, and shall further provide that the contract cost be adjusted by crediting the OWNER with the estimated net savings amount.

H. Acceptance of the cost reduction proposal and performance of the work does not extend the time of completion of the contract, unless specifically provided in the Change Order authorizing the use of the submitted proposal. Should the adoption of the cost reduction proposal result in a Contract Time savings, the total Contract Time shall be reduced by an amount equal to the time savings realized.

I. The amount specified to the CONTRACTOR in the Change Order accepted in the cost reduction proposal shall constitute full compensation for the performance of WORK. No claims for additional costs as a result of the changes specified in the cost reduction proposal shall be allowed.

J. The OWNER reserves the right to adopt and utilize any approved cost reduction proposal for general use on any contract administered when it is determined suitable for such application. Cost reduction proposals identical, similar, or previously submitted will not be accepted for consideration if acceptance and compensation has previously been approved. The OWNER reserves the right to use all or part of any cost reduction proposal without obligation or compensation of any kind to the CONTRACTOR.

K. The CONTRACTOR shall bear the costs, if any, to revise all bonds and insurance requirements for the project, to include the cost reduction WORK.

END OF SECTION

SECTION 00800 - SUPPLEMENTARY GENERAL CONDITIONS

GENERAL. These Supplementary General Conditions make additions, deletions, or revisions to the General Conditions as indicated herein. All provisions which are not so added, deleted, or revised remain in full force and effect. Terms used in these Supplementary General Conditions which are defined in the General Conditions have the meanings assigned to them in the General Conditions.

SGC 1 DEFINITIONS. ***Remove*** the definition for Contract Documents and ***replace*** with the following:

Contract Documents – The Table of Contents, Notice Inviting Bids, Instructions to Bidders, Bid Forms (including the Bid, Bid Schedule(s), Subcontractor Report, Bid Bond, and all required certificates and affidavits), Agreement, Performance Bond, Payment Bond, General Conditions, Supplementary General Conditions, Alaska Labor Standards, Reporting, and Prevailing Wage Rate Determination, Special Provisions, Standard Specifications, Technical Specifications, Drawings, Permits, and all Addenda, and Change Orders executed pursuant to the provisions of the Contract Documents.

SGC 2.2 COPIES OF DOCUMENTS. ***Add*** the following:

The OWNER shall furnish to the CONTRACTOR two (2) hard copies of the Contract Documents which will include bound reduced Drawings and one (1) electronic copy (pdf format) on a CD-ROM. Additional copies of contract documents are the responsibility of the contractor.

SGC 3.2 ORDER OF PRECEDENCE OF CONTRACT DOCUMENTS. ***Remove*** No. 12. Technical Specifications and No. 13. Drawings, and ***add*** the following:

12. Special Provisions Section
13. Standard Specifications for Civil Engineering Projects and Subdivision Improvements December 2003 Edition with current Errata Sheets.
14. Drawings.

SGC 4.2 PHYSICAL CONDITIONS - SUBSURFACE AND EXISTING STRUCTURES. ***Add*** the following:

C. In the preparation of the Contract Documents, the Engineer of Record has relied upon field measurements and visual inspection of the existing structures and surface conditions.

SGC - 4.6 USE OF THE CBJ/STATE LEMON CREEK GRAVEL PIT. ***Add*** the following.

The CBJ/State Lemon Creek Gravel Pit is available for this Project.

SGC - 4.6 USE OF THE CBJ/STATE LEMON CREEK GRAVEL PIT.

Wherever the land use permits are referenced, ***delete*** and ***replace with*** the permit number USE2008-00061.

- ***Delete*** the last sentence of Paragraph A and ***replace with*** the following: "Contact Michael Eich, CBJ Material Source Manager, at (907) 586-0800 ext. 4192 for the current material rates."

- ***Delete*** paragraph C., and ***replace*** with the following paragraph C.

C. CONTRACTORs deciding to use material from the CBJ/State pit shall provide an Individual

Mining Plan prepared by a professional engineer registered in the State of Alaska. The Individual Mining Plan must be reviewed and approved by the CBJ, prior to commencing operations within the pit. CONTRACTORs shall also secure a Performance Bond to ensure compliance with contract provisions, including any Individual Mining Plan stipulations. The bond shall remain in full force and effect until a release is obtained from the CBJ. A $10,000 cash processing restoration bond is required prior to screening or primary crushing operations.

- ***Add*** the following paragraphs:

J. Contractors choosing to mine material from CBJ material sources are also subject to the conditions contained in each site's Multi Sector General Permit for Stormwater Discharges associated with industrial activities (MSGP) and the Storm Water Pollution Prevention Plan (SWPPP).

K. Contractors choosing to perform screening or primary crushing shall comply with all requirements of Mine Safety and Health Administration (MSHA) Part 46, and must obtain a Contractor ID number (7000-52) from MSHA.

SGC 5.1 PERFORMANCE, PAYMENT, AND OTHER BONDS. The Contractor shall furnish Performance and Payment Bonds in the amount of 100% of the Bid.

SGC 5.2 INSURANCE AMOUNTS. The limits of liability for the insurance required by Paragraph 5.2 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations**.** The CONTRACTOR must provide certification of proper insurance coverage and amendatory endorsements or copies of the applicable policy language affecting coverage required in this agreement to the City and Borough of Juneau. All certificates of insurance supplied to the OWNER shall state that the OWNER is named as **"Additional Insured for any and all work performed for the City & Borough of Juneau" for the Commercial General Liability policy and any other policies, if required in this Section.** NOTE: This requirement has changed. The OWNER no longer requires certificates of insurance referencing project names and contract numbers.

Delete paragraph C and ***Replace*** with the following paragraph C:

C. The CONTRACTOR shall furnish the OWNER with certificates showing the type, amount, class of operations covered, effective dates and dates of expiration of policies. Failure of CBJ to demand such certificate or other evidence of full compliance with these insurance requirements or failure of CBJ to identify a deficiency from evidence that is provided shall not be construed as a waiver of the obligation of the Contractor to maintain the insurance required by this contract. The coverage afforded will not be cancelled, reduced in coverage, or renewal refused until at least 30 days' prior written notice has been given to the OWNER by the CONTRACTOR. **All such insurance required herein (except for Workers' Compensation and Employer's Liability) shall name the OWNER, its Consultants and subconsultants and their officers, directors, agents, and employees as "additional insureds" under the policies.**

The CONTRACTOR shall purchase and maintain the following insurance:

1. Workers' Compensation and Employer's Liability. This insurance shall protect the CONTRACTOR against all claims under applicable state workers' compensation laws. The CONTRACTOR shall also be protected against claims for injury, disease, or death of employees which,

for any reason, may not fall within the provisions of a Workers' Compensation law. The CONTRACTOR shall require each Subcontractor similarly to provide Workers' Compensation Insurance for all of the latter's employees to be engaged in such work unless such employees are covered by the protection afforded by the CONTRACTOR's Workers' Compensation Insurance. In case any class of employees is not protected, under the Workers' Compensation Statute, the CONTRACTOR shall provide and shall cause each subcontractor to provide adequate employer's liability insurance for the protection of such of its employees as are not otherwise protected. **The CONTRACTOR grants a waiver of any right to subrogation against the OWNER by virtue of the payment of any loss under such insurance.** This provision applies regardless of whether or not the OWNER has received a waiver of subrogation endorsement from the insurer.

Workers' Compensation: (under Paragraph 5.2C.1 of the General Conditions) as in accordance with AS 23.30.045:

a. State: Statutory
b. Applicable Federal (e.g., Longshore): Statutory

Note: If the WORK called for in the Contract Documents involves work in or on any navigable waters, the CONTRACTOR shall provide Workers' Compensation coverage which shall include coverage under the Longshore and Harbor Workers' Compensation Act, the Jones Act, and any other coverage required under Federal or State laws pertaining to workers in or on navigable waters.

a. Employers Liability

Bodily Injury by Accident:	$100,000.00	Each Accident
Bodily Injury by Disease:	$100,000.00	Each Employee
Bodily Injury by Disease:	$500,000.00	Policy Limit

1. CONTRACTOR agrees to waive all rights of subrogation against the OWNER for WORK performed under contract.
2. If CONTRACTOR directly utilizes labor outside of the State of Alaska in the prosecution of the WORK, "Other States" endorsement shall be required as a condition of the contract.

2. Commercial General Liability (CGL), including products and completed operations, property damage, bodily injury and personal and advertising injury, with limits no less than $1,000,000 each occurrence and $2,000,000 aggregate. (under Paragraph 5.2C.2 of the General Conditions) **This insurance policy is to contain, or be endorsed to contain, additional insured status for the CBJ, its officers, officials, employees, and volunteers.** If Additional insured status is provided in the form of an endorsement to the Contractor's insurance, the endorsement shall be at least as broad as ISO Form CG 20 10 11 85 or **both** CG 20 10, CG 20 26, CG 20 33, or CG 20 38; **and** CG 20 37 forms if later revisions used).

3. Commercial Automobile Liability: (under Paragraph 5.2C.3 of the General Conditions) including Owned, Hired, and Non-Owned Vehicles:

Combined Single Limit, Bodily Injury and Property Damage $1,000,000.00

This insurance policy is to contain, or be endorsed to contain, additional insured status for the CBJ, its officers, officials, employees, and volunteers The CONTRACTOR shall require each Subcontractor similarly to provide Commercial Automobile Liability Insurance for all of the latter's employees to be engaged in such WORK unless such employees are covered by the protection afforded by the CONTRACTOR's Commercial Automobile Liability Insurance.

Add the following paragraphs:

C. Builder's Risk: CONTRACTOR is not required to obtain a Builder's Risk insurance policy for this project.

D. All Subcontractors are required to secure and maintain the insurance coverages listed above, unless otherwise noted.

E. If the CONTRACTOR maintains higher limits than the minimums shown above, the OWNER requires and shall be entitled to coverage for the higher limits maintained by the CONTRACTOR. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to the OWNER.

F. Policies shall also specify insurance provided by CONTRACTOR will be considered primary and not contributory to any other insurance available to the OWNER.

G. Should any of the policies described above be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.

SGC 6.5 CONCERNING SUBCONTRACTORS, SUPPLIERS, AND OTHERS. ***Add*** the following:

B. The CONTRACTOR shall perform not less than 40% of the WORK with its own forces (i.e., without subcontracting). The 40% requirement shall be understood to mean that the CONTRACTOR shall perform, with its own organization, WORK amounting to at least 40% of the original contract amount. The 40% requirement will be calculated based upon the total of the subcontract amounts submitted for Contract Award, and any other information requested by the OWNER from the apparent low Bidder.

SGC 6.5 CONCERNING SUBCONTRACTORS, SUPPLIERS, AND OTHERS, ***Add*** the following paragraph:

C. CONTRACTOR must pay Subcontractors and/or Suppliers within 30 days of receiving payment from the OWNER, if that payment was made for Work performed by the Subcontractor and/or materials received. Failure to pay Subcontractors within 30 days of receiving payment from which Subcontractor and/or Supplier is to be paid may result in the OWNER initiating debarment proceedings as prescribed in the City and Borough of Juneau Purchasing Code. *The 30 day City and Borough of Juneau requirement does not supersede AS 36.90.210.*

SGC 6.6 PERMITS, ***Add*** the following paragraph:

D. Contractor is responsible for obtaining a Hot Works permit from the CBJ Permit Center, if performing work which requires such a permit. Work requiring a Hot Works Permit includes but is not limited to

the following: cutting, welding, Thermit welding, brazing, soldering, grinding, thermal spraying, thawing pipe, installation of torch-applied roof systems or any other similar activity.

SGC 14.3 APPLICATION FOR PROGRESS PAYMENT. Paragraph D.

D. The Value of Materials Stored at the site shall be an amount equal to 85%.

SGC 14.9 FINAL PAYMENT AND ACCEPTANCE. ***Add*** the following paragraph:

C. Prior to the final payment the CONTRACTOR shall contact the Alaska Department of Labor and Workforce Development (ADOL) and provide the OWNER with clearance from the ADOL for the CONTRACTOR and all Subcontractors that have worked on the Project. This clearance shall indicate that all Employment Security Taxes have been paid. A sample form for this purpose is at the end of this section. The CONTRACTOR shall also submit a "NOTICE OF COMPLETION OF PUBLIC WORKS" signed by ADOL.

SGC 16.8 CERTIFIED PAYROLLS. ***Change*** paragraph A. to read:

A. All CONTRACTORs or Subcontractors who perform work on a public construction contract for the OWNER shall file a certified payroll with Alaska Department of Labor. See Section 00830 - Alaska Labor Standards, Reporting, and Prevailing Wage Rate Determination and Section 00840 – Federal Labor Standards, Reporting, and Prevailing Wage Rate Determination.

Add the following SGC 16.12.

SGC 16.12 EQUAL EMPLOYMENT OPPORTUNITY (EEO)

The CONTRACTOR may not discriminate against any employee or applicant for employment because of race, religion, color, national origin, age, disability, sex, marital status, changes in marital status, pregnancy or parenthood. The CONTRACTOR shall post a notice setting out the provisions of this paragraph in a conspicuous place available to employees and applicants for employment.

The CONTRACTOR and each Subcontractor shall state in all solicitations and advertisements for employees to work on this Project, that it is an Equal Opportunity Employer and that all qualified applicants will receive consideration for employment without regard to race, religion, color, national origin, age, disability, sex, marital status, changes in marital status, pregnancy or parenthood.

The CONTRACTOR shall include the provisions of this EEO article in every contract relating to this Project and shall require the inclusion of these provisions in every agreement entered into for this Project, so that those provisions will be binding upon the CONTRACTOR and each Subcontractor.

THE STATE of ALASKA
GOVERNOR MICHAEL J. DUNLEAVY

Department of Labor and Workforce Development

Division of Employment and Training Services
Employment Security Tax

P.O. Box 115509
Juneau, AK 99811-5509
Relay Alaska (in state): (800) 770-8973 or 7.1.1
Relay Alaska (out of state): (800) 770-8255
Toll free: (888) 448-2937
Phone: (907) 465-2787
Fax: (907) 465-2374

Tax Clearance Request Form for Contractors

Date of request: _____

Business name of the contractor a Tax Clearance is being requested for: _____

_____

Business address: _____

Business contact phone number: _____

Federal Identification Number: _____

Alaska Employer Account Number: _____

Specific time period a tax clearance is being requested for *(i.e. beginning and ending date of a subcontract agreement)*:

_____

Subcontract project name: _____

_____

Name and address of the person this Tax Clearance is to be returned to: _____

_____

Comments or additional information: _____

_____

For agency use only:

☐ Tax Clearance is granted

☐ Tax Clearance is not granted *(please have employer contact the department)*

☐ No account on file, liability unknown *(please have employer contact the department)*

☐ Employer has stated no employees, Tax Clearance not required.

Agency representative signature: _____ Date:_____

Agency representative title: _____

We are an equal opportunity employer/program. Auxiliary aids and services are available upon request to individuals with disabilities. labor.alaska.gov/estax

SECTION 00830 - ALASKA LABOR STANDARDS, REPORTING, AND PREVAILING WAGE RATE DETERMINATION

State of Alaska, Department of Labor, Laborers' and Mechanics' Minimum Rates of Pay, AS 36.05.010 and AS 36.05.050, Wage and Hour Administration Pamphlet No. 600, the latest edition published by the State of Alaska, Department of Labor inclusive, are made a part of this contract by reference.

The CONTRACTOR is responsible for contacting the Alaska Department of Labor to determine compliance with current regulations.

Correspondence regarding Title 36 requirements may be submitted electronically or paper copies can be submitted by mail. To submit Title 36 documents electronically, go to https://myalaska.state.ak.us/home/app. If filing electronically, submit certified payrolls to ADOL at the website above and email a copy of all certified payrolls to Greg Smith at the email address below. If Contractor elects to submit paper copies, they should be submitted to the physical addresses below.

Within 10 Days of "Notice of Award/Notice to Proceed" make a list of **all** Subcontractors. Include their name, address, phone, estimated subcontract amount, and estimated start and finish dates. Send this list to the Wage and Hour Section (contact information below).

Certified Payrolls must be submitted every two weeks. Before the second Friday, each CONTRACTOR and Subcontractor must file Certified Payrolls with Statements of Compliance for the previous two weeks. Indicate ***"Start"*** on your first payroll, and ***"Final"*** on your last payroll for this Project.

As part of the **final payment request package,** CONTRACTOR must submit a "NOTICE OF COMPLETION OF PUBLIC WORKS" form signed by ADOL personnel.

Contact Information:

Wage and Hour Section
State of Alaska
Department of Labor and Workforce Development
Labor Standards and Safety Division
Wage and Hour Administration
P.O. Box 11149
Juneau, AK 99811-1149
907-465-4842
http://labor.state.ak.us/lss/home.htm

and

Greg Smith, Contract Administrator
City and Borough of Juneau
155 S. Seward Street
Juneau, AK 99801
(907) 586-0800 ext. 4194
Greg.Smith@juneau.org

END OF SECTION

SECTION 00830

APPENDIX A

Laborers' & Mechanics'
Minimum Rates of Pay

Pamphlet 600

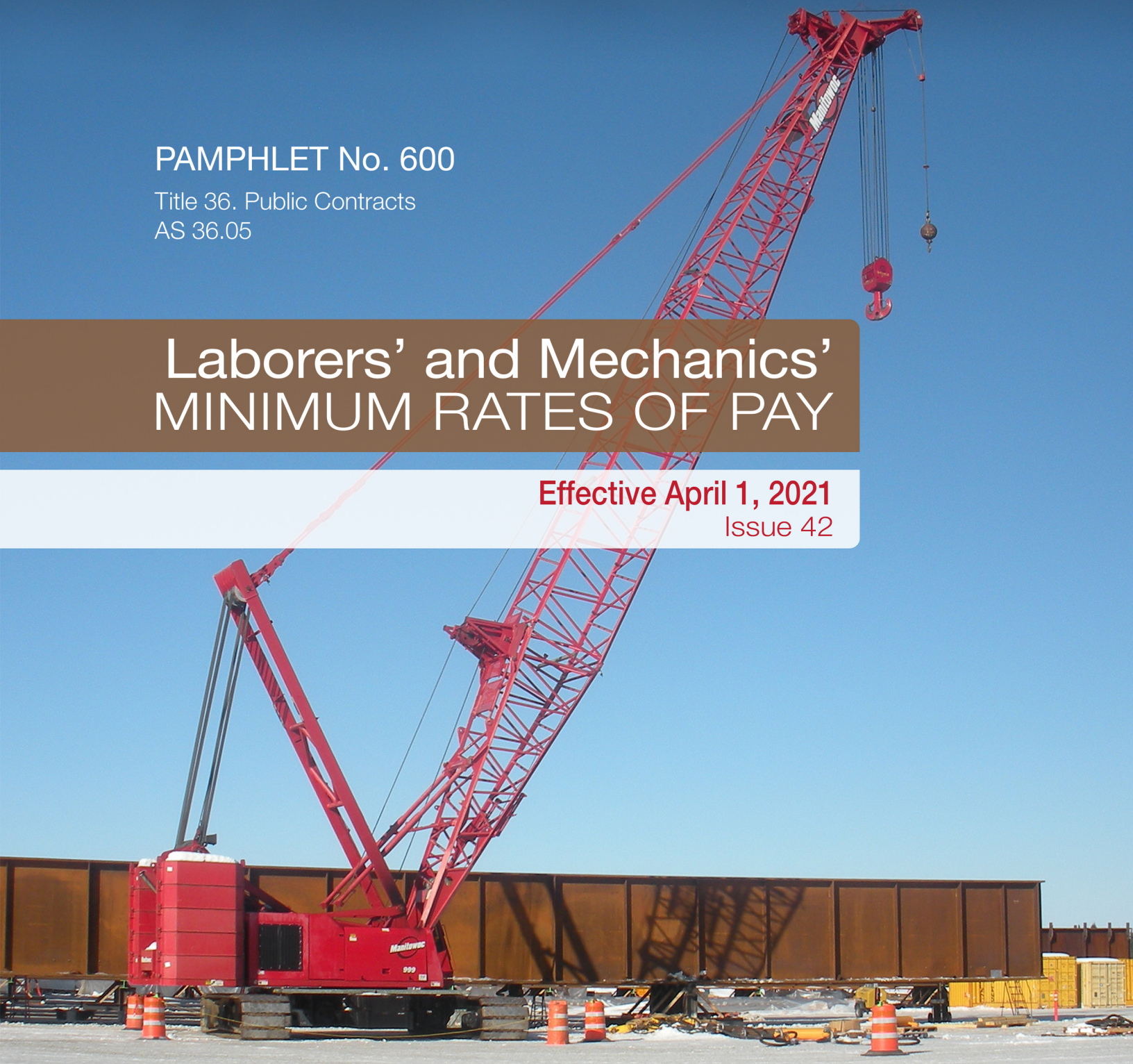
Effective April 1, 2021

PAMPHLET No. 600

Title 36. Public Contracts
AS 36.05

Laborers' and Mechanics' MINIMUM RATES OF PAY

Effective April 1, 2021
Issue 42



DEPARTMENT OF LABOR
AND WORKFORCE DEVELOPMENT
Wage and Hour Administration

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THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Labor and Workforce Development

Office of the Commissioner

Post Office Box 111149
Juneau, Alaska 99811
Main: 907.465.2700
fax: 907.465-2784

April 1, 2021

TO ALL CONTRACTING AGENCIES:

At the Alaska Department of Labor and Workforce Development, our goal is putting Alaskans to work. This pamphlet is designed to help contractors awarded public construction contracts understand the most significant laws of the State of Alaska pertaining to prevailing wage.

This pamphlet identifies current prevailing wage rates for public construction contracts (any construction projects awarded for the State of Alaska or its political subdivisions, such as local governments and certain non-profit organizations). Because these rates may change in a subsequent determination, please be sure you are using the appropriate rates. The rates published in this edition become effective April 1, 2021.

The prevailing wage rates contained in this pamphlet are applicable to public construction projects with a final bid date of April 11, 2021, or later. As the law now provides, these rates will remain stable during the life of a contract or for 24 calendar months, whichever is shorter. **The 24-month period begins on the date the prime contract is awarded.** Upon expiration of the initial 24-month period, the latest wage rates issued by the department shall become effective for a subsequent 24-month period or until the original contract is completed, whichever occurs first. This process shall be repeated until the original contract is completed.

The term "original contract" means the signed contract that resulted from the original bid and any amendments, including changes of work scope, additions, extensions, change orders, and other instruments agreed to by the parties that have not been subject to subsequent open bid procedures.

If a higher federal rate is required due to partial federal funding or other federal participation, the higher rate must be paid.

For additional copies of this pamphlet go to: http://labor.state.ak.us/lss/pamp600.htm

For questions regarding prevailing wage or employment preference requirements, please contact the nearest Wage and Hour office. These offices are listed on Page x.

Sincerely,

Dr. Tamika L. Ledbetter
Commissioner

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Table of Contents

Note to Readers: The statutes and administrative regulations listed in this publication were taken from the official codes, as of the effective date of the publication. However, there may be errors or omissions that have not been identified and changes that occurred after the publication was printed. This publication is intended as an informational guide only and is not intended to serve as a precise statement of the statutes and regulations of the State of Alaska. To be certain of current laws and regulations, please refer to the official codes.

EXCERPTS FROM ALASKA LAW

Sec. 36.05.005. Applicability.
This chapter applies only to a public construction contract that exceeds $25,000.

Sec. 36.05.010. Wage rates on public construction.
A contractor or subcontractor who performs work on a public construction contract in the state shall pay not less than the current prevailing rate of wages for work of a similar nature in the region in which the work is done. The current prevailing rate of wages is that contained in the latest determination of prevailing rate of wages issued by the Department of Labor and Workforce Development at least 10 days before the final date for submission of bids for the contract. The rate shall remain in effect for the life of the contract or for 24 calendar months, whichever is shorter. At the end of the initial 24-month period, if new wage determinations have been issued by the department, the latest wage determination shall become effective for the next 24-month period or until the contract is completed, whichever occurs first. This process shall be repeated until the contract is completed.

Sec. 36.05.040. Filing schedule of employees, wages paid, and other information.
All contractors or subcontractors who perform work on a public construction contract for the state or for a political subdivision of the state shall, before the Friday of every second week, file with the Department of Labor and Workforce Development a sworn affidavit for the previous reporting period, setting out in detail the number of persons employed, wages paid, job classification of each employee, hours worked each day and week, and other information on a form provided by the Department of Labor and Workforce Development.

Sec. 36.05.045. Notice of work and completion; withholding of payment.

(a) Before commencing work on a public construction contract, the person entering into the contract with a contracting agency shall designate a primary contractor for purposes of this section. Before work commences, the primary contractor shall file a notice of work with the Department of Labor and Workforce Development. The notice of work must list work to be performed under the public construction contract by each contractor who will perform any portion of work on the contract and the contract price being paid to each contractor. The primary contractor shall pay all filing fees for each contractor performing work on the contract, including a filing fee based on the contract price being paid for work performed by the primary contractor's employees. The filing fee payable shall be the sum of all fees calculated for each contractor. The filing fee shall be one percent of each contractor's contract price. The total filing fee payable by the primary contractor under this subsection may not exceed $5,000. In this subsection, "contractor" means an employer who is using employees to perform work on the public construction contract under the contract or a subcontract.

(b) Upon completion of all work on the public construction contract, the primary contractor shall file with the Department of Labor and Workforce Development a notice of completion together with payment of any additional filing fees owed due to increased contract amounts. Within 30 days after the department's receipt of the primary contractor's notice of completion, the department shall inform the contracting agency of the amount, if any, to be withheld from the final payment.

(c) A contracting agency

(1) may release final payment of a public construction contract to the extent that the agency has received verification from the Department of Labor and Workforce Development that

(A) the primary contractor has complied with (a) and (b) of this section;

(B) the Department of Labor and Workforce Development is not conducting an investigation under this title; and

(C) the Department of Labor and Workforce Development has not issued a notice of a violation of this chapter to the primary contractor or any other contractors working on the public construction contract; and

(2) shall withhold from the final payment an amount sufficient to pay the department's estimate of what may be needed to compensate the employees of any contractors under investigation on this construction contract, and any unpaid filing fees.

(d) The notice and filing fee required under (a) of this section may be filed after work has begun if
   (1) The public construction contract is for work undertaken in immediate response to an emergency; and
   (2) The notice and fees are filed not later than 14 days after the work has begun.

(e) A false statement made on a notice required by this section is punishable under AS 11.56.210.

Sec. 36.05.060. Penalty for violation of this chapter.

A contractor who violates this chapter is guilty of a misdemeanor and upon conviction is punishable by a fine of not less than $100 nor more than $1,000, or by imprisonment for not less than 10 days nor more than 90 days, or by both. Each day a violation exists constitutes a separate offense.

Sec. 36.05.070. Wage rates in specifications and contracts for public works.

(a) The advertised specifications for a public construction contract that requires or involves the employment of mechanics, laborers, or field surveyors must contain a provision stating the minimum wages to be paid various classes of laborers, mechanics, or field surveyors and that the rate of wages shall be adjusted to the wage rate under AS 36.05.010.

(b) Repealed by §17 ch 142 SLA 1972.

(c) A public construction contract under (a) of this section must contain provisions that
   (1) the contractor or subcontractors of the contractor shall pay all employees unconditionally and not less than once a week;
   (2) wages may not be less than those stated in the advertised specifications, regardless of the contractual relationship between the contractor or subcontractors and laborers, mechanics, or field surveyors;
   (3) the scale of wages to be paid shall be posted by the contractor in a prominent and easily accessible place at the site of the work;
   (4) the state or a political subdivision shall withhold so much of the accrued payments as is necessary to pay to laborers, mechanics, or field surveyors employed by the contractor or subcontractors the difference between
      (A) the rates of wages required by the contract to be paid laborers, mechanics, or field surveyors on the work; and
      (B) the rates of wages in fact received by laborers, mechanics, or field surveyors.

Sec. 36.05.080. Failure to pay agreed wages.

Every contract within the scope of AS 36.05.070 shall contain a provision that if it is found that a laborer, mechanic, or field surveyor employed by the contractor or subcontractor has been or is being paid a rate of wages less than the rate of wages required by the contract to be paid, the state or its political subdivision may, by written notice to the contractor, terminate the contractor's right to proceed with the work or the part of the work for which there is a failure to pay the required wages and to prosecute the work to completion by contract or otherwise, and the contractor and the contractor's sureties are liable to the state or its political subdivision for excess costs for completing the work.

Sec. 36.05.090. Payment of wages from withheld payments and listing contractors who violate contracts.

(a) The state disbursing officer in the case of a state public construction contract and the local fiscal officer in the case of a political subdivision public construction contract shall pay directly to laborers, mechanics, or field surveyors from accrued payments withheld under the terms of the contract the wages due laborers, mechanics, or field surveyors under AS 36.05.070.

(b) The state disbursing officer or the local fiscal officer shall distribute to all departments of the state government and to all political subdivisions of the state a list giving the names of persons who have disregarded their obligations to employees. A person appearing on this list and a firm, corporation, partnership, or association in which the person has an interest may not work as a contractor or

subcontractor on a public construction contract for the state or a political subdivision of the state until three years after the date of publication of the list. If the accrued payments withheld under the contract are insufficient to reimburse all the laborers, mechanics, or field surveyors with respect to whom there has been a failure to pay the wages required under AS 36.05.070, the laborers, mechanics, or field surveyors have the right of action or intervention or both against the contractor and the contractor's sureties conferred by law upon persons furnishing labor or materials, and in the proceedings it is not a defense that the laborers, mechanics, or field surveyors accepted or agreed to accept less than the required rate of wages or voluntarily made refunds.

Sec. 36.05.900. Definition.
In this chapter, "contracting agency" means the state or a political subdivision of the state that has entered into a public construction contract with a contractor.

EXCERPTS FROM ALASKA ADMINISTRATIVE CODE

Notice:** Regulations relating to board and lodging and per diem went into effect on November 25, 2018. The new regulations are excerpted here

8 AAC 30.051. Purpose. The purpose of 8 AAC 30.052 – 8 AAC 30.056 is to ensure that wages paid to laborers, mechanics, and field surveyors do not fall below the prevailing rate of pay.

8 AAC 30.052. Board and lodging; remote sites. (a) A contractor on a public construction project located 65 or more road miles from the international airport closest to the project area in either Fairbanks, Juneau, or Anchorage, or that is inaccessible by road in a two-wheel drive vehicle, shall provide adequate board and lodging to each laborer, mechanic, or field surveyor while the person is employed on the project. If commercial lodging facilities are not available, the contractor shall provide temporary lodging facilities. Lodging facilities must comply with all applicable state and federal laws. For a highway project, the location of the project is measured from the midpoint of the project.

(b) A contractor is not required to provide board and lodging:

(1) to a laborer, mechanic, or field surveyor who is a domiciled resident of the project area; or

(2) on a laborer, mechanic, or field surveyor's scheduled days off, when the person can reasonably travel between the project and the person's permanent residence; for the purposes of this paragraph, "scheduled day off" means a day in which a person does not perform work on-site, is not required to remain at or near the job location for the benefit of the contractor, and is informed of the day off at least seven days before the day off.

(c) Upon a contractor's written request, the commissioner may waive the requirements of (a) of this section where:

(1) the project is inaccessible by road in a two-wheel drive vehicle, but the laborer, mechanic, or field surveyor can reasonably travel between the project and the person's permanent residence within one hour; or

(2) a laborer, mechanic, or field surveyor is not a domiciled resident of the project area, but has established permanent residence, with the intent to remain indefinitely, within 65 road miles of the project, or for a highway project, the mid-point of the project.

8 AAC 30.054. Per diem instead of board and lodging. (a) A contractor may pay a laborer, mechanic, or field surveyor per diem instead of providing board and lodging, when the following conditions are met:

(1) the department determines that per diem instead of board and lodging is an established practice for the work classification; the department shall publish and periodically revise its determinations in the pamphlet *Laborers' and Mechanics' Minimum Rates of Pay*;

(2) the contractor pays each laborer, mechanic, or field surveyor the appropriate per diem rate as published and periodically revised in the pamphlet *Laborers' and Mechanics' Minimum Rates of Pay*; and

(3) the contractor pays the per diem to each laborer, mechanic, or field surveyor on the same day that wages are paid.

(b) A contractor may not pay per diem instead of board and lodging on a highway project located

(1) west of Livengood on the Elliot Highway, AK-2;

(2) on the Dalton Highway, AK-11;

(3) north of milepost 20 on the Taylor Highway, AK-5;

(4) east of Chicken on the Top of the World Highway; or

(5) south of Tetlin Junction to the Alaska-Canada border on the Alaska Highway, AK-2.

8 AAC 30.056. Alternative arrangement. Upon a contractor's written request, the commissioner may approve an alternative board and lodging or per diem arrangement, provided

(1) the arrangement does not reduce the laborer, mechanic, or field surveyor's wages below the prevailing wage rate; and

(2) the laborer, mechanic, or field surveyor voluntarily enters into and signs the written arrangement; a labor organization representing laborers, mechanics, or field surveyors may enter into the written agreement on their behalf.

8 AAC 30.900. General definitions (selected excerpts only):

In this chapter and in AS 36

(22) "domiciled resident" means a person living within 65 road miles of a public construction project, or in the case of a highway project, the mid-point of the project, for at least 12 consecutive months prior to the award of the public construction project;

(23) "employed on the project" means the time period from the date the laborer, mechanic, or field surveyor first reports on-site to the project through the final date the person reports on-site to the project.

ADDITIONAL INFORMATION

PER DIEM

Notice: New regulations relating to board and lodging and per diem went into effect on November 25, 2018. The regulations provide a comprehensive set of requirements for the provision of board and lodging or per diem for workers on remote projects. Please refer to Alaska Administrative Code 8 AAC Chapter 30 and read the chapter carefully.

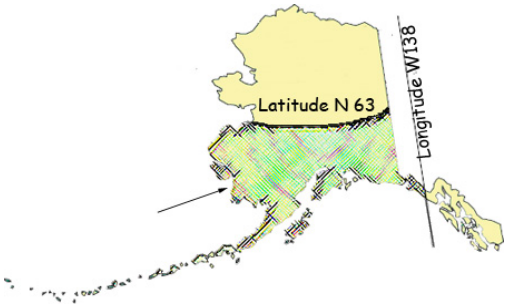
The Alaska Department of Labor and Workforce Development has determined that per diem is an established work practice for certain work classifications. These classifications are indicated throughout the Pamphlet by an asterisk (*) under the classification title. If all of the conditions of 8 AAC 30.054 are met, an employer may pay workers in these classifications per diem instead of providing board and lodging on a remote project.

Per Diem Rate: As of May 1st, 2019, the minimum per diem rate is $100.00 per day, or part thereof, the worker is employed on the project. In the event that a contractor provides lodging facilities, but no meals, the department will accept a payment of $48 per day for meals to meet the per diem requirements.

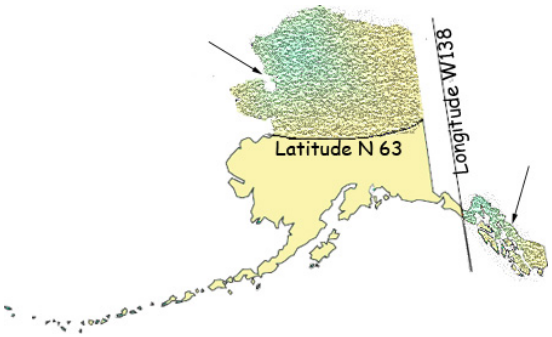
LABORER CLASSIFICATION CLARIFICATION

The laborer rates categorized in class code S1201-S1206 apply in one area of Alaska; the area that is south of N63 latitude and west of W138 Longitude. The laborer rates categorized in class code N1201-N1206 apply in two areas of Alaska; the Alaska areas north of N63 latitude and east of W138 longitude. The following graphic representations should assist with clarifying the applicable wage rate categories:

S1201-
S1206



N1201-
N1206



APPRENTICE RATES

Apprentice rates at less than the minimum prevailing rates may be paid to apprentices according to an apprentice program which has been registered and approved by the Commissioner of the Alaska Department of Labor and Workforce Development in writing or according to a bona fide apprenticeship program registered with the U.S. Department of Labor, Office of Apprenticeship Training. **Any employee listed on a payroll at an apprentice wage rate who is not registered as above shall be paid the journeyman prevailing minimum wage in that work classification.** Wage rates are based on prevailing crew makeup practices in Alaska and apply to work performed regardless of either the quality of the work performed by the employee or the titles or classifications which may be assigned to individual employees.

FRINGE BENEFIT PLANS

Contractors/subcontractors may compensate fringe benefits to their employees in any one of three methods. The fringe benefits may be paid into a union trust fund, into an approved benefit plan, or paid directly on the paycheck as gross wages.

Where fringe benefits are paid into approved plans, funds, or programs including union trust funds, the payments must be contributed at least monthly. If contractors submit their own payroll forms and are paying fringe benefits into approved plans, funds, or programs, the employer's certification must include, in addition to those requirements of 8 AAC 30.020(c), a statement that fringe benefit payments have been or will be paid at least monthly. Contractors who pay fringe benefits to a plan must ensure the plan is one approved by the Internal Revenue Service and that the plan meets the requirements of 8 AAC 30.025 (eff. 3/2/08) in order for payments to be credited toward the prevailing wage obligation.

SPECIAL PREVAILING WAGE RATE DETERMINATION

Special prevailing wage rate determinations may be requested for special projects or a special worker classification if the work to be performed does not conform to traditional public construction for which a prevailing wage rate has been established under 8 AAC 30.050(a) of this section. Requests for special wage rate determinations must be in writing and filed with the Commissioner at least 30 days before the award of the contract. An applicant for a special wage rate determination shall have the responsibility to support the necessity for the special rate. An application for a special wage rate determination filed under this section must contain:

(1) a specification of the contract or project on which the special rates will apply and a description of the work to be performed;
(2) a brief narrative explaining why special wage rates are necessary;
(3) the job class or classes involved;
(4) the special wage rates the applicant is requesting, including survey or other relevant wage data to support the requested rates;
(5) the approximate number of employees who would be affected; and
(6) any other information which might be helpful in determining if special wage rates are appropriate.

Requests made pursuant to the above should be addressed to:

Director
Alaska Department of Labor and Workforce Development
Labor Standards and Safety Division
Wage and Hour Administration
P.O. Box 111149
Juneau, AK 99811-1149
-or-
Email: statewide.wagehour@alaska.gov

EMPLOYMENT PREFERENCE INFORMATION

In October 2019, the Alaska Attorney General issued a formal opinion stating that the Alaska Statutes 36.10.150 of the State's 90% Employment Preference law, also known as the Alaska Resident Hire law, violates both the U.S. and Alaska Constitutions. As a result, the state has stopped all enforcement activity.
A copy of the Attorney General opinion is found here:

http://law.alaska.gov/pdf/opinions/opinions_2019/19-005_AK-hire.pdf

Alaska Department of Labor and Workforce Development
Labor Standards and Safety Division
Wage and Hour Administration
Web site: http://labor.state.ak.us/lss/pamp600.htm

Anchorage	Juneau	Fairbanks
1251 Muldoon Road, Suite 113 Anchorage, Alaska 99504-2098 Phone: (907) 269-4900 Email: statewide.wagehour@alaska.gov	PO Box 111149 Juneau, Alaska 99811 Phone: (907) 465-4842 Email: statewide.wagehour@alaska.gov	Regional State Office Building 675 7th Ave., Station J-1 Fairbanks, Alaska 99701-4593 Phone: (907) 451-2886 Email: statewide.wagehour@alaska.gov

LABOR STANDARDS AND SAFETY NOTICE REQUESTS

If you would like to receive Wage and Hour Administration or Mechanical Inspection **regulation notices** or **publications information**, they are available via electronic mail, by signing up in the GovDelivery System, https://public.govdelivery.com/accounts/AKDOL/subscriber/new and selecting topics *LSS – Wage and Hour – Forms and Publications*, *LSS – Mechanical Inspection Regulations*, or *LSS – Wage and Hour Regulations*.

Publications are also available online at http://labor.alaska.gov/lss/home.htm

DEBARMENT LIST

AS 36.05.090(b) states that "the state disbursing officer or the local fiscal officer shall distribute to all departments of the state government and to all political subdivisions of the state a list giving the names of persons who have disregarded their obligations to employees."

A person appearing on the following debarment list and a firm, corporation, partnership, or association in which the person has an interest may not work as a contractor or subcontractor on a public construction contract for the state or a political subdivision of the state for three years from the date of debarment.

Company Name	Debarment Expires

No companies are currently debarred.

Laborers' & Mechanics' Minimum Rates of Pay

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
Boilermakers	*See per diem note on last page							
						VAC	**SAF**	
A0101	Boilermaker (journeyman)	47.03	8.57	17.02	1.90	3.50	0.34	78.36
Bricklayers & Blocklayers	*See per diem note on last page							
						L&M		
A0201	Blocklayer	42.16	9.00	10.05	0.62	0.20		62.03
	Bricklayer Marble or Stone Mason Refractory Worker (Firebrick, Plastic, Castable, and Gunite Refractory Applications) Terrazzo Worker Tile Setter							
						L&M		
A0202	Tuck Pointer Caulker	42.16	9.00	10.05	0.62	0.20		62.03
	Cleaner (PCC)							
						L&M		
A0203	Marble & Tile Finisher	35.99	9.00	10.05	0.62	0.20		55.86
	Terrazzo Finisher							
						L&M		
A0204	Torginal Applicator	40.10	9.83	8.50	0.55	0.15	0.87	60.00
Carpenters, Region I (North of 63 latitude)	*See per diem note on last page							
						L&M	**SAF**	
N0301	Carpenter (journeyman)	38.34	10.08	15.23	1.10	0.10	0.10	64.95
	Lather/Drywall/Acoustical							
Carpenters, Region II (South of N63 latitude)	*See per diem note on last page							
						L&M	**SAF**	
S0301	Carpenter (journeyman)	38.34	10.08	15.77	1.10	0.10	0.10	65.49
	Lather/Drywall/Acoustical							
Cement Masons	*See per diem note on last page							

Wage benefits key: BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pens fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Cement Masons							
	*See per diem note on last page						
						L&M	
A0401	Group I, including:	39.38	8.70	11.80	1.43	0.10	61.41
	Application of Sealing Compound						
	Application of Underlayment						
	Building, General						
	Cement Finisher						
	Cement Mason (journeyman)						
	Concrete						
	Concrete Paving						
	Concrete Polishing						
	Concrete Repair						
	Curb & Gutter, Sidewalk						
	Curing of All Concrete						
	General Concrete Pour Tender						
	Grouting & Caulking of Tilt-Up Panels						
	Grouting of All Plates						
	Patching Concrete						
	Screed Pin Setter						
	Screeder or Rodder						
	Spackling/Skim Coating						
						L&M	
A0402	Group II, including:	39.38	8.70	11.80	1.43	0.10	61.41
	Form Setter						
						L&M	
A0403	Group III, including:	39.38	8.70	11.80	1.43	0.10	61.41
	Concrete Saw Cutter Operator (All Control Joints and Self-powered)						
	Curb & Gutter Machine						
	Floor Grinder						
	Pneumatic Power Tools						
	Power Chipping & Bushing						
	Sand Blasting Architectural Finish						
	Screed & Rodding Machine Operator						
	Troweling Machine Operator (all concrete surfaces)						
						L&M	
A0404	Group IV, including:	39.38	8.70	11.80	1.43	0.10	61.41
	Acoustical or Imitation Acoustical Finish						
	Application of All Composition Mastic						
	Application of All Epoxy Material						
	Application of All Plastic Material						
	Finish Colored Concrete						
	Gunite Nozzleman						

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Cement Masons							
	*See per diem note on last page						
A0404	Group IV, including:	39.38	8.70	11.80	1.43	L&M 0.10	61.41
	Hand Powered Grinder						
	Preparing, scratching and browsing of all ceilings and walls, finished with terrazo or tile						
	Tunnel Worker						
A0405	Group V, including:	39.38	8.70	11.80	1.43	L&M 0.10	61.41
	Casting and finishing						
	EIFS Systems						
	Finishing of all interior and exterior plastering						
	Fireproofing (Pryocrete, Cafco, Albi-Clad, sprayed fiberglass)						
	Gypsum, Portland Cement						
	Kindred material and products						
	Operation and control of all types of plastering machines, including power tools and floats, used by the industry						
	Overcoating and maintenance of interior/exterior plaster surfaces						
	Plasterer						
	Veneer plastering process (Rapid Plaster, U.S.G. "Imperial Systems", and Pabcoat Systems")						
	Venetian plaster and color-integrated Italian/Middle-Eastern line plaster						
Culinary Workers							
A0501	Baker/Cook	28.37	7.31	7.56		LEG	43.24
A0503	General Helper	25.07	7.31	7.56		LEG	39.94
	Housekeeper						
	Janitor						
	Kitchen Helper						
A0504	Head Cook	28.97	7.31	7.56		LEG	43.84
A0505	Head Housekeeper	25.45	7.31	7.56		LEG	40.32
	Head Kitchen Help						
Dredgemen							
	*See per diem note on last page						

Wage benefits key: BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pens fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
Dredgemen								
	*See per diem note on last page							
A0601	Assistant Engineer	41.76	10.70	13.50	1.00	**L&M** 0.10	0.05	67.11
	Craneman							
	Electrical Generator Operator (primary pump/power barge/dredge)							
	Engineer							
	Welder							
A0602	Assistant Mate (deckhand)	40.60	10.70	13.50	1.00	**L&M** 0.10	0.05	65.95
A0603	Fireman	41.04	10.70	13.50	1.00	**L&M** 0.10	0.05	66.39
A0605	Leverman Clamshell	44.29	10.70	13.50	1.00	**L&M** 0.10	0.05	69.64
A0606	Leverman Hydraulic	42.53	10.70	13.50	1.00	**L&M** 0.10	0.05	67.88
A0607	Mate & Boatman	41.76	10.70	13.50	1.00	**L&M** 0.10	0.05	67.11
A0608	Oiler (dredge)	41.04	10.70	13.50	1.00	**L&M** 0.10	0.05	66.39
Electricians								
	*See per diem note on last page							
A0701	Inside Cable Splicer	42.02	14.05	13.90	0.95	**L&M** 0.20	**LEG** 0.15	71.27
A0702	Inside Journeyman Wireman, including:	41.69	14.05	14.14	0.95	**L&M** 0.20	**LEG** 0.15	71.18
	Technicians (including use of drones in electrical construction)							
A0703	Power Cable Splicer	60.79	14.05	19.01	0.95	**L&M** 0.25	**LEG** 0.15	95.20
A0704	Tele Com Cable Splicer	50.53	14.05	16.67	0.95	**L&M** 0.20	**LEG** 0.15	82.55
A0705	Power Journeyman Lineman, including:	59.04	14.05	18.96	0.95	**L&M** 0.25	**LEG** 0.15	93.40
	Power Equipment Operator							
	Technician (including use of drones in electrical construction)							
A0706	Tele Com Journeyman Lineman, including:	48.78	14.05	16.61	0.95	**L&M** 0.20	**LEG** 0.15	80.74
	Technician (including use of drones in telecommunications construction)							
	Tele Com Equipment Operator							

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Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
Electricians								
	*See per diem note on last page							
						L&M	**LEG**	
A0707	Straight Line Installer - Repairman	48.78	14.05	16.61	0.95	0.20	0.15	80.74
						L&M	**LEG**	
A0708	Powderman	57.04	14.05	18.90	0.95	0.25	0.15	91.34
						L&M	**LEG**	
A0710	Material Handler	26.57	13.76	5.30	0.15	0.15	0.15	46.08
						L&M	**LEG**	
A0712	Tree Trimmer Groundman	28.37	14.05	12.59	0.15	0.15	0.15	55.46
						L&M	**LEG**	
A0713	Journeyman Tree Trimmer	37.30	14.05	12.86	0.15	0.15	0.15	64.66
						L&M	**LEG**	
A0714	Vegetation Control Sprayer	40.85	14.05	12.97	0.15	0.15	0.15	68.32
						L&M	**LEG**	
A0715	Inside Journeyman Communications CO/PBX	40.27	14.05	13.85	0.95	0.20	0.15	69.47
Elevator Workers								
	*See per diem note on last page							
						L&M	**VAC**	
A0802	Elevator Constructor	42.76	15.88	19.31	0.64	0.54	4.74	83.87
						L&M	**VAC**	
A0803	Elevator Constructor Mechanic	61.08	15.88	19.31	0.64	0.54	6.78	104.23
Heat & Frost Insulators/Asbestos Workers								
	*See per diem note on last page							
						SAF		
A0902	Asbestos Abatement-Mechanical Systems	38.68	9.24	11.01	1.20	0.12		60.25
						SAF		
A0903	Asbestos Abatement/General Demolition All Systems	38.68	9.24	11.01	1.20	0.12		60.25
						SAF		
A0904	Insulator, Group II	38.68	9.24	11.01	1.20	0.12		60.25
						SAF		
A0905	Fire Stop	38.68	9.24	11.01	1.20	0.12		60.25
IronWorkers								
	*See per diem note on last page							
						L&M	**IAF**	
A1101	Ironworkers, including:	38.87	9.51	24.28	0.74	0.20	0.24	73.84

Wage benefits key: BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pens fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
IronWorkers								
	*See per diem note on last page							
						L&M	**IAF**	
A1101	Ironworkers, including:	38.87	9.51	24.28	0.74	0.20	0.24	73.84
	Bender Operators							
	Bridge & Structural							
	Hangar Doors							
	Hollow Metal Doors							
	Industrial Doors							
	Machinery Mover							
	Ornamental							
	Reinforcing							
	Rigger							
	Sheeter							
	Signalman							
	Stage Rigger							
	Toxic Haz-Mat Work							
	Welder							
						L&M	**IAF**	
A1102	Helicopter	39.87	9.51	24.28	0.74	0.20	0.24	74.84
	Helicopter (used for rigging and setting)							
	Tower (energy producing windmill type towers to include nacelle and blades)							
						L&M	**IAF**	
A1103	Fence/Barrier Installer	35.37	9.51	23.93	0.74	0.20	0.24	69.99
						L&M	**IAF**	
A1104	Guard Rail Layout Man	36.11	9.51	23.93	0.74	0.20	0.24	70.73
						L&M	**IAF**	
A1105	Guard Rail Installer	36.37	9.51	23.93	0.74	0.20	0.24	70.99
Laborers (The Alaska areas north of N63 latitude and east of W138 longitude)								
	*See per diem note on last page							
						L&M	**LEG**	
N1201	Group I, including:	32.00	8.95	20.66	1.30	0.20	0.20	63.31
	Asphalt Worker (shovelman, plant crew)							
	Brush Cutter							
	Camp Maintenance Laborer							
	Carpenter Tender or Helper							
	Choke Setter, Hook Tender, Rigger, Signalman							
	Concrete Labor (curb & gutter, chute handler, curing, grouting, screeding)							
	Crusher Plant Laborer							
	Demolition Laborer							

Wage benefits key: BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pens fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
						L&M	LEG	
Laborers (The Alaska areas north of N63 latitude and east of W138 longitude) *See per diem note on last page								
N1201	Group I, including:	32.00	8.95	20.66	1.30	0.20	0.20	63.31
	Ditch Digger							
	Dumpman							
	Environmental Laborer (hazard/toxic waste, oil spill)							
	Fence Installer							
	Fire Watch Laborer							
	Flagman							
	Form Stripper							
	General Laborer							
	Guardrail Laborer, Bridge Rail Installer							
	Hydro-seeder Nozzleman							
	Laborer, Building							
	Landscaper or Planter							
	Laying of Mortarless Decorative Block (retaining walls, flowered decorative block 4 feet or less - highway or landscape work)							
	Material Handler							
	Pneumatic or Power Tools							
	Portable or Chemical Toilet Serviceman							
	Pump Man or Mixer Man							
	Railroad Track Laborer							
	Sandblast, Pot Tender							
	Saw Tender							
	Slurry Work							
	Steam Cleaner Operator							
	Steam Point or Water Jet Operator							
	Storm Water Pollution Protection Plan Worker (SWPPP Worker - erosion and sediment control Laborer)							
	Tank Cleaning							
	Utiliwalk & Utilidor Laborer							
	Watchman (construction projects)							
	Window Cleaner							
						L&M	LEG	
N1202	Group II, including:	33.00	8.95	20.66	1.30	0.20	0.20	64.31
	Burning & Cutting Torch							
	Cement or Lime Dumper or Handler (sack or bulk)							
	Certified Erosion Sediment Control Lead (CESCL Laborer)							
	Choker Splicer							
	Chucktender (wagon, air-track & hydraulic drills)							
	Concrete Laborer (power buggy, concrete saws, pumpcrete nozzleman, vibratorman)							
	Culvert Pipe Laborer							

Wage benefits key: BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pens fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
						L&M	LEG	

Laborers (The Alaska areas north of N63 latitude and east of W138 longitude)
*See per diem note on last page

N1202	Group II, including:	33.00	8.95	20.66	1.30	0.20	0.20	64.31

Cured Inplace Pipelayer
Environmental Laborer (asbestos, marine work)
Floor Preparation, Core Drilling
Foam Gun or Foam Machine Operator
Green Cutter (dam work)
Gunite Operator
Hod Carrier
Jackhammer/Chipping Gun or Pavement Breaker
Laser Instrument Operator
Laying of Mortarless Decorative Block (retaining walls, flowered decorative block over 4 feet - highway or landscape work)
Mason Tender & Mud Mixer (sewer work)
Pilot Car
Pipelayer Helper
Plasterer, Bricklayer & Cement Finisher Tender
Powderman Helper
Power Saw Operator
Railroad Switch Layout Laborer
Sandblaster
Scaffold Building & Erecting
Sewer Caulker
Sewer Plant Maintenance Man
Thermal Plastic Applicator
Timber Faller, Chainsaw Operator, Filer
Timberman

N1203	Group III, including:	33.90	8.95	20.66	1.30	0.20	0.20	65.21

Bit Grinder
Camera/Tool/Video Operator
Guardrail Machine Operator
High Rigger & Tree Topper
High Scaler
Multiplate
Plastic Welding
Slurry Seal Squeegee Man
Traffic Control Supervisor
Welding Certified (in connection with laborer's work)

N1204	Group IIIA	37.18	8.95	20.66	1.30	0.20	0.20	68.49

Asphalt Raker, Asphalt Belly Dump Lay Down

Wage benefits key: BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pens fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
						L&M	LEG	
Laborers (The Alaska areas north of N63 latitude and east of W138 longitude) *See per diem note on last page								
N1204	Group IIIA	37.18	8.95	20.66	1.30	0.20	0.20	68.49
	Drill Doctor (in the field) Driller (including, but not limited to wagon drills, air-track drills, hydraulic drills) Pioneer Drilling & Drilling Off Tugger (all type drills) Pipelayers Powderman (Employee Possessor) Storm Water Pollution Protection Plan Specialist (SWPPP Specialist) Traffic Control Supervisor, DOT Qualified							
N1205	Group IV	21.57	8.95	20.66	1.30	0.20	0.20	52.88
	Final Building Cleanup Permanent Yard Worker							
N1206	Group IIIB	40.97	6.24	20.66	1.30	0.20	0.20	69.57
	Driller (including, but not limited to wagon drills, air-track drills, hydraulic drills)(over 5,000 hours) Federal Powderman (Responsible Person in Charge) Grade Checking (setting or transferring of grade marks, line and grade, GPS, drones) Pioneer Drilling & Drilling Off Tugger (all type drills)(over 5,000 hours) Stake Hopper							
Laborers (The area that is south of N63 latitude and west of W138 longitude) *See per diem note on last page								
S1201	Group I, including:	32.00	8.95	20.66	1.30	0.20	0.20	63.31
	Asphalt Worker (shovelman, plant crew) Brush Cutter Camp Maintenance Laborer Carpenter Tender or Helper Choke Setter, Hook Tender, Rigger, Signalman Concrete Labor (curb & gutter, chute handler, curing, grouting, screeding) Crusher Plant Laborer Demolition Laborer Ditch Digger Dumpman Environmental Laborer (hazard/toxic waste, oil spill) Fence Installer							

Wage benefits key: BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pens fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
						L&M	LEG	

Laborers (The area that is south of N63 latitude and west of W138 longitude)
*See per diem note on last page

S1201	Group I, including:	32.00	8.95	20.66	1.30	0.20	0.20	63.31

Fire Watch Laborer
Flagman
Form Stripper
General Laborer
Guardrail Laborer, Bridge Rail Installer
Hydro-seeder Nozzleman
Laborer, Building
Landscaper or Planter
Laying of Mortarless Decorative Block (retaining walls, flowered decorative block 4 feet or less - highway or landscape work)
Material Handler
Pneumatic or Power Tools
Portable or Chemical Toilet Serviceman
Pump Man or Mixer Man
Railroad Track Laborer
Sandblast, Pot Tender
Saw Tender
Slurry Work
Steam Cleaner Operator
Steam Point or Water Jet Operator
Storm Water Pollution Protection Plan Worker (SWPPP Worker - erosion and sediment control Laborer)
Tank Cleaning
Utiliwalk & Utilidor Laborer
Watchman (construction projects)
Window Cleaner

S1202	Group II, including:	33.00	8.95	20.66	1.30	0.20	0.20	64.31

Burning & Cutting Torch
Cement or Lime Dumper or Handler (sack or bulk)
Certified Erosion Sediment Control Lead (CESCL Laborer)
Choker Splicer
Chucktender (wagon, air-track & hydraulic drills)
Concrete Laborer (power buggy, concrete saws, pumpcrete nozzleman, vibratorman)
Culvert Pipe Laborer
Cured Inplace Pipelayer
Environmental Laborer (asbestos, marine work)
Floor Preparation, Core Drilling
Foam Gun or Foam Machine Operator

Wage benefits key: BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pens fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
						L&M	LEG	

Laborers (The area that is south of N63 latitude and west of W138 longitude)
*See per diem note on last page

S1202	Group II, including:	33.00	8.95	20.66	1.30	0.20	0.20	64.31

Green Cutter (dam work)
Gunite Operator
Hod Carrier
Jackhammer/Chipping Gun or Pavement Breaker
Laser Instrument Operator
Laying of Mortarless Decorative Block (retaining walls, flowered decorative block over 4 feet - highway or landscape work)
Mason Tender & Mud Mixer (sewer work)
Pilot Car
Pipelayer Helper
Plasterer, Bricklayer & Cement Finisher Tender
Powderman Helper
Power Saw Operator
Railroad Switch Layout Laborer
Sandblaster
Scaffold Building & Erecting
Sewer Caulker
Sewer Plant Maintenance Man
Thermal Plastic Applicator
Timber Faller, Chainsaw Operator, Filer
Timberman

S1203	Group III, including:	33.90	8.95	20.66	1.30	0.20	0.20	65.21

Bit Grinder
Camera/Tool/Video Operator
Guardrail Machine Operator
High Rigger & Tree Topper
High Scaler
Multiplate
Plastic Welding
Slurry Seal Squeegee Man
Traffic Control Supervisor
Welding Certified (in connection with laborer's work)

S1204	Group IIIA	37.18	8.95	20.66	1.30	0.20	0.20	68.49

Asphalt Raker, Asphalt Belly Dump Lay Down
Drill Doctor (in the field)
Driller (including, but not limited to wagon drills, air-track drills, hydraulic drills)
Pioneer Drilling & Drilling Off Tugger (all type drills)

Wage benefits key: BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pens fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
Laborers (The area that is south of N63 latitude and west of W138 longitude) *See per diem note on last page								
						L&M	**LEG**	
S1204	Group IIIA	37.18	8.95	20.66	1.30	0.20	0.20	68.49
	Pipelayers Powderman (Employee Possessor) Storm Water Pollution Protection Plan Specialist (SWPPP Specialist) Traffic Control Supervisor, DOT Qualified							
						L&M	**LEG**	
S1205	Group IV	21.57	8.95	20.66	1.30	0.20	0.20	52.88
	Final Building Cleanup Permanent Yard Worker							
						L&M	**LEG**	
S1206	Group IIIB	40.97	6.24	20.66	1.30	0.20	0.20	69.57
	Driller (including, but not limited to wagon drills, air-track drills, hydraulic drills)(over 5,000 hours) Federal Powderman (Responsible Person in Charge) Grade Checking (setting or transferring of grade marks, line and grade, GPS, drones) Pioneer Drilling & Drilling Off Tugger (all type drills)(over 5,000 hours) Stake Hopper							
Millwrights *See per diem note on last page								
						L&M		
A1251	Millwright (journeyman)	40.77	10.08	12.28	1.10	0.40	0.05	64.68
						L&M		
A1252	Millwright Welder	41.77	10.08	12.28	1.10	0.40	0.05	65.68
Painters, Region I (North of N63 latitude) *See per diem note on last page								
						L&M		
N1301	Group I, including:	34.19	8.71	14.30	1.08	0.07		58.35
	Brush General Painter Hand Taping Hazardous Material Handler Lead-Based Paint Abatement Roll							
						L&M		
N1302	Group II, including:	34.71	8.71	14.30	1.08	0.07		58.87

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Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Painters, Region I (North of N63 latitude) *See per diem note on last page							
						L&M	
N1302	Group II, including:	34.71	8.71	14.30	1.08	0.07	58.87
	Bridge Painter Epoxy Applicator General Drywall Finisher Hand/Spray Texturing Industrial Coatings Specialist Machine/Automatic Taping Pot Tender Sandblasting Specialty Painter Spray Structural Steel Painter Wallpaper/Vinyl Hanger						
N1304	Group IV, including:	39.80	8.71	17.71	1.05	0.05	67.32
	Glazier Storefront/Automatic Door Mechanic						
N1305	Group V, including:	28.63	8.71	5.02	0.83	0.07	43.26
	Carpet Installer Floor Coverer Heat Weld/Cove Base Linoleum/Soft Tile Installer						
Painters, Region II (South of N63 latitude) *See per diem note on last page							
						L&M	
S1301	Group I, including :	31.33	8.71	15.15	1.08	0.07	56.34
	Brush General Painter Hand Taping Hazardous Material Handler Lead-Based Paint Abatement Roll Spray						
						L&M	
S1302	Group II, including :	32.58	8.71	15.15	1.08	0.07	57.59
	General Drywall Finisher Hand/Spray Texturing Machine/Automatic Taping						

Wage benefits key: BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pens fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Painters, Region II (South of N63 latitude) *See per diem note on last page							
						L&M	
S1302	Group II, including :	32.58	8.71	15.15	1.08	0.07	57.59
	Wallpaper/Vinyl Hanger						
						L&M	
S1303	Group III, including :	32.68	8.71	15.15	1.08	0.07	57.69
	Bridge Painter Epoxy Applicator Industrial Coatings Specialist Pot Tender Sandblasting Specialty Painter Structural Steel Painter						
						L&M	
S1304	Group IV, including:	40.01	8.71	16.75	1.08	0.07	66.62
	Glazier Storefront/Automatic Door Mechanic						
						L&M	
S1305	Group V, including:	28.63	8.71	5.02	0.83	0.07	43.26
	Carpet Installer Floor Coverer Heat Weld/Cove Base Linoleum/Soft Tile Installer						
Piledrivers *See per diem note on last page							
						L&M	**IAF**
A1401	Piledriver	38.34	10.08	15.23	1.10	0.10	0.10 64.95
	Assistant Dive Tender Carpenter/Piledriver Rigger Sheet Stabber Skiff Operator						
						L&M	**IAF**
A1402	Piledriver-Welder/Toxic Worker	39.34	10.08	15.23	1.10	0.10	0.10 65.95
						L&M	**IAF**
A1403	Remotely Operated Vehicle Pilot/Technician	42.65	10.08	15.23	1.10	0.10	0.10 69.26
	Single Atmosphere Suit, Bell or Submersible Pilot						
						L&M	**IAF**
A1404	Diver (working) **See note on last page	82.45	10.08	15.23	1.10	0.10	0.10 109.06

Wage benefits key: BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pens fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
Piledrivers								
	*See per diem note on last page							
						L&M	**IAF**	
A1405	Diver (standby) **See note on last page	42.65	10.08	15.23	1.10	0.10	0.10	69.26
						L&M	**IAF**	
A1406	Dive Tender **See note on last page	41.65	10.08	15.23	1.10	0.10	0.10	68.26
						L&M	**IAF**	
A1407	Welder (American Welding Society, Certified Welding Inspector)	43.90	10.08	15.23	1.10	0.10	0.10	70.51
Plumbers, Region I (North of N63 latitude)								
	*See per diem note on last page							
						L&M	**S&L**	
N1501	Journeyman Pipefitter	41.91	11.25	17.20	1.50	0.65		72.51
	Plumber							
	Welder							
Plumbers, Region II (South of N63 latitude)								
	*See per diem note on last page							
						L&M		
S1501	Journeyman Pipefitter	41.00	11.13	15.02	1.55	0.20		68.90
	Plumber							
	Welder							
Plumbers, Region IIA (1st Judicial District)								
	*See per diem note on last page							
						L&M		
X1501	Journeyman Pipefitter	38.82	13.37	11.75	2.50	0.24		66.68
	Plumber							
	Welder							
Power Equipment Operators								
	*See per diem note on last page							
						L&M		
A1601	Group I, including:	42.53	10.70	13.50	1.00	0.10	0.05	67.88
	Asphalt Roller: Breakdown, Intermediate, and Finish							
	Back Filler							
	Barrier Machine (Zipper)							
	Beltcrete with Power Pack & similar conveyors							
	Bending Machine							
	Boat Coxswain							
	Bulldozer							
	Cableways, Highlines & Cablecars							

Wage benefits key: BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pens fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	L&M	THR
Power Equipment Operators *See per diem note on last page								
A1601	Group I, including:	42.53	10.70	13.50	1.00	0.10	0.05	67.88

Cleaning Machine

Coating Machine

Concrete Hydro Blaster

Cranes (45 tons & under or 150 feet of boom & under (including jib & attachments))

(a) Hydralifts or Transporters, (all track or truck type)

(b) Derricks

(c) Overhead

Crushers

Deck Winches, Double Drum

Ditching or Trenching Machine (16 inch or over)

Drag Scraper, Yarder, and similar types

Drilling Machines, Core, Cable, Rotary and Exploration

Finishing Machine Operator, Concrete Paving, Laser Screed, Sidewalk, Curb & Gutter Machine

Grade Checker and/or Line and Grade including Drone

Helicopters

Hover Craft, Flex Craft, Loadmaster, Air Cushion, All-Terrain Vehicle, Rollagon, Bargecable, Nodwell, & Snow Cat

Hydro Ax, Feller Buncher & similar

Hydro Excavation (Vac-Truck and Similar)

Loaders (2 1/2 yards through 5 yards, including all attachments):

(a) Forklifts (with telescopic boom & swing attachment)

(b) Front End & Overhead, (2-1/2 yards through 5 yards)

(c) Loaders, (with forks or pipe clamp)

(d) Loaders, (elevating belt type, Euclid & similar types)

Material Transfer Vehicle (Elevating Grader, Pickup Machine, and similar types)

Mechanic, Welder, Bodyman, Electrical, Camp & Maintenance Engineer

Micro Tunneling Machine

Mixers: Mobile type with hoist combination

Motor Patrol Grader

Mucking Machine: Mole, Tunnel Drill, Horizontal/Directional Drill Operator and/or Shield

Off-Road Hauler (including Articulating and Haul Trucks)

Operator on Dredges

Piledriver Engineer, L.B. Foster, Puller or similar paving breaker

Plant Operator (Asphalt & Concrete)

Power Plant, Turbine Operator 200 k.w & over (power plants or combination of power units over 300 k.w.)

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
Power Equipment Operators *See per diem note on last page								
						L&M		
A1601	Group I, including:	42.53	10.70	13.50	1.00	0.10	0.05	67.88
	Remote Controlled Equipment							
	Scraper (through 40 yards)							
	Service Oiler/Service Engineer							
	Shot Blast Machine							
	Shovels, Backhoes, Excavators with all attachments, and Gradealls (3 yards & under)							
	Sideboom (under 45 tons)							
	Sub Grader (Gurries & similar types)							
	Tack Tractor							
	Truck Mounted Concrete Pump, Conveyor/Tele-belt, & Creter							
	Wate Kote Machine							
						L&M		
A1602	Group IA, including:	44.29	10.70	13.50	1.00	0.10	0.05	69.64
	Camera/Tool/Video Operator (Slipline)							
	Certified Welder, Electrical Mechanic, Camp Maintenance Engineer, Mechanic (over 10,000 hours)							
	Cranes (over 45 tons or 150 feet including jib & attachments)							
	(a) Clamshells & Draglines (over 3 yards)							
	(b) Tower Cranes							
	Licensed Water/Waste Water Treatment Operator							
	Loaders (over 5 yards)							
	Motor Patrol Grader, Dozer, Grade Tractor (finish: when finishing to final grade and/or to hubs, or for asphalt)							
	Power Plants (1000 k.w. & over)							
	Profiler, Reclaimer, and Roto-Mill							
	Quad							
	Scrapers (over 40 yards)							
	Screed							
	Shovels, Backhoes, Excavators with all attachments (over 3 yards)							
	Sidebooms (over 45 tons)							
	Slip Form Paver, C.M.I. & similar types							
	Topside (Asphalt Paver, Slurry machine, Spreaders, and similar types)							
						L&M		
A1603	Group II, including:	41.76	10.70	13.50	1.00	0.10	0.05	67.11
	Boiler - Fireman							
	Cement Hogs & Concrete Pump Operator							
	Conveyors (except those listed in Group I)							
	Hoists on Steel Erection, Towermobiles & Air Tuggers							
	Horizontal/Directional Drill Locator							
	Locomotives, Rod & Geared Engines							

Wage benefits key: BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pens fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
Power Equipment Operators *See per diem note on last page								
						L&M		
A1603	Group II, including:	41.76	10.70	13.50	1.00	0.10	0.05	67.11
	Mixers							
	Screening, Washing Plant							
	Sideboom (cradling rock drill, regardless of size)							
	Skidder							
	Trenching Machines (under 16 inches)							
	Water/Waste Water Treatment Operator							
						L&M		
A1604	Group III, including:	41.04	10.70	13.50	1.00	0.10	0.05	66.39
	"A" Frame Trucks, Deck Winches							
	Bombardier (tack or tow rig)							
	Boring Machine							
	Brooms, Power (sweeper, elevator, vacuum, or similar)							
	Bump Cutter							
	Compressor							
	Farm Tractor							
	Forklift, Industrial Type							
	Gin Truck or Winch Truck (with poles when used for hoisting)							
	Hoists, Air Tuggers, Elevators							
	Loaders:							
	(a) Elevating-Athey, Barber Greene & similar types							
	(b) Forklifts or Lumber Carrier (on construction job sites)							
	(c) Forklifts, (with tower)							
	(d) Overhead & Front End, (under 2-l/2 yards)							
	Locomotives: Dinkey (air, steam, gas & electric) Speeders							
	Mechanics, Light Duty							
	Oil, Blower Distribution							
	Posthole Digger, Mechanical							
	Pot Fireman (power agitated)							
	Power Plant, Turbine Operator, (under 200 k.w.)							
	Pumps, Water							
	Roller (other than Asphalt)							
	Saws, Concrete							
	Skid Hustler							
	Skid Steer (with all attachments)							
	Stake Hopper							
	Straightening Machine							
	Tow Tractor							
						L&M		
A1605	Group IV, including:	34.83	10.70	13.50	1.00	0.10	0.05	60.18

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Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
Power Equipment Operators								
	*See per diem note on last page							
						L&M		
A1605	Group IV, including:	34.83	10.70	13.50	1.00	0.10	0.05	60.18
	Crane Assistant Engineer/Rig Oiler							
	Drill Helper							
	Parts & Equipment Coordinator							
	Spotter							
	Steam Cleaner							
	Swamper (on trenching machines or shovel type equipment)							
Roofers								
	*See per diem note on last page							
						L&M		
A1701	Roofer & Waterproofer	44.62	12.75	3.91	0.81	0.10	0.06	62.25
						L&M		
A1702	Roofer Material Handler	31.23	12.75	3.91	0.81	0.10	0.06	48.86
Sheet Metal Workers, Region I (North of N63 latitude)								
	*See per diem note on last page							
						L&M		
N1801	Sheet Metal Journeyman	48.64	11.50	14.11	1.65	0.12		76.02
	Air Balancing and duct cleaning of HVAC systems							
	Brazing, soldering or welding of metals							
	Demolition of sheet metal HVAC systems							
	Fabrication and installation of exterior wall sheathing, siding, metal roofing, flashing, decking and architectural sheet metal work							
	Fabrication and installation of heating, ventilation and air conditioning ducts and equipment							
	Fabrication and installation of louvers and hoods							
	Fabrication and installation of sheet metal lagging							
	Fabrication and installation of stainless steel commercial or industrial food service equipment							
	Manufacture, fabrication assembly, installation and alteration of all ferrous and nonferrous metal work							
	Metal lavatory partitions							
	Preparation of drawings taken from architectural and engineering plans required for fabrication and erection of sheet metal work							
	Sheet Metal shelving							
	Sheet Metal venting, chimneys and breaching							
	Skylight installation							
Sheet Metal Workers, Region II (South of N63 latitude)								
	*See per diem note on last page							

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Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Sheet Metal Workers, Region II (South of N63 latitude) *See per diem note on last page							
S1801	Sheet Metal Journeyman	43.20	11.50	14.09	1.68	L&M 0.43	70.90
	Air Balancing and duct cleaning of HVAC systems Brazing, soldering or welding of metals Demolition of sheet metal HVAC systems Fabrication and installation of exterior wall sheathing, siding, metal roofing, flashing, decking and architectural sheet metal work Fabrication and installation of heating, ventilation and air conditioning ducts and equipment Fabrication and installation of louvers and hoods Fabrication and installation of sheet metal lagging Fabrication and installation of stainless steel commercial or industrial food service equipment Manufacture, fabrication assembly, installation and alteration of all ferrous and nonferrous metal work Metal lavatory partitions Preparation of drawings taken from architectural and engineering plans required for fabrication and erection of sheet metal work Sheet Metal shelving Sheet Metal venting, chimneys and breaching Skylight installation						
Sprinkler Fitters *See per diem note on last page							
A1901	Sprinkler Fitter	47.35	10.55	18.05	0.52	L&M 0.25	76.72
Surveyors *See per diem note on last page							
A2001	Chief of Parties	45.16	11.83	13.14	1.15	L&M 0.10	71.38
A2002	Party Chief	43.57	11.83	13.14	1.15	L&M 0.10	69.79
A2003	Line & Grade Technician/Office Technician/GPS, Drones	42.97	11.83	13.14	1.15	L&M 0.10	69.19
A2004	Associate Party Chief (including Instrument Person & Head Chain Person)/Stake Hop/Grademan	40.85	11.83	13.14	1.15	L&M 0.10	67.07
A2006	Chain Person (for crews with more than 2 people)	36.51	11.83	13.14	1.15	L&M 0.10	62.73

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Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Truck Drivers							
	*See per diem note on last page						
						L&M	
A2101	Group I, including:	41.94	11.83	13.14	1.15	0.10	68.16
	Air/Sea Traffic Controllers						
	Ambulance/Fire Truck Driver (EMT certified)						
	Boat Coxswain						
	Captains & Pilots (air & water)						
	Deltas, Commanders, Rollagons, & similar equipment (when pulling sleds, trailers or similar equipment)						
	Dump Trucks (including rockbuggy, side dump, belly dump, & trucks with pups) over 40 yards up to & including 60 yards						
	Helicopter Transporter						
	Liquid Vac Truck/Super Vac Truck						
	Material Coordinator or Purchasing Agent						
	Ready-mix (over 12 yards up to & including 15 yards) (over 15 yards to be negotiated)						
	Semi with Double Box Mixer						
	Tireman, Heavy Duty/Fueler						
	Water Wagon (250 Bbls and above)						
						L&M	
A2102	Group 1A including:	43.21	11.83	13.14	1.15	0.10	69.43
	Dump Trucks (including rockbuggy, side dump, belly dump & trucks with pups) over 60 yards up to & including 100 yards (over 100 yards to be negotiated)						
	Jeeps (driver under load)						
	Lowboys, including tractor attached trailers & jeeps, up to & including 12 axles (over 12 axles or 150 tons to be negotiated)						
						L&M	
A2103	Group II, including:	40.68	11.83	13.14	1.15	0.10	66.90
	All Deltas, Commanders, Rollagons, & similar equipment						
	Batch Trucks (8 yards & up)						
	Batch Trucks (up to & including 7 yards)						
	Boom Truck/Knuckle Truck (over 5 tons)						
	Cacasco Truck/Heat Stress Truck						
	Construction and Material Safety Technician						
	Dump Trucks (including rockbuggy, side dump, belly dump, & trucks with pups) over 20 yards up to & including 40 yards						
	Gin Pole Truck, Winch Truck, Wrecker (truck mounted "A" frame manufactured rating over 5 tons)						
	Mechanics						
	Oil Distributor Driver						
	Partsman						
	Ready-mix (up to & including 12 yards)						
	Stringing Truck						

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Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Truck Drivers	*See per diem note on last page						
						L&M	
A2103	Group II, including:	40.68	11.83	13.14	1.15	0.10	66.90
	Turn-O-Wagon or DW-10 (not self loading)						
						L&M	
A2104	Group III, including:	39.86	11.83	13.14	1.15	0.10	66.08
	Boom Truck/Knuckle Truck (up to & including 5 tons)						
	Dump Trucks (including rockbuggy, side dump, belly dump, & trucks with pups) over 10 yards up to & including 20 yards						
	Expeditor (electrical & pipefitting materials)						
	Gin Pole Truck, Winch Truck, Wrecker (truck mounted "A" frame manufactured rating 5 tons & under)						
	Greaser - Shop						
	Semi or Truck & Trailer						
	Thermal Plastic Layout Technician						
	Traffic Control Technician						
	Trucks/Jeeps (push or pull)						
						L&M	
A2105	Group IV, including:	39.28	11.83	13.14	1.15	0.10	65.50
	Air Cushion or similar type vehicle						
	All Terrain Vehicle						
	Buggymobile						
	Bull Lift & Fork Lift, Fork Lift with Power Boom & Swing Attachment (over 5 tons)						
	Bus Operator (over 30 passengers)						
	Cement Spreader, Dry						
	Combination Truck-Fuel & Grease						
	Compactor (when pulled by rubber tired equipment)						
	Dump Trucks (including rockbuggy, side dump, belly dump, & trucks with pups) up to & including 10 yards						
	Dumpster						
	Expeditor (general)						
	Fire Truck/Ambulance Driver						
	Flat Beds, Dual Rear Axle						
	Foam Distributor Truck Dual Axle						
	Front End Loader with Fork						
	Grease Truck						
	Hydro Seeder, Dual Axle						
	Hyster Operators (handling bulk aggregate)						
	Loadmaster (air & water operations)						
	Lumber Carrier						
	Ready-mix, (up to & including 7 yards)						
	Rigger (air/water/oilfield)						

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits	THR
Truck Drivers *See per diem note on last page							
						L&M	
A2105	Group IV, including:	39.28	11.83	13.14	1.15	0.10	65.50
	Tireman, Light Duty Track Truck Equipment Truck Vacuum Sweeper Warehouseperson Water Truck (Below 250 Bbls) Water Truck (straight) Water Wagon, Semi						
						L&M	
A2106	Group V, including:	38.52	11.83	13.14	1.15	0.10	64.74
	Buffer Truck Bull Lifts & Fork Lifts, Fork Lifts with Power Boom & Swing Attachments (up to & including 5 tons) Bus Operator (up to 30 passengers) Farm Type Rubber Tired Tractor (when material handling or pulling wagons on a construction project) Flat Beds, Single Rear Axle Foam Distributor Truck Single Axle Fuel Handler (station/bulk attendant) Gear/Supply Truck Gravel Spreader Box Operator on Truck Hydro Seeders, Single axle Pickups (pilot cars & all light-duty vehicles) Rigger/Swamper Tack Truck Team Drivers (horses, mules, & similar equipment)						
Tunnel Workers, Laborers (The Alaska areas north of N63 latitude and east of W138 longitude) *See per diem note on last page							
						L&M	**LEG**
N2201	Group I, including:	35.20	8.95	20.66	1.30	0.20	0.20	66.51
	Brakeman Mucker Nipper Storm Water Pollution Protection Plan Worker (SWPPP Worker - erosion and sediment control Laborer) Topman & Bull Gang Tunnel Track Laborer						
						L&M	**LEG**
N2202	Group II, including:	36.30	8.95	20.66	1.30	0.20	0.20	67.61
	Burning & Cutting Torch						

Wage benefits key: BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pens fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
						L&M	LEG	
Tunnel Workers, Laborers (The Alaska areas north of N63 latitude and east of W138 longitude) *See per diem note on last page								
N2202	Group II, including:	36.30	8.95	20.66	1.30	0.20	0.20	67.61
	Certified Erosion Sediment Control Lead (CESCL Laborer) Concrete Laborer Floor Preparation, Core Drilling Jackhammer/Chipping Gun or Pavement Breaker Laser Instrument Operator Nozzlemen, Pumpcrete or Shotcrete Pipelayer Helper							
						L&M	LEG	
N2203	Group III, including:	37.29	8.95	20.66	1.30	0.20	0.20	68.60
	Miner Retimberman							
						L&M	LEG	
N2204	Group IIIA, including:	40.90	8.95	20.66	1.30	0.20	0.20	72.21
	Asphalt Raker, Asphalt Belly Dump Lay Down Drill Doctor (in the field) Driller (including, but not limited to wagon drills, air-track drills, hydraulic drills) Pioneer Drilling & Drilling Off Tugger (all type drills) Pipelayer Powderman (Employee Possessor) Storm Water Pollution Protection Plan Specialist (SWPPP Specialist) Traffic Control Supervisor, DOT Qualified							
						L&M	LEG	
N2206	Group IIIB, including:	45.07	6.24	20.66	1.30	0.20	0.20	73.67
	Driller (including, but not limited to wagon drills, air-track drills, hydraulic drills)(over 5,000 hours) Federal Powderman (Responsible Person in Charge) Grade Checking (setting or transferring of grade marks, line and grade, GPS, drones) Pioneer Drilling & Drilling Off Tugger (all type drills)(over 5,000 hours) Stake Hopper							
Tunnel Workers, Laborers (The area that is south of N63 latitude and west of W138 longitude) *See per diem note on last page								
						L&M	LEG	
S2201	Group I, including:	35.20	8.95	20.66	1.30	0.20	0.20	66.51
	Brakeman Mucker							

Wage benefits key: BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pens fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
						L&M	LEG	
S2201	Group I, including:	35.20	8.95	20.66	1.30	0.20	0.20	66.51
	Nipper							
	Storm Water Pollution Protection Plan Worker (SWPPP Worker - erosion and sediment control Laborer)							
	Topman & Bull Gang							
	Tunnel Track Laborer							
						L&M	LEG	
S2202	Group II, including:	36.30	8.95	20.66	1.30	0.20	0.20	67.61
	Burning & Cutting Torch							
	Certified Erosion Sediment Control Lead (CESCL Laborer)							
	Concrete Laborer							
	Floor Preparation, Core Drilling							
	Jackhammer/Chipping Gun or Pavement Breaker							
	Laser Instrument Operator							
	Nozzlemen, Pumpcrete or Shotcrete							
	Pipelayer Helper							
						L&M	LEG	
S2203	Group III, including:	37.29	8.95	20.66	1.30	0.20	0.20	68.60
	Miner							
	Retimberman							
						L&M	LEG	
S2204	Group IIIA, including:	40.90	8.95	20.66	1.30	0.20	0.20	72.21
	Asphalt Raker, Asphalt Belly Dump Lay Down							
	Drill Doctor (in the field)							
	Driller (including, but not limited to wagon drills, air-track drills, hydraulic drills)							
	Pioneer Drilling & Drilling Off Tugger (all type drills)							
	Pipelayer							
	Powderman (Employee Possessor)							
	Storm Water Pollution Protection Plan Specialist (SWPPP Specialist)							
	Traffic Control Supervisor, DOT Qualified							
						L&M	LEG	
S2206	Group IIIB, including:	45.07	6.24	20.66	1.30	0.20	0.20	73.67
	Driller (including, but not limited to wagon drills, air-track drills, hydraulic drills)(over 5,000 hours)							
	Federal Powderman (Responsible Person in Charge)							
	Grade Checking (setting or transferring of grade marks, line and grade, GPS, drones)							
	Pioneer Drilling & Drilling Off Tugger (all type drills)(over 5,000 hours)							

Tunnel Workers, Laborers (The area that is south of N63 latitude and west of W138 longitude)

*See per diem note on last page

Wage benefits key: BHR=basic hourly rate; H&W=health and welfare; IAF=industry advancement fund; LEG=legal fund; L&M=labor/management fund; PEN=pens fund; SAF=safety; SUI=supplemental unemployment insurance; S&L=SUI & LEG combined; TRN=training; THR=total hourly rate; VAC=vacation

Class Code	Classification of Laborers & Mechanics	BHR	H&W	PEN	TRN	Other Benefits		THR
						L&M	LEG	
Tunnel Workers, Laborers (The area that is south of N63 latitude and west of W138 longitude) *See per diem note on last page								
S2206	Group IIIB, including:	45.07	6.24	20.66	1.30	0.20	0.20	73.67
	Stake Hopper							
Tunnel Workers, Power Equipment Operators *See per diem note on last page								
						L&M		
A2207	Group I	46.78	10.70	13.50	1.00	0.10	0.05	72.13
						L&M		
A2208	Group IA	48.72	10.70	13.50	1.00	0.10	0.05	74.07
						L&M		
A2209	Group II	45.94	10.70	13.50	1.00	0.10	0.05	71.29
						L&M		
A2210	Group III	45.14	10.70	13.50	1.00	0.10	0.05	70.49
						L&M		
A2211	Group IV	38.31	10.70	13.50	1.00	0.10	0.05	63.66

*** Per diem is an established practice for this classification. This means that per diem is an allowable alternative to board and lodging if all criteria are met. See 8 AAC 30.051-08 AAC 30.056, and the per diem information on page vii of this Pamphlet.**

**** Work in combination of classifications: Employees working in any combination of classifications within the diving crew (working diver, standby diver, and tender) in a shift are paid in the classification with the highest rate for a minimum of 8 hours per shift.**

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SECTION 00852 - PERMITS

PART 1 - GENERAL

1.1 INDEX OF PERMITS

A. Alaska DOT Utility Permit No. 3-296229-21-46

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

25D-263 (5/86)

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
UTILITY PERMIT
(MAJOR)

Permit No.
3-296229-21-46

Approval
Recommended: Martin Peters

Date: 5/3/2021

Title: Regional Permit Officer

Region: Southcoast

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THE STATE OF ALASKA, acting by and through the DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES, hereinafter called the DEPARTMENT, under provisions of AS 19.25.010 19.25.020, grants a Utility Permit to **City & Borough of Juneau** of **155 South Seward Street Juneau AK 99801**, hereinafter called the PERMITTEE, permission to construct, install and thereafter perform routine maintenance, use and operate **2 Inch Water Service to Lift Station** hereinafter called the FACILITY, located as follows: State Route **296229 Glacier Lemon Rd.** Route Mileage **1.59** across, along or under property of the DEPARTMENT, acquired and utilized in the operation and maintenance of a State Transportation System, at the aforementioned locations and/or positions and in strict conformance with plans, specifications and special provisions attached hereto and made a part hereof, and not otherwise.

A. In accepting this Utility Permit for the Facility, the PERMITTEE agrees to comply with the provisions of AS 02.15.102, AS 02.15.106, AS 19.25.010, AS 19.25.200, AS 35.10.210, and AS 35.10.230; the terms, requirements and regulations as set forth in 17 AAC 15 as authorized under Administrative Procedures Act, AS 44.62.010 - 44.62.650 and the applicable policies, directives and orders issued by the Commissioner of the Department.

B. The entire cost of routine maintenance operations of the FACILITY are to be paid for by the PERMITTEE, and said FACILITY shall comply with all applicable codes.

C. The PERMITTEE's construction, installation and maintenance operations of the FACILITY shall be accomplished with minimum interference and interruption of the use, operation and maintenance of the DEPARTMENT's right of way and/or public facility; or as hereinafter provided in the DEPARTMENT's Special Provisions, attached hereto and made a part hereof, and shall at all times in no way endanger the general public in its use of the public property. Utility Permits expire if construction or installation of the facility has not started within one year after the date of approval, unless the applicant obtains an extension of time in writing from the department. 17AAC15.011(d)

D. The DEPARTMENT, in granting the Utility Permit, reserves the right to use, occupy and enjoy its property for a public transportation system and for public transportation purposes in such a manner and at such times as it deems necessary, the same as if this instrument had not been executed by the DEPARTMENT. If any such use by the DEPARTMENT shall at any time necessitate any change in location or manner of use of said FACILITY, or any part thereof, such change or alteration shall be made by the PERMITTEE according to the terms of one of the two clauses set out below as identified by a check mark before the applicable clause.

_____(1) The PERMITTEE will be reimbursed in full by the DEPARTMENT for all costs incurred in making such changes or alterations to the FACILITY that qualified under the provisions of AS 02.15.104(c), AS 19.25.020(c), or AS 35.10.220(c).

__X__(2) The PERMITTEE shall promptly remove or relocate said FACILITY at no cost to the DEPARTMENT in accordance with the provisions of AS 02.15.104(c) (4) or (5), AS 19.25.020(c) (4) or (5), AS 35.10.220(c) (4) or (5).

E. On public property being utilized for right of way on highways originally established as, or converted to, controlled access highways, ingress and egress thereto for maintenance and operation of the FACILITY is limited to the locations as designated by the DEPARTMENT. However, the DEPARTMENT may allow the PERMITTEE ingress and egress whenever such is necessary to effect repairs and maintenance of the FACILITY and when no other access is available. If the DEPARTMENT determines such access is in conflict with the use of the controlled access highway, the FACILITY will be relocated.

F. The State of Alaska and the DEPARTMENT for the purpose of this Utility Permit, hereby disclaim any representation of implication to the PERMITTEE that the DEPARTMENT has any title in any property other than the interest conveyed to the DEPARTMENT for specific purposes as described by the instrument conveying the land to the DEPARTMENT.

G. The PERMITTEE by these presents accepts notice and agrees that any expenses or damages incurred by the PERMITTEE through the abandonment, removal, reconstruction or alteration of any public facility, or incurred by said PERMITTEE as a result of this disclaimer shall be borne by said PERMITTEE at no expense whatsoever to the DEPARTMENT or the State of Alaska.

H. The waiver or breach of any terms or conditions of this Utility Permit or Provisions of the Administrative Code, by the DEPARTMENT shall be limited to the act or acts constituting such breach, and shall never be construed as being continuing or a permanent waiver of any such term or condition, unless expressly agreed to in writing by the parties hereto, all of which shall remain in full force and affect as to future acts or happenings, notwithstanding any such individual waiver or any breach thereof.

I. Only the Commissioner of the DEPARTMENT or his delegate shall have the authority to waive any term or condition herein contained.

J. The PERMITTEE shall not assign or transfer any of the rights authorized by this Utility Permit except upon notification to and approval by the DEPARTMENT.

K The PERMITTEE agrees to comply with all regulations concerning present and future use of the public property acquired, or reimbursed by Federal-Aid funds.

L. The PERMITTEE shall give the DEPARTMENT not less than ten (10) days prior written notice, unless otherwise agreed to by the parties hereto, of the PERMITTEE's intention to enter upon the DEPARTMENT's property for the purpose of major maintenance, reconstruction, altering or removal of the FACILITY, provided, however, that normal routine maintenance is excepted from this provision, and provided further, that in any instance of sudden emergency requiring prompt and immediate action to protect the public safety, or to mitigate damage to private or public property, no prior notification to the DEPARTMENT will be required. The PERMITTEE shall notify the DEPARTMENT and the Alaska State Troopers, of the location of the emergency and extent of work required by the most expeditious means of communication as soon as reasonably possible to do so, and the PERMITTEE shall take such measures as are required to protect the health and safety of the traveling public or public facility users for the duration of such emergency operations.

M. The PERMITTEE shall indemnify and hold harmless the State of Alaska and the DEPARTMENT, or either of them, from all liability for damage to property, or injury to or death of persons, arising wholly or in part from any action taken by the PERMITTEE in relation to the PERMITTEE's FACILITIES on DEPARTMENT rights of way or other permitted locations.

N. The permit is subject to all previous Easements and Utility Permits and any damage to any other utility will be the PERMITTEE's responsibility.

O. The PERMITTEE agrees to be responsible for the compliance with all applicable Federal, State, and local laws, regulations, codes and ordinances.

P. The PERMITTEE agrees to be responsible for obtaining all other appropriate permits or letters of non-objection needed from Federal, State and local agencies, or conflicting lessees, property owners or utilities.

Q. The PERMITTEE may be required, within thirty (30) days after completion of any improvement placed upon or in the premises herein, deliver to the DEPARTMENT as-built drawings showing the location and construction specifications of said improvement.

R. This Utility Permit is issued under the provisions of applicable Alaska Statutes and Administrative Code, effective as of the date of execution of this instrument by the DEPARTMENT.

S. The PERMITTEE agrees that the FACILITY will be constructed in accordance with the attached:

1. **Plans dated, 4-19-2020**

2. **Specifications consisting of; CBJ Engineering and Department of Transportation and Public Facilities (ADOT&PF) Standards & Specifications.**

3. Other *See Below.

Which, by this reference, are made a part hereof, and in accordance with the applicable codes pertaining to the FACILITY, and not otherwise, unless prior written authorization is obtained from the DEPARTMENT to do so.

T. The PERMITTEE agrees to reimburse the DEPARTMENT for actual costs of inspection and testing as required during the performance of work proposed by the PERMITTEE. The scope of inspection and testing shall be determined by the Regional Utilities Engineer. The costs billed to the PERMITTEE will be the actual DEPARTMENT's costs incurred while performing the inspection and testing.

U. The PERMITTEE agrees by entering on the DEPARTMENT's property to indemnify the DEPARTMENT and its contractors of all costs tangible or intangible that would be the result of any delay in a construction project of the DEPARTMENT caused by work done under this permit.

V. The PERMITTEE agrees to reimburse the DEPARTMENT for the length of the facility to be installed in excess of 200 feet (as indicated on the attached plans referenced to in paragraph "S" above) which is calculated to be 0 linear feet at $1.00 per foot = $0.00 (but not to exceed $10,000) payable at the time the permit is executed by the DEPARTMENT unless arrangements have been made for the PERMITTEE to be billed on a monthly basis.

Added Special Conditions:
It is the responsibility of the PERMITTEE to assure that their contractor has fully read and understands the permit.

PIPE CARRIERS

TRANSMITTANT: Domestic Water FLASH POINT: N/A

WORKING PRESSURE: 60 PSI TEMPERATURE: N/A

NUMBER OF CONDUITS (PIPES):

DIAMETER OF PIPE: Two - Inch Two Inch

TYPE AND CLASS OF PIPE: SIDR 7 Poly

ENCASEMENT DIAMETER AND TYPE: N/A N/A

VENT LOCATIONS: N/A LEFT N/A RIGHT OF HIGHWAY CENTERLINE

CATHODIC PROTECTION:

CROSSING ANGLE: 90 90 LENGTH: 170 feet

DEPTH BELOW ROAD SURFACE (MIN 48"): 60 Inches

DEPTH BELOW DITCH BOTTOM (MIN 36"): N/A

METHOD OF CROSSING INSTALLATION: BORING JACKING OPEN CUT Open cut

LONGITUDINAL FACILITY LENGTH: N/A

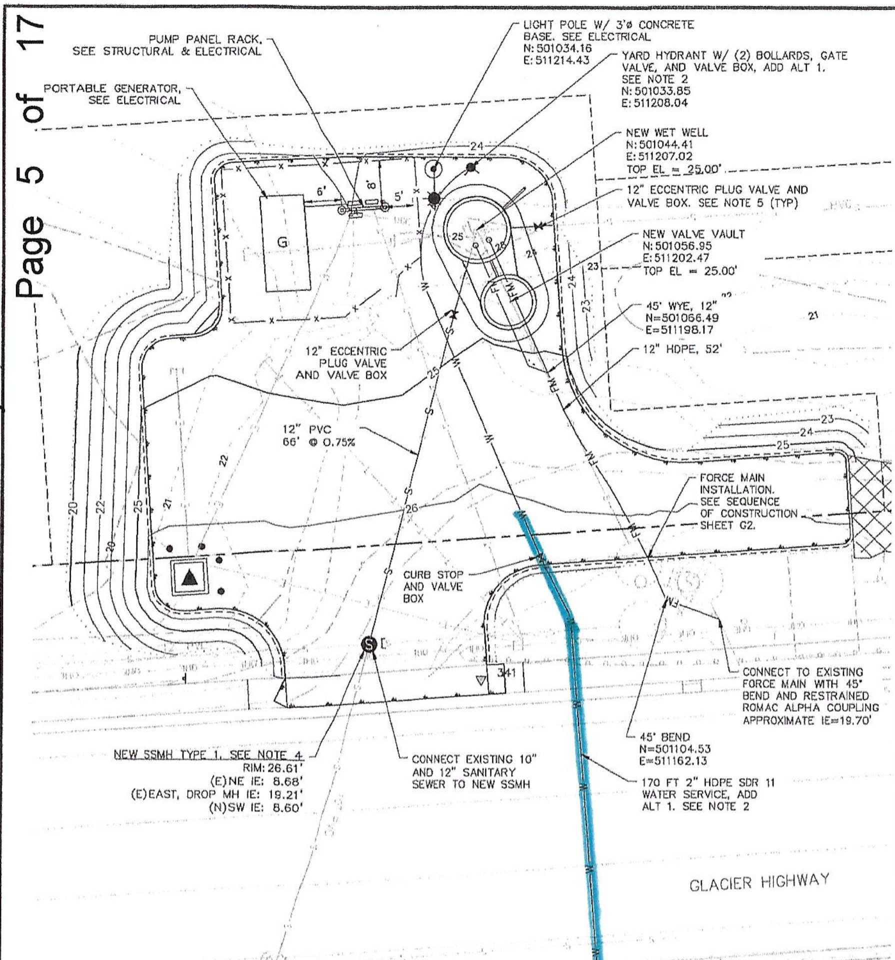
OFFSET FROM HIGHWAY CENTERLINE: Crossing DEPTH OF BURIAL (MIN 36"): 60"

METHOD OF LONGITUDINAL INSTALLATION: TRENCHING Trenching PLOWING

CONSTRUCTION CODE(S) APPLICABLE: CBJ Standard Specifications current addition and current erratas
CBJ Standard Details current addition

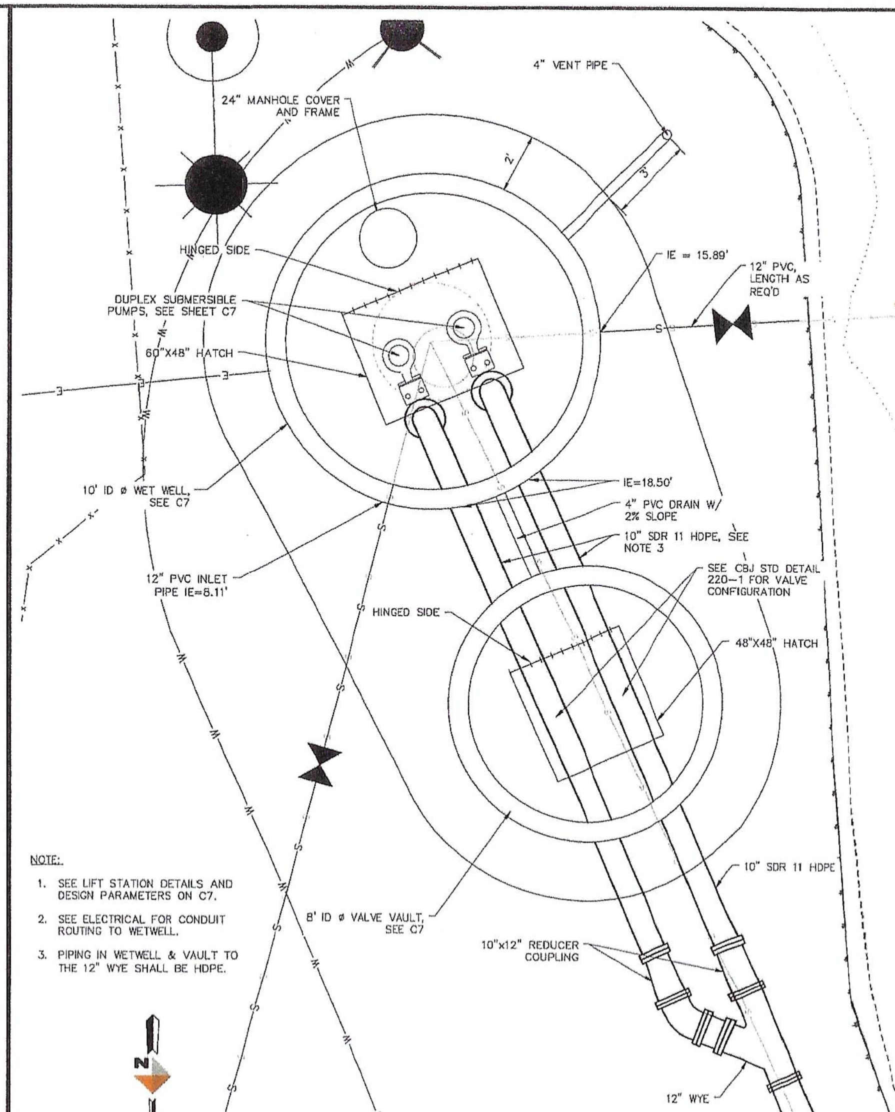
ADDITIONAL INFORMATION:

Q:\29\50081-01\55CAD\Civil\2018 CAD\1 Design Drawings\50081-01\Civil\SC-CS-St-GR-50081-01.dwg PLOT DATE 2021-4-19 15:51 SAVED DATE 2021-



NOTES:

1. SEE ELECTRICAL SHEETS FOR NEW ELECTRICAL ROUTING.
2. ALL WORK AND MATERIALS ASSOCIATED WITH TRENCHING, BACKFILL, PAVING, CURB, SIDEWALK, TOPSOIL/SEEDING, AND INSTALLATION OF THE NEW WATER SERVICE AND YARD HYDRANT WILL BE PAID UNDER ADDITIVE ALTERNATE 1.
3. SEE CBJ STD DTL 220-1 FOR LIFT STATION PLAN LAYOUT. THESE PLANS GOVERN ANY DIFFERENCES.
4. EXISTING 10" PVC CROSSES ABOVE 12" PVC. NEW SSMH WILL INTERCEPT EXISTING SS MAINS AND DIRECT FLOW TO NEW LIFT STATION. SEE CBJ STD DTL 204 FOR SANITARY SEWER DROP MANHOLE.
5. ECCENTRIC PLUG VALVES SHALL MEET THE REQUIREMENTS OF SECTION 02602, 2.1 GATE VALVES, EXCEPT THEY SHALL MEET THE REQUIREMENTS OF AWWA C517 INSTEAD OF AWWA C509. CONTRACTOR SHALL VERIFY THAT ID OF EXISTING GRAVITY MAIN AND VALVE MATCH. CONTRACTOR SHALL PROVIDE TRANSITION FITTING IF ID'S DON'T MATCH.



NOTE:

1. SEE LIFT STATION DETAILS AND DESIGN PARAMETERS ON C7.
2. SEE ELECTRICAL FOR CONDUIT ROUTING TO WETWELL.
3. PIPING IN WETWELL & VAULT TO THE 12" WYE SHALL BE HDPE.

PROPOSED WET WELL/VALVE VAULT LAYOUT
NTS

REV	DATE	REVISIONS DESCRIPTION	BY

DOWL
AECL848
WWW.DOWL.COM
3535 College Road, #100
Fairbanks, Alaska 99709
907-374-0275

GRUENING PARK LIFT STATION
STAND-ALONE LIFT STATION
JUNEAU, ALASKA

UTILITY PLAN

98% DESIGN SUBMITTAL

PROJECT 1529.50081.01
DATE 4/19/2020

SHEET 5 OF 20
C3

SPECIAL PROVISIONS

1.0 GENERAL AND ADMINISTRATION

1.1 The PERMITTEE shall have a copy of this permit at the work site at all times.

1.2 The permit, together with these Special Provisions shall take precedence over any additional plans, exhibits, attachments, and/or schedules should discrepancies appear.

1.3 All contact between the Department and the PERMITTEE's Contractor shall be through a representative of the PERMITTEE. If the PERMITTEE chooses to perform the work with other than its own forces, a representative of the utility shall be present at all times unless otherwise agreed to by the DEPARTMENT. Failure to comply with this provision is grounds for restricting any further work by the PERMITTEE in the DEPARTMENT's Right of Way.

1.4 Any rights granted by this permit may not be assigned or transferred to another entity without prior written approval from the DEPARTMENT. If the utility is sold to another utility or merges with another utility, the new utility shall inform the DEPARTMENT in writing within 30 days after the date of transaction.

1.5 Any request for waiver or exception of Special Provision(s), or any request for change in location, alignment, or construction method, shall be submitted in writing to the Regional Utilities Engineer.

1.6 The PERMITTEE agrees to furnish the DEPARTMENT with a set of as built plans within sixty (60) days from the completion of the work covered by this Permit.

1.7 The PERMITTEE agrees to provide design locates, at no cost to the DEPARTMENT, upon request. If a utility locate service is not available, reference markers shall be installed and maintained at both ends of underground highway crossings, and at angle points in the alignment of the underground Facility. Where utilities are attached to a bridge, the PERMITTEE will attach a plate on the conduit at each abutment describing the content of the pipe or conductor, and the name and phone number of the owning utility.

1.8 The Regional Utilities Engineer may assign an inspector or inspectors in order to insure compliance with the provisions of this utility permit. The inspector has the authority to suspend all work in the event of noncompliance.

1.9 The PERMITTEE agrees to reimburse the DEPARTMENT for actual costs of inspections during construction of the Facility. Inspection activities will include on-site review of traffic control, highway crossings, and restoration of the right of way. Inspection may also include any testing required to verify conformance to the DEPARTMENT's standards, and responding to questions and/or complaints from the public or agencies. Actual direct and indirect charges shall provide the basis for billings, which include wages, benefits, per diem, travel and vehicle expenses, and lodging.

1.10 This permit will expire if construction or installation of the Facility has not started within one year after the date of approval, unless the PERMITTEE obtains an extension of time in writing from the DEPARTMENT.

2.0 COORDINATION

2.1 The PERMITTEE shall notify the DEPARTMENT's Regional Utility Permit Officer ten (10) days prior to beginning work:

Southcoast Region
(907)465-4544

2. 2 The PERMITTEE agrees to coordinate their work with other projects, both public and private that may occur within the project limits covered by this permit. The PERMITTEE agrees not to interfere or hinder the work being performed by other contractors.

2. 3 The PERMITTEE shall coordinate and obtain the necessary temporary driveway permits for access to travel way from haul routes or staging areas where existing access does not exist. Contact the DEPARTMENT's Right-Of-Way Section at (907) 465-4499 for the driveway permit application or apply on line at www.dot.state.ak.us/permits

3.0 ENVIRONMENTAL

3.1 The PERMITTEE is responsible for obtaining authorization from the U.S. Army Corps of Engineers for any ground disturbing activities in areas designated as wetlands.

3.2 If the PERMITTEE, its Contractor, or Agent discovers environmental contamination in the right-of-way while constructing the Facility, they shall immediately stop work and notify the DEPARTMENT's Regional Utility Engineer.

3.3 The PERMITTEE is not responsible for the cost of investigation, cleanup, or disposal of any contaminated soils it discovers during work on the Facility within the DEPARTMENT's right-of-way, **unless:**

a. The PERMITTEE, its Contractor, or Agent fails to immediately notify the DEPARTMENT of the contamination, or;

b. The contamination is attributed to the PERMITTEE's Facility, or actions of the PERMITTEE, its Contractors, or its Agents.

3.4 If the PERMITTEE, its Contractor, or Agent discovers cultural, historic or archeological resources as a result of ground altering activities, all work that would disturb these resources shall be stopped and the State Historic Preservation Office shall be contacted immediately at (907) 269-8721.

3.5 The PERMITTEE shall not hold the DEPARTMENT responsible for any delay, redesign, rerouting, or additional cost due to encountering environmental contamination, or cultural, historic, or archeological resources.

3.6 The PERMITTEE shall provide an Alaska Certified Erosion and Sediment Control Lead (AK-CESCL) trained person, with the authority to direct activities required by the SWPPP, APDES permit or other permit conditions, during all construction and maintenance activities authorized by this permit that involve ground disturbing activities. Provide proof of current AK-CESCL certification upon request.

3.7 The PERMITTEE, on behalf of itself and its contractors, officers, officials, employees, and agents, shall indemnify, hold harmless, and defend at its sole cost and expense, the DEPARTMENT, its contractors, officers, officials, employees, and agents from any and all fines, costs, claims, damages, liquidated damages, judgments, or civil penalties assessed by the DEPARTMENT of Environmental Conservation pursuant to AS 46.03.760(E), arising wholly or in part from any action taken by the PERMITTEE in relation to the PERMITTEE's Facilities on DEPARTMENT rights of way or other permitted locations. This indemnification provision is in addition to and shall be construed as consistent with General Provision M.

4.0 NOTIFICATIONS

4.1 The PERMITTEE is responsible for notifying businesses and residents that front the project of scheduled road and driveway closures, or any work that may affect them. Property owners shall receive the notices a minimum of 48 hours prior to commencement of the work. Notices shall include a detailed description and map of the project, anticipated construction schedule and contact name and number of a representative of the PERMITTEE.

4.2 The PERMITTEE shall submit weekly public information notices that identify road closures, restrictions to traffic, and detours. Coordinate this effort with the State DOT/PF Navigator Information Program.

5.0 TRAFFIC CONTROL

5.1 The PERMITTEE shall submit a Traffic Control Plan (TCP) to the DEPARTMENT for approval a minimum of ten (10) days before beginning construction.

5.2 The PERMITTEE or the PERMITTEE's contractor shall designate a Traffic Safety Supervisor who shall be responsible for the maintenance of traffic operations on a 24-hour basis. This individual shall have received formal work zone traffic control training. The DEPARTMENT must be supplied with the name of this individual along with written verification of his/her credentials as well as a 24-hour telephone number where he/she can be reached.

5.3 The PERMITTEE shall insure that flagmen are certified by either the International Municipal Signal Association (IMSA) or the American Traffic Services Association (ATSSA). Documentation of certification shall be provided if requested.

5.4 The PERMITTEE shall provide traffic control devices, conforming to the latest addition of the Manual on Uniform Traffic Control Devices published by the U.S. DEPARTMENT of Transportation and Alaska Traffic Manual Supplement while constructing the Facility, or thereafter performing routine maintenance.

5.5 All traffic control devices required by the approved Traffic Control Plan, including signs, barricade, and flagmen, shall be in place prior to beginning work within the right of way.

5.6 The PERMITTEE shall remove or cover all temporary traffic control devices as soon as practical when they are no longer needed or when work on the Facility is suspended for short periods of time.

5.7 The PERMITTEE shall not park vehicles, equipment, or store materials on road or pathway surfaces at any time, unless specifically allowed by the traffic control plan.

5.8 At the close of each work day the construction site on non-detoured roadways shall be restored to a condition that allows two-way traffic to flow in conformance with the normal traffic patterns in that area, unless otherwise approved by the Regional Utilities Engineer.

5.9 The PERMITTEE shall conduct periodic inspections of temporary traffic control devices left in place during non-working hours. A 24 hour telephone contact number for the traffic control supervisor shall be provided to the local State Troopers or Police Departments.

5. 10 All illumination and signalization shall remain operational during the construction of the Facility.

5.11 Reduced speed and two-way traffic shall be maintained on non-detoured roadways between the peak traffic hours of 7:30 a.m. to 9:00 a.m. and from 4:30 p.m. to 5:30 p.m.

6.0 EXCAVATION AND BACKFILL

6.1 The PERMITTEE shall backfill and compact all trenches within road prisms and pathways in 6-inch lifts or as accepted by the DEPARTMENT. 6-inch lifts are required if no inspector is present. The backfill shall be of suitable non-frost susceptible, non-organic material (0-6% passing No. 200 sieve). All excavated non-acceptable material shall be removed from the State right-of-way or property by the PERMITTEE.

6.2 The road prism is defined to include the finished roadway surface and underlying structural layers out to, and including, any unpaved shoulders, curbs, and attached pathways.

6.3 The PERMITTEE shall compact all trenches within or crossing road prisms and pathways at a minimum of 95% of the optimum density. All compaction tests shall be at the PERMITTEE's expense. A copy of each test will be submitted to the DEPARTMENT.

6.4 The PERMITTEE shall backfill all trenches, bore pits, and other excavations located outside road and pathway prisms with clean, non-organic, and compactable material meeting the requirements of Select Material, Type C, as defined in the DEPARTMENT's Standard Specifications for Highway Construction. Existing material is acceptable as backfill provided it meets the requirements of Select Material, Type C.

6.5 The PERMITTEE shall remove material not suitable for use as backfill from the site, t. The PERMITTEE shall replace unsuitable backfill material with imported material meeting the requirements of Select Material, Type C.

6.6 All backfill shall be compacted to existing undisturbed soil densities or better, and graded to blend with the existing ground surface. All costs associated with removal of unusable material and placement of import material is the responsibility of the PERMITTEE.

6.7 The top six (6) inches of the road surface or surface under pavement shall be crushed aggregate D-1

7.0 PAVEMENT REPLACEMENT AND TRAFFIC MARKINGS

7.1 Pavement cuts may be authorized from May 1st to September 30th and will only be permitted on an emergency basis from October 1st through April 30th unless the Regional Utilities Engineer approves a request for exception. Planned pavement cuts must be repaired by September 30th. No more than 2500 feet of pavement by project stationing can be disturbed without final repair

7.2 All asphalt cuts shall be permanently repaired with hot asphalt. Asphalt concrete pavement shall be Type II, Class B installed in conformance with Section 401 of the Alaska DOT&PF Southcoast Region Special Specifications dated 2017. The proposed job mix design shall be submitted for review and approval by the DEPARTMENT.

7.3 If the edge of the pavement is damaged during this construction the PERMITTEE shall have his contractor replace the pavement to the centerline of the roadway at least 10 feet each side of the damaged area. If the damage is intermittent and less than 50 feet between damaged areas the PERMITTEE shall make the repair continuous to cover the damage.

7.4 For service crossings, pre-saw the area to be excavated. After completion of the utility, saw back the existing pavement a minimum of 1-1/2' over undisturbed earth on each side of the trench. Install 6" of asphalt installation hot mix which shall be spread and compacted in layers. The top layer shall not exceed a 2" compacted depth. Paint the entire area of all top-lift longitudinal joints with a thick band of polymerized bituminous joint adhesive prior to placement the abutting lanes. The modified joint adhesive materials shall be Pavement Joint Adhesive that meets Table 702-2 of Alaska Standard Specifications for Highway Construction 2017 edition. The temperatures and application method of the joint adhesive shall be per manufacturer's recommendations.

7.5 For lane replacement, pre-saw the area of pavement effected by the utility installation. Cut the pavement so that the edges are vertical, the sides are parallel and the ends are perpendicular to the direction of traffic. The depth of pavement to be replaced will match the depth of the existing pavement unless otherwise specified. The pavement will be spread in layers not to exceed 2" to the seam nearest the centerline of the roadway. Paint the entire area of all top-lift longitudinal joints with a 1/8" thick band of polymerized bituminous joint adhesive prior to placement the abutting lanes. The modified joint adhesive materials shall be Crafco Pavement Joint Adhesive No. 34524, or an approved equal. The temperatures and application method of the joint adhesive shall be per manufacturer's recommendations.

7.6 If the contract quantity is less than 1500 tons, the asphalt concrete pavement will be accepted based upon the DEPARTMENT's material engineers approval of the job mix design and the placement and compaction of the asphalt concrete to the specified depth and finished surface requirements and tolerances. The material engineer's approval of the job mix design does not relieve the PERMITTEE or their contractor from the responsibility to produce the approved mix and is subject to field verification testing for oil content, density and gradation. The gradation, density and asphalt content shall be determined in accordance with section 410-4.02. If a calibrated nuclear content gauge is not available, asphalt content of the mix may be determined by extraction in accordance with AASHTO T-164. A minimum of two tests shall be taken for each approved mix design or as designated by the material engineer.

7.7 The finished pavement surface will be tested after final rolling at selected locations using a 16-foot straightedge. Variations of more than 3/16 inch from the testing edge between any two contacts will be corrected.

7.8 Temporary Patches

a. A Polymer modified cold mix asphalt or concrete patch may be used as a temporary patch subject to written approval of the Regional Utilities Engineer. The temporary patch will be replaced as soon as hot asphalt is available. For crossings, saw back existing pavement a minimum of 1' over undisturbed earth on each side of the trench. Paint edges with STE-1 tack coat and install 4" of polymer-modified cold asphalt. Damage to the pavement surface at locations other than crossings will be repaired by replacement of asphalt to the seam nearest centerline of the roadway with 4" of polymer-modified cold asphalt. All edges are to be saw cut and painted with STE-1 tack coat. The polymer-modified cold asphalt shall be spread and compacted in 2" lifts, each compacted to a minimum of 94% of maximum density. Asphalt patch density shall be field controlled utilizing a calibrated nuclear densometer at two locations per patch. Field testing results shall be certified by a registered engineer and forwarded to DOT&PF.

b. Temporary concrete patches shall be a minimum of 6" thick with heavy micro/macro synthetic fiber reinforcement additive or equal. Concrete shall be Class A, six sack mix, with a slump range of 2"- 4.8"

7.9 Asphalt concrete mixture that becomes contaminated with foreign material, is segregated or is in any way determined to be defective will be removed. Defective materials will be removed for the full thickness of the course.

7.10 The PERMITTEE shall replace all damaged or removed pavement markings in kind.

8.0 DRAINAGE

8.1 The PERMITTEE shall be responsible for assuring that all water entering the DEPARTMENT's storm drain facility meets the minimum criteria for water quality standards as set forth in the Alaska Administrative Code(18 AAC 70.010-.110).

8.2 The PERMITTEE shall maintain existing drainage patterns during construction of the Facility. Ditches will be restored to the originally designed flow lines unless otherwise agreed to by the DEPARTMENT.

8.3 The PERMITTEE shall be responsible for all erosion control prior to slopes becoming stabilized.

8.4 The PERMITTEE is responsible for installing and maintaining BMPs required by the NDPES permit throughout the duration of the project.

8.5 The PERMITTEE shall notify the DEPARTMENT of Transportation of drainage problems caused by the work under this Permit and will remedy the problem as directed by the DEPARTMENT of Transportation.

8.6 The PERMITTEE shall replace all culverts damaged by work under this Permit with a culvert. of the same size, or 18-inch, whichever is greater.

9.0 RIGHT OF WAY PROTECTION, MAINTENANCE, AND RESTORATION

11.1 The PERMITTEE shall cleanup within one day behind installation of the facility. The PERMITTEE will not be allowed to trench or plow more than can be cleaned up the following day.

11.2 The PERMITTEE or their contractor shall immediately repair any damage of existing utilities, storm drainage or other highway structures caused as a result of construction authorized by this permit.

11.3 Heavy tracked equipment operation will not be permitted on a paved roadway or shoulder, unless approved in writing by the Regional Utilities Engineer. If approved, planking or rubber tires shall be utilized between the vehicle tracks and the pavement. The PERMITTEE shall repair damage to the pavement as a result equipment operation as directed by the DEPARTMENT.

11.4 The PERMITTEE or his contractor will be responsible for winter and spring maintenance of the road shoulders, ditch lines, backslopes, road surfaces, taxiways, and runways that have not been left in a neat and clean condition, satisfactory to the Maintenance Section of the DEPARTMENT.

11.5 The PERMITTEE shall dispose of trees, brush or other natural growth by mechanical chipping or hauling away. Stumps and grubbing piles shall be loaded and hauled to a disposal site outside the DEPARTMENT's right of way. Trees left for the public shall be limbed and stacked in a location where loading does not interfere with the safe operation of the travel way.

11.6 Guardrail that is removed or damaged during construction shall be replaced in accordance with Section 606 AKDOT&PF Standard Specifications dated 2017, and Standard Drawings Manual.

11.7 Any Survey monument or monument accessory that will be disturbed or destroyed during construction of the Facility shall be referenced prior to beginning work, and restored or replaced by a Registered Land Surveyor licensed in accordance with AS 34.65.040. All monument records shall be reviewed by the DEPARTMENT prior to filing with the District Recorder.

11.8 Highway signs that are in conflict with construction shall be relocated on a temporary basis and reinstalled at the original location as soon as possible. Signs that are damaged during construction shall be replaced in kind to the DEPARTMENT's standards, and at no cost to the DEPARTMENT.

11.9 The PERMITTEE shall replace all curbs and gutters to an existing undisturbed joint.

11.10 The PERMITTEE shall maintain all roadways, pedestrian and bicycle facilities affected by the pavement removal in a smooth and passable condition at all times.

11.11 The PERMITTEE shall provide street sweeping to keep free of loose material all paved portions of the roadway and haul routes open to the public, including sections of roadway off the project where your operations have deposited loose material. Use a street sweeper that can collect materials rather than eject them on the shoulder of the road.

11.12 The PERMITTEE shall furnish, haul, and place water for dust control and pavement flushing. Use water trucks that can provide a high-pressure water stream to flush the pavement and a light-water spray to control dust. If the flushing operations contaminate or fill adjacent catch basins, clean and restore them to their original condition. Pavement flushing and dust control is required in sections off the project where flushing is required.

11.13 Upon completion of the work within the State right-of-way or State property, the PERMITTEE shall remove all equipment, dispose of all waste material and shall leave the premises in a neat and clean condition satisfactory to the DEPARTMENT.

10.0 TOPSOIL AND SEEDING

10.1 The PERMITTEE shall replace and restore all vegetation disturbed. Unless otherwise required, re-vegetation shall consist of establishing seeded grassed slopes over the disturbed ground. The PERMITTEE shall use all means necessary to maintain and protect the disturbed slopes from erosion until such time as the vegetation is established.

10.2 The PERMITTEE shall replace any topsoil lost as a result of construction under this permit.

10.3 The PERMITTEE shall re-seed all areas within the DEPARTMENT's right-of-way disturbed by work under this permit with a seed mix approved by the DEPARTMENT.

10.4 The PERMITTEE shall re-grade all disturbed areas to blend with the existing ground surface and re-seed after completing backfill of pipe.

10.5 If re-seeding is not complete by August 15th, then re-shaping of all disturbed areas shall be completed by July 1st of the following year. The PERMITTEE is responsible for all erosion control measures and cleaning of ditches and culverts.

11.0 OVERHEAD FACILITIES

11.1 New and relocated aerial facilities shall maintain a minimum vertical clearance of twenty feet (20') in all locations within the right of way. (17 AAC 15.201)

11.2 The PERMITTEE shall install guy guards on all down guys installed within the right of way.

11.3 The PERMITTEE shall remove all overhead lines abandoned as the result of this Permit.

11.4 Guy/Anchor attachment shall not be located within clear zone.

.12.0 UNDERGROUND FACILITIES

12.1 The depth of burial for underground facilities constructed or installed under pavement, roadway or runway surfaces must be at least four feet measured from the surface of the pavement to the top of the cable, conduit, pipeline or encasement.

12.2 Underground facilities constructed under other surfaces, including unlined ditches must be buried at least three feet, measured in any direction from the surface to the top of the cable, conduit, pipeline or encasement.

12.3 The PERMITTEE shall place buried caution tape one foot directly above the FACILITY being installed.

12.4 The PERMITTEE shall obtain locates for any existing traffic signals, traffic interconnect cables, street light facilities, or FAA cables prior to construction. Damages shall be repaired and restored to working order within eight hours at the PERMITTEE's expense. Any splice must be located within a Type IA Junction Box or as directed by the DEPARTMENT.

13.0 WARRANTY

13.1 Warrant and Warranty, for the purposes of this Permit, shall mean the DEPARTMENT's concurrence block authority on any warranty release issued by the PERMITTEE.

13.2 The PERMITTEE shall warrant the materials and workmanship of the road, and road right-of-way, to ensure completion of the construction, including the restoration of surfacing, slopes, slope treatment, drainage facilities, pathways, and right-of-way cleanup for the warranty period.

13.3 The DEPARTMENT will notify the PERMITTEE of any surface deformity. The PERMITTEE shall prepare a corrective action plan for review and approval by the DEPARTMENT. The corrective action plan shall include:

a) A methodology to determine if the pavement surface deformation is due to subsurface forces, such as subsidence or drainage, and;

b) A proposal for correcting the surface variation.

13.4 The PERMITTEE shall remedy promptly, without cost to the DEPARTMENT, any and all defects in materials and workmanship resulting from defective materials and workmanship. If the defect, in the opinion of the DEPARTMENT, is of such a nature as to demand immediate repair, the DEPARTMENT shall have the right to take corrective action and the cost thereof shall be borne by the PERMITTEE.

13.5 The PERMITTEE or his designee and the DEPARTMENT shall perform construction inspection of the road. The PERMITTEE or his designee shall handle any coordination with respect to inspection activities involving both the DEPARTMENT and PERMITTEE.

13.6 The Warranty period shall mean a period of two (2) years from the acceptance of the road. The Warranty shall remain in effect until final inspection and acceptance by the DEPARTMENT.

14.0 RELEASE OF WARRANTY

14.1 The PERMITTEE and the DEPARTMENT shall perform an inspection prior to the end of the warranty period. The PERMITTEE or his designee is responsible to schedule and coordinate with the DEPARTMENT the final warranty inspection. The PERMITTEE shall correct any defect in the work revealed by the warranty inspection.

14.2 Upon the PERMITTEE's satisfactory performance of all its obligations under this Permit, the DEPARTMENT shall execute a written statement acknowledging performance and release of the warranty obligations. Release of the warranty shall not release the PERMITTEE of all other provisions of the permit.

14.3 Any damage to the roadway prism, fill slopes, ditches, backslopes, structures or underground utilities determined to be a result of work authorized by this permit that becomes apparent within two (2) years after project completion and acceptance by the DEPARTMENT shall be repaired by the PERMITTEE.

15.0 MAINTENANCE AND OPERATIONS

15.1 The PERMITTEE shall perform routine maintenance on the utility fACILITY on a continuing basis. Routine maintenance may be performed without prior notification of the DEPARTMENT however closure of a highway, pedestrian facility, pathway, sidewalk or creating a detour to perform routine maintenance must be specifically authorized by permit. The PERMITTEE shall apply for an annual lane closure permit to cover routine maintenance operations. Prior authorization must be obtained from the DEPARTMENT before performing any maintenance that requires excavation, plowing, jacking or boring within the right of way.

15.2 The PERMITTEE may perform emergency maintenance without prior notice to the DEPARTMENT as long as appropriate traffic control is established and maintained. If the project requires major reconstruction and or placement of traffic control devices for an extended period a lane closure permit is required. If the road surface is affected by the emergency maintenance, contact the local maintenance foreman as soon as possible and place pavement break warning signs in advance of the site until such time as the pavement has been repaired.

15.3 The PERMITTEE is responsible for maintenance and adjustment of manhole frames, valve boxes, junction boxes or other structures located in the pavement or sidewalk.

15.4 The PERMITTEE shall apply for a new utility permit if the facility authorized by this permit is to be reconstructed or modified substantially. If the proposed modifications are not substantial, the PERMITTEE need only apply for an amended permit. A utility permit application is required for all new service connections.

In consideration of the benefits accruing to the Permittee by reasons of the foregoing agreement, this permit is hereby accepted by the Permittee and the Permittee hereby agrees to comply with all of the terms, provisions, conditions, stipulations therein contained. Dated this 4th day of May, 2021

****

City & Borough of Juneau

By: Katie Koester

Title: EPW Div

Attest: Greg Smith

Title: Contract Administrator

****

ACKNOWLEDGEMENT OF
COMPANY OR PERMITTEE

STATE OF ALASKA)
1st JUDICIAL DISTRICT) ss

BE IT REMEMBERED that on this 4th day of May, 2021, before me the undersigned, a Notary Public of the State of Alaska, personally appeared

Katie Koester

and Greg Smith

both to me personally known and known to me to be the identical individuals named in and who executed the foregoing permit, and acknowledged the said instrument to be the free and voluntary act and deed of the above named company for the uses and purposes therein expressed and on oath stated that they were authorized to execute said instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of my office the day and year first above written.

My Commission Expires: 6.7.2024

Janet B. Sanbei
A Notary Public

****

STATE OF ALASKA
OFFICIAL SEAL
Janet B. Sanbei
NOTARY PUBLIC
My Commission Expires 6.7.24

The State of Alaska, acting by and through its Department of Transportation and Public Facilities has caused this Utility Permit to be executed on this 18 day of May, 2021

****

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

Southeast Region

By:

Title: Regional Utility Engineer

****

SECTION 00853 - STANDARD DETAILS

PART 1 - GENERAL

1.1 STANDARD DETAILS

A. Whenever references are made to the Standard Drawings or Standard Details in these plans or Specifications the intent is to refer to the current City and Borough of Juneau Standard Details (currently the 4th Edition dated August 2011), copies of which may be purchased from the CBJ Engineering Department.

B. City and Borough of Juneau Standard Details which specifically apply to this Project include but are not limited to the following:

LIST OF DETAILS

STANDARD DETAIL NO.	NAME OF DETAIL
206A	Standard Manhole Cover & Frame
206B	Locking Manhole Cover & Frame
220-1	Pump Station Plan View
220-2	Pump Station Elevation View
220-3	Pump Station Details
220-4	Pump Station Details
220-5	Pump Station Cabinet Shields
220-6A	Pump Station Control Panel Back to Back Layout
220-6B	Pump Station Control Panel Side by Side Layout
220-7	Pump Station Pump Panel Door Elevation
220-8	Pump Station Ladder Diagram
220-9	Pump Station Notes & Trench Detail
220-10	Pump Station Single Line Diagram

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SPECIAL PROVISIONS

The Standard Specifications for Civil Engineering Projects and Subdivision Improvements December 2003 Edition, with fourteen Errata Sheets, as published by the City and Borough of Juneau, is part of these Contract Documents and shall pertain to all phases of the contract. The Standard Specifications for Civil Engineering Projects and Subdivision Improvements December 2003 Edition is available for a fee from the City and Borough of Juneau Engineering Contracts Office, (907) 586-0800 ext. 4194, or you may view them online at: www.juneau.org/engineering.

Special Provisions - Table of Contents

***Add** the following Section:*

SECTION 01010 SUMMARY OF WORK

PART 1 - GENERAL

1.1 GENERAL

A. The WORK to be performed under this contract shall consist of furnishing all tools, equipment, materials, supplies, and manufactured articles and furnishing all labor, transportation, and services, including fuel, power, water, and essential communications, and performing all WORK, or other operations required for the fulfillment of the contract in strict accordance with the Contract Documents. The WORK shall be complete, and all work, materials, and services not expressly indicated or called for in the Contract Documents, including work stipulated in the permits attached to this contract, which may be necessary for the complete and proper construction of the WORK in good faith shall be provided by the CONTRACTOR as though originally so indicated, at no increase in cost to the OWNER.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. The WORK covered in the Contract Documents includes installing approximately 50 linear feet of 12-inch diameter High-Density Polyethylene (HDPE) pressure sewer; installation of approximately 70 linear feet of 12-inch diameter Polyvinyl Chloride (PVC) gravity sewer and new sewer manhole; demolition of an existing sewage lift station including the wet well, valve vault, and associated electrical work; installation of a new a sewage pump station with submersible pumps, new wet well, valve vault, along with associated electrical work; and, installation of a new portable generator, pump controls, pump controls rack, along with associated electrical work; and site development including earthwork and paving with associated site utilities; and other miscellaneous items of work.

B. The site of the WORK is located off Glacier Highway near Northwood Drive.

1.3 CONTRACT METHOD

A. The WORK, hereunder, will be constructed under a unit-price contract.

1.4 WORK BY OTHERS

A. The CONTRACTOR's attention is directed to the fact that work may be conducted at the site by other contractors during the performance of the WORK under this contract. The CONTRACTOR shall conduct its operations so as to cause a minimum of interference with the WORK of such other contractors and shall cooperate fully with such contractors to provide continued safe access to their respective portions of the site, as required to perform work under their respective contracts.

B. Interference with Work On Utilities: The CONTRACTOR shall cooperate fully with all utility forces of the OWNER or forces of other public or private agencies engaged in the

relocation, altering, or otherwise rearranging of any facilities which interfere with the progress of the WORK, and shall schedule the WORK so as to minimize interference with said relocation, altering, or other rearranging of facilities.

1.5 CONTRACTOR USE OF PROJECT SITE

A. The CONTRACTOR's use of the Project site shall be limited to its construction operations, including on-site storage of materials, on-site fabrication facilities, and field offices.

1.6 OWNER USE OF THE PROJECT SITE

A. The OWNER may utilize all or part of the existing site during the entire period of construction for the conduct of the OWNER's normal operations. The CONTRACTOR shall cooperate and coordinate with the ENGINEER to facilitate the OWNER's operations and to minimize interference with the CONTRACTOR's operations at the same time. In any event, the OWNER shall be allowed access to the project site during the period of construction.

1.7 PROJECT MEETINGS

A. Pre-Construction Conference

1. Prior to the commencement of WORK at the site, a Pre-Construction Conference will be held at a mutually agreed time and place which shall be attended by the CONTRACTOR’s Project Manager, its superintendent, and its subcontractors as the CONTRACTOR deems appropriate. Other attendees will be:

    a. ENGINEER and the Inspector.
    b. Representatives of OWNER.
    c. Governmental representatives as appropriate.
    d. Others as requested by CONTRACTOR, OWNER, or ENGINEER.

2. Unless previously submitted to the ENGINEER, the CONTRACTOR shall bring to the Pre-Construction Conference one copy each of the following:

    a. Plan of Operation.
    b. Project Overview Bar Chart Schedule.
    c. Procurement schedule of major equipment and materials and items requiring long lead time.
    d. Shop Drawing/Sample/Substitute or "Or Equal" submittal schedule.
    e. Name and telephone number of CONTRACTOR'S Project Supervisor.

3. The purpose of the Pre-Construction Conference is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The complete agenda will be furnished to the CONTRACTOR prior to the meeting date.

    The CONTRACTOR should be prepared to discuss all of the items listed below:

a. Status of CONTRACTOR's insurance and bonds.
b. CONTRACTOR's tentative schedules.
c. Transmittal, review, and distribution of CONTRACTOR's submittals.
d. Processing applications for payment.
e. Maintaining record documents.
f. Critical work sequencing.
g. Field decisions and Change Orders.
h. Use of project site, office and storage areas, security, housekeeping, and OWNER's needs.
i. Major equipment deliveries and priorities.
j. CONTRACTOR's assignments for safety and first aid.
k. Erosion Control Plan as required by the Alaska Dept. of Natural Resources.
l. Permit requirements of the Alaska Dept. of Transportation and Public Facilities.

4. The OWNER will preside at the Pre-Construction Conference and will arrange for keeping and distributing the minutes to all persons in attendance.

B. Progress Meetings

1. The CONTRACTOR shall schedule and hold regular on-site progress meetings at least weekly and at other times as requested by the ENGINEER, or as required by progress of the WORK. The CONTRACTOR, ENGINEER, and all subcontractors active on the site must attend each meeting. CONTRACTOR may at its discretion request attendance by representatives of its suppliers, manufacturers, and other Subcontractors.

2. The ENGINEER shall preside at the on-site meetings and will arrange for keeping and distributing the minutes. The purpose of the meetings will be to review the progress of the WORK, maintain coordination of efforts, discuss changes in scheduling, and resolve other problems which may develop. During each meeting, the CONTRACTOR is required to present issues which may impact his work, with a view to resolve these issues expeditiously.

1.8 DEFINITIONS APPLICABLE TO TECHNICAL SPECIFICATIONS

A. The following words have the meaning defined in the Technical Portions of the WORK:

Furnish - means to supply and deliver to the site, to unload and unpack ready for assembly, installation, testing, and startup.

Indicated - is a word used to direct the CONTRACTOR to information contained on the drawings or in the Specifications. Terms such as "shown," "noted," "scheduled," and "specified" also may be used to assist in locating information but no limitation of location is implied or intended.

Install - defines operations at the site including assembly, erection, placing, anchoring, applying, shaping to dimension, finishing, curing, protecting, and cleaning, ready for the OWNER's use.

Installer - a person or firm engaged by the CONTRACTOR or its subcontract or any subcontractor for the performance of installation, erection, or application work at the site. Installers must be expert in the operations they are engaged to perform.

Provide - is defined as furnish and install, ready for the intended use.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

Add *the following Section:*

SECTION 01025 – MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 SCOPE

a. Payment for the various items of the Bid Schedule, as further specified herein, shall include all compensation to be received by the CONTRACTOR for furnishing all tools, equipment, supplies, and manufactured articles, and for all labor, operations, and incidentals appurtenant to the items for WORK being described, as necessary to complete the various items of the WORK all in accordance with the requirements of the Contract Documents, including all appurtenances thereto, and including all costs of permits and cost of compliance with the regulations of public agencies having jurisdiction, including Safety and Health Requirements of Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA) and Occupational Safety and Health Standards of the Alaska Department of Labor, Division of Labor Standards and Safety.

b. No separate payment will be made for any Pay Item that is not specifically set forth in the Bid Schedule, and all costs therefore shall be included in the prices named in the Bid Schedule for the various appurtenant items of WORK.

c. In addition to the other incidental items of WORK listed elsewhere in the contract, the following items shall also be considered as incidental to other items of WORK under this contract:

i. Maintenance of all services through the Project area including power, water, storm and sanitary sewers, garbage pickup, mail delivery, and emergency vehicles.
ii. Traffic control, including flaggers, and installation and maintenance of traffic control devices in accordance with the Manual of Uniform Traffic Control Devices – Millennium Edition (MUTCD) and the current AKDOT&PF supplements.
iii. Repair or replacement of existing adjacent facilities including piping, landscaping, steel, timber, concrete and asphalt items.
iv. Final clean-up and site restoration.

v. All WORK necessary for coordination of work to be accomplished by the private utility companies and property owners within the Project limits.
vi. Removal and replacement of survey monuments and markers disturbed during construction, whether shown on the Drawings or not.
vii. Watering of the roadway as necessary for dust control.
viii. All fittings (except CPP and CMP saddle tees) required for storm, water and sanitary sewer pipes.
ix. Restrained joints required for water pipes.
x. Usable material from excavation placed in the roadway under the shot rock borrow.
xi. Crack sealing all joints following paving operations.
xii. All WORK required to notify utility users of pending utility shut downs.

1.2 MOBILIZATION (Pay Item No. 1505.1) PRICE BASED ON LUMP SUM PAY UNIT

a. Measurement for payment for Mobilization will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

b. Payment for Mobilization will be made at the amount shown on the Bid Schedule under Pay Item No. 1505.1, which payment will constitute full compensation for all WORK described in Section 01505 - Mobilization, as shown on the Drawings and as directed by the ENGINEER.

c. Partial payments will be made as the WORK progresses as follows:

i. When 5% of the total original contract amount is earned from other Pay Items, 50% of the amount bid for Mobilization, or 5% of the original contract amount, whichever is lesser, will be paid.
ii. When 10% of the total original contract amount is earned from other Pay Items, 100% of the amount bid for Mobilization, or 10% of the original contract amount, whichever is lesser, will be paid.
iii. Upon completion of all WORK on the Project, payment of any amount bid for Mobilization in excess of 10% of the total contract amount will be paid.

1.3 EROSION AND SEDIMENT CONTROL (Pay Item No. 1570.1) PRICE BASED ON LUMP SUM PAY UNIT

a. Measurement for payment for Erosion and Sediment Control will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

b. Work under this Pay Item includes furnishing a complete SWPPP to the Engineer, and submitting an NOI to the ADEC (if work disturbance area exceeds one acre) and meeting all of the requirements of the Alaska Construction General Permit (ACGP) when required, and installing and maintaining all measures required by the SWPPP.

c. Payment for Erosion and Sediment Control will be made at the amount shown on the Bid Schedule under Pay Item No. 1570.1, which payment will constitute full compensation for

all WORK described in Section 01570 – Erosion and Sediment Control, as shown on the Drawings and as directed by the ENGINEER.

2.1 DEMOLITION OF EXISTING LIFT STATION (Pay Item No. 2050.1) PRICE BASED ON LUMP SUM PAY UNIT

a. Measurement for payment for Demolition of Existing Lift Station will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

b. Payment for Demolition of Existing Lift Station includes, but is not limited to, removal and disposal or abandonment of the existing Gruening Park Lift Station pumps, control panels, piping to and from the lift station, electrical, and miscellaneous items as indicated in the Drawings and Specifications.

c. Payment for Demolition of Existing Lift Station includes all site work to remove the indicated portion of the existing Gruening Park Lift Station wet wells and backfill per the Drawings after demolition.

d. Payment for Demolition of Existing Lift Station will be made at the amount shown on the Bid Schedule under Pay Item No. 2050.1, which payment will constitute full compensation for all WORK described in Section 02050 – DEMOLITION, as shown on the Drawings, and as directed by the ENGINEER.

2.2 CLEARING AND GRUBBING (Pay Item No. 2201.1) PRICE BASED ON LUMP SUM PAY UNIT

a. Measurement for payment for Clearing and Grubbing will be based on upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

b. WORK under this Pay Item includes clearing the project site to the limits shown on the Drawings, all in accordance with the Contract Documents and as directed by the ENGINEER.

c. Payment for Clearing and Grubbing will be made at the amount shown on the Bid Schedule under Pay Item No. 2201.1, which payment will constitute full compensation for all WORK described in Section 02201 – Clearing and Grubbing, as shown on the Drawings and as directed by the ENGINEER.

2.3 EXCAVATION (Pay Item No. 2202.1) PRICE BASED ON QUANTITY, CUBIC YARD

a. Measurement for payment for Excavation will be based on the number of cubic yards of unclassified material as listed in the Contract Documents or the number of cubic yards excavated. This includes the volume identified as Over Excavation, which is subject to the Engineer's approval. The original ground surface shown on the Drawings was produced

by total station survey. CONTRACTOR is required to provide topographic survey data of bottom of excavation to the ENGINEER for the purpose of generating a surface model of the excavation limits. The difference between the design survey surface model and the surveyed bottom of excavation will be used to generate quantities for payment.

b. No deduction in the measurement for Excavation will be made for the trenching required for pipe and structure installations above the bottom of, or within the sub cut limits as shown on the Typical Sections.

c. The following will not be measured for direct payment; the cost of such WORK will be considered incidental to other WORK under the contract:

i. Overburden and other spoil material from borrow sources.
ii. Removal of water by aeration of material to obtain required moisture content.
iii. Any volumes of water or other liquid material.
iv. Material used for the purpose other than directed.
v. Roadbed material scarified in place and not removed.
vi. Material excavated when benching.
vii. Slide or slipout material attributable to the carelessness of the CONTRACTOR.
viii. The volume of conserved materials stockpiled at the option of the CONTRACTOR.
ix. Placement of useable or otherwise suitable material from excavation, as determined by the ENGINEER, into the new roadway and sidewalk as embankment or selected embankment, or as embankment for any areas outside the roadway subcut within the project limits.

d. Payment for Excavation will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2202.1, which payment will constitute full compensation for all WORK described in Section 02202 - Excavation and Embankment, as shown on the Drawings and as directed by the ENGINEER.

2.4 BORROW (Pay Item No. 2202.2) PRICE BASED ON QUANTITY, CUBIC YARD

a. Measurement for payment for Borrow will be based on upon the number of cubic yards of Borrow placed and compacted, complete, all in accordance with the requirements of the Contract Documents. The original ground surface shown on the Drawings was produced by total station survey. The CONTRACTOR is required to provide topographic survey data of bottom of excavation after placement of usable material from excavation to the ENGINEER for the purpose of generating a surface model of the site prior to the placement of Borrow. The difference between the design survey surface model and the surveyed ground will be used to generate quantities for payment.

b. Water needed for compaction and added to the material on the grade will be considered incidental.

c. Usable material from excavation, meeting the requirements for Borrow, shall be used as Borrow prior to the Contractor importing any additional Borrow. No measurement for payment will be made of usable material as Borrow.

d. Payment for Borrow will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2202.2, which payment will constitute full compensation for all WORK described in Section 02202 – Excavation and Embankment, as shown on the Drawings and as directed by the ENGINEER.

2.5 SHOT ROCK BORROW (Pay Item No. 2202.3) PRICE BASED ON QUANTITY, CUBIC YARD

a. Measurement for payment for Shot Rock Borrow will be based on the number of cubic yards of material in place as determined by the average end area method. Where impractical to measure by the average end area method, the ENGINEER may approve other acceptable methods involving three-dimensional measurements. Embankment outside of the lines, grades and cross sections indicated in the Drawings or as directed by the ENGINEER will be deducted from other quantities for pay purposes.

b. Work includes placement of Shot Rock Borrow for slope stabilization, as shown on the Plans

c. Payment for Shot Rock Borrow will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2202.3, which payment will constitute full compensation for all WORK described in Section 02202 – Excavation and Embankment, as shown on the Drawings and as directed by the ENGINEER.

2.6 SIDESLOPE GRADING (Pay Item No. 2202.4) PRICE BASED ON LUMP SUM PAY UNIT

a. Measurement for payment for Sideslope Grading will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, all in accordance with the requirements of the Contract Documents.

b. Payment for Sideslope Grading will be made at the amount shown on the Bid Schedule under the Pay Item 2202.4, which price shall constitute full compensation for completion of all WORK described in Section 02202 – Excavation and Embankment, as shown on the Drawings and as directed by the ENGINEER.

2.7 ROAD CLEANING AND MINING AREA RESTORATION GUARANTEE (Pay Item No. 2202.5) PRICE BASED ON CONTINGENT SUM PAY UNIT

a. Measurement for this Item will be made as a Contingent Sum Pay Unit for satisfactory execution of Road Cleaning and Mining Area Restoration.

b. The CONTRACTOR shall be responsible for removal of dirt, mud, rocks and other debris from CBJ and State Right-of-Ways accumulated from the hauling operations to and from the project job site and also CBJ material source operations. It is the intent that the traveled public way be kept clean (including dust) and to avoid unsafe traffic conditions. If the CONTRACTOR fails to perform necessary road cleaning in a timely manner, no later than the end of each day, the CBJ may hire outside

forces to perform the WORK and deduct the cost from this contract, beginning with the funds remaining within this contingent sum pay item.

c. The Contractor shall be responsible for restoration of their work area and/or mining area in accordance to the conditions and specific operating agreements of the material source used. If the Contractor fails to perform the required mining area restoration prior to project completion, the CBJ may hire outside forces to perform the WORK and deduct the cost from this contract, beginning with the funds remaining within this contingent sum pay item.

d. Release of final payment for Road Cleaning and Mining Area Restoration Guarantee will be made upon determination of completeness by the ENGINEER after deduction of OWNER incurred costs for necessary road cleaning and/or mining area restoration not completed in a timely manner by the CONTRACTOR.

e. Payment for Road Cleaning and Mining Area Restoration Guarantee will be made at the amount named in the Bid Schedule under Pay Item No. 2202.5, which payment will constitute full compensation for all WORK described in Section 2202 – Excavation and Embankment, as shown on the Drawings and as directed by the ENGINEER.

2.8 SHEETING, SHORING, AND BRACING (Pay Item No. 2203.1) PRICED BASED ON LUMP SUM PAY UNIT

a. Measurement for payment for Sheeting, Shoring, and Bracing will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

b. Payment for Sheeting, Shoring, and Bracing includes, but is not limited to, all sheeting, shoring, and bracing required for installation of all piping, the wet well, and the valve vault.

c. Payment for Sheeting, Shoring, and Bracing or equivalent method will be made at the amount shown on the Bid Schedule under Pay Item No 2203.1, which price shall constitute full compensation for completion of all planning, design, engineering fees, furnishing and constructing, and removal and disposal of such sheeting, shoring, and bracing as a lump sum item, complete, as required under the provisions of any permits, and in accordance with the latest safety requirements of State of Alaska and Federal OSHA. Payment for the Site Development Plan described in Section 02202 – EXCAVATION AND EMBANKMENT will be under this Pay Item.

2.9 2-INCH MINUS SHOT ROCK W/ BASE COURSE (Pay Item No. 2204.1) PRICE BASED ON QUANTITY, CUBIC YARD

a. 2-Inch Minus Shot Rock w/ Base Course, will be measured by the number of cubic yards of material in place as determined by the average end area method, and will be determined on a neatline basis. Where impractical to measure by the average end area

method, the ENGINEER may approve other acceptable methods involving three-dimensional measurements. Material outside of the lines, grades and cross sections indicated in the Drawings, or as directed by the ENGINEER, will be deducted from 2-Inch Minus Shot Rock w/ Base Course, Grading D-1 quantities for pay purposes.

b. Water needed for compaction and added to the base material on the grade will be considered incidental.

c. Base course placed for final soil stabilization, as called for on the Drawings, will be measured for payment under this Pay Item.

d. 2-Inch Minus Shot Rock will be placed and compacted into a layer 4-inches to 5-inches thick, and covered with Base Course, Grading D-1, to a total thickness of 6-inches. Both of these materials will be measured for payment under this Pay Item. 2-Inch Minus Shot Rock shall meet the requirements of Section 2202 – Excavation and Embankment.

e. Payment for 2-Inch Minus Shot Rock w/ Base Course, will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2204.1, which payment will constitute full compensation for all WORK described in Section 02204 – Base Course, as shown on the Drawings and as directed by the ENGINEER.

2.10 SANITARY SEWER PIPE, 12-INCH PVC, (Pay Item No. 2401.1) PRICE BASED ON QUANTITY, LINEAR FOOT

a. Sanitary Sewer Pipe, 12-INCH PVC will be measured along the slope of the pipe in feet, from center to center of manholes, from center of manholes to end of pipe, or to limits of payment as shown on the Drawings. The aggregate laid lengths of wyes will not be deducted from lengths of pipes so measured.

b. Removal of existing sewer pipe and cleaning and testing of new sewer pipe will not be measured for payment but will be considered incidental to the other WORK under Section 02401 – SANITARY SEWER PIPE.

c. Trench excavation, bedding, backfill, and imported backfill will not be measured for payment, but will be considered incidental to other WORK.

d. Payment for Sanitary Sewer Pipe, 12-Inch PVC will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2401.1, which payment will constitute full compensation for all WORK described in Section 02401 – SANITARY SEWER PIPE, as shown on the Drawings and as directed by the ENGINEER.

2.11 PRESSURE SEWER PIPE (FORCE MAIN), 12-INCH HDPE, (Pay Item No. 2401.2) PRICE BASED ON QUANTITY, LINEAR FOOT

a. Pressure Sewer Pipe (Force Main), 12-INCH HDPE will be measured along the slope of the pipe in feet, from end of pipe to end of pipe or to limits of payments as shown on the

Drawings. The aggregate lengths of wyes will not be deducted from lengths of pipes so measured.

b. Connection to existing force main, trench excavation, bedding, backfill, and imported backfill will not be measured for payment, but will be considered incidental to other WORK.

c. Payment for Pressure Sewer Pipe (Force Main), 12-Inch HDPE will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2401.2, which payment will constitute full compensation for all WORK described in Section 02401 – SANITARY SEWER PIPE, as shown on the Drawings and as directed by the ENGINEER.

2.12 SANITARY SEWER DROP MANHOLE, TYPE I (Pay Item No. 2402.1) PRICE BASED LUMP SUM PAY UNIT

a. Measurement for payment of Sanitary Sewer Drop Manhole, Type I will be based on the completion of the entire WORK as a Lump Sum Pay Unit, furnished and installed in accordance with the requirements of the Contract Documents.

b. The WORK includes all excavation, bedding, backfill, imported backfill, sheeting and bracing, dewatering, cleaning, testing, adjusting rings, and setting the frame and cover to grade, including construction of a concrete transition slab and pavement overlay, if necessary.

c. Payment for Sanitary Sewer Drop Manhole, Type I will be made at the amount shown in the Bid Schedule under Pay Item No. 2402.1, which payment will constitute full compensation for all WORK described in Section 02402 - Sanitary Sewer Manholes and Cleanouts, as shown on the Drawings and as directed by the ENGINEER.

2.13 12-INCH ECCENTRIC PLUG VALVE (Pay Item Nos. 2602.1) PRICE BASED ON LUMP SUM PAY UNIT

a. Measurement for payment of Eccentric Plug Valve and valve boxes will be based on the completion of the entire WORK as a Lump Sum Pay Unit, furnished and installed in accordance with the requirements of the Contract Documents.

b. The WORK includes all eccentric plug valves and valve boxes on gravity sewer lines outside the valve vault. Plug valves in the valve vault will be paid for under other WORK.

c. Payment for 12-Inch Eccentric Plug Valve on gravity sewer pipe will be made at the amount shown in the Bid Schedule under Pay Item 2602.1, which payment will constitute full compensation for all WORK described in Section 02602 – Valves, as shown on the Drawings and as directed by the Engineer.

2.14 2-INCH WATER SERVICE (Pay Item No. 2605.1) PRICE BASED ON LUMP SUM PAY UNIT

a. Measurement for payment for water services will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

b. The WORK includes the service pipe, curb stop and valve box, corporation stop, trace wire, service saddle, required fittings, warning tape, yard hydrant, bollards, gate valve and valve box, and all other appurtenances, fasteners, and WORK necessary to install the service from the water main to the yard hydrant, as shown on the Drawings.

c. Saw-cutting, asphalt removal, concrete removal, trench excavation and backfill for the water service will be considered incidental to the water service.

d. Reconstruction of the Glacier Highway roadway typical section including 6 inches' asphalt, base course, and subbase (or the typical section as required by the DOT&PF Lane Closure permit); sidewalk, curbing, topsoil, seeding, and striping, all as required to return the finished surface to matching existing conditions, will be considered incidental to the water service.

e. Traffic Control, including all necessary permits to work in Glacier Highway, is incidental to the water service.

f. The WORK will be paid under Additive Alternate 1.

g. Payment for 2-Inch Water Service will be made at the amount shown in the Bid Schedule under Pay Item No. 2605.1, which payment will constitute full compensation for all WORK described in Section 02605 – Water Services, as shown on the Drawings and as directed by the ENGINEER.

2.15 CONSTRUCTION SURVEYING (Pay Item No. 2702.1) PRICE BASED ON LUMP SUM PAY UNIT

a. Measurement for payment of Construction Surveying will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

b. Payment for Construction Surveying will be made at the amount shown in the Bid Schedule under Pay Item No. 2702.1, which payment will constitute full compensation for all WORK described in Section 02702 - Construction Surveying, as shown on the Drawings and as directed by the ENGINEER.

2.16 6' TEMPORARY CHAIN LINK FENCE (Pay Item No. 2707.1) PRICE BASED ON LUMP SUM PAY UNIT

a. Measurement for payment of 6' Temporary Chain Link Fence will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the Requirements of the Contract Documents.

b. Sandbags for footings, 3' man-gate, and padlock are incidental.

c. Payment for 6' Temporary Chain Link Fence will be made at the amount shown in the Bid Schedule under Pay Item No. 2707.1, which payment will constitute full compensation for all WORK described in Section 02707 – Chain Link Fence, as shown on the Drawings and as directed by the Engineer.

2.17 A.C. PAVEMENT, TYPE II-A, CLASS B (Pay Item No. 2801.1) PRICE BASED ON QUANTITY, TON

a. Asphalt Concrete Pavement will be measured for payment by the ton.

b. No measurement will be made for asphalt concrete pavement that exceeds 12% more than the neat line quantity, as determined by the nominal design thickness multiplied by the actual area paved, with a conversion factor of 119.0 lb per square yard per inch of thickness.

c. All resealing of joints with existing pavement, including those resealed after the pavement has cooled to ambient temperatures, will not be measured for payment, but will be considered incidental to other WORK under the contract.

d. Tack Coat applied to existing joint surfaces and along edge of gutters or other concrete prior to placement of A.C. pavement, will be considered incidental to other WORK under Pay Item No. 2801.1.

e. Asphalt Pavement required for reconstructed collars around manholes and water valves, if any, will be considered incidental to other WORK under this Section.

f. Payment under this Pay Item may include deductions in final price if, after testing, the asphalt pavement does not meet the required specification. Deductions are further described in Section 02801 – Asphalt Concrete Pavement, Part 3 – Execution, Article 3.13, Acceptance Sampling and Testing, Paragraph K.

g. Payment for A.C. Pavement, Type II-A, Class B, will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2801.1, which payment will constitute full compensation for all WORK described in Section 02801 - Asphalt Concrete Pavement, as shown on the Drawings and as directed by the ENGINEER.

2.18 REMOVE EXISTING ASPHALT SURFACING (Pay Item No. 2806.1) PRICE BASED ON LUMP SUM PAY UNIT

a. Removing asphalt surfacing, including leveling course, will be measured for payment based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

b. Removal of existing asphalt surfacing will include the full thickness of all layers of existing asphalt, including leveling courses and underlying pavement.

c. Payment for Remove Existing Asphalt Surfacing will be made at the amount shown in the Bid Schedule under Pay Item No. 2806.1, which payment will constitute full compensation

for all WORK described in Section 02806 - Remove Existing Asphalt Surfacing, as shown on the Drawings and as directed by the ENGINEER.

11.1 GRUENING PARK LIFT STATION (Pay Item No 11176.1) PRICE BASED ON LUMP SUM PAY UNIT

a. Measurement for payment of Gruening Park Lift Station will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

b. Lift station pumps, pump control panel and level sensor are Owner-procured and will be available for pickup by the CONTRACTOR at Lynden Transport on Mt. Roberts Street, Juneau, Alaska. The CONTRACTOR shall provide delivery of all Owner-procured items to the project site, which shall be incidental.

c. Gruening Park Lift Station shall include, but not be limited to, all earthwork to install, bed and backfill the pump station wet well, and valve vault; all wet well piping up to, and including the 12" wye, trench excavation and backfill; the wet well and valve vault along with hatches, covers, frames, water proofing, and concrete pad around the wet well and valve vault; all pipe, valves, fittings, pump installation, rails, equipment, supports, bars screens, ladders, vents, nuts, bolts, and other miscellaneous items necessary for a complete installation; pumping and bypass plan and all pumping of sewage to ensure continuous service from the existing Gruening Park Lift Station if needed; all testing, warranties, operation and technical data as required; bent piping and any other material and WORK necessary for a complete, working and acceptable installation.

d. The WORK shall include obtaining an ADEC Excavation Dewatering General Permit, including all means and methods required for compliance, which shall be incidental.

e. Payment for Gruening Park Lift Station will be made at the amount shown in the Bid Schedule under Pay Item No. 11176.1, which payment will constitute full compensation for all WORK described in SECTION 11176 – SEWAGE PUMP STATION, as described in the Contract Documents and as directed by the ENGINEER.

11.2 GRUENING PARK CONTROL PANEL RACK (Pay Item No 11176.2) PRICE BASED ON LUMP SUM PAY UNIT

a. Measurement for payment of Gruening Park Control Panel Rack will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

b. Gruening Park Control Panel Rack shall include, but not be limited to, all steel, hardware, welding, drilling, concrete, rebar, and any other material and work necessary for a complete and acceptable installation.

c. Payment for Gruening Park Control Panel Rack will be made at the amount shown in the Bid Schedule under Pay Item No. 11176.2, which payment will constitute full compensation for all WORK described in the Contract Documents and as directed by the ENGINEER.

16.1 GRUENING PARK LIFT STATION ELECTRICAL (Pay Item No. 16000.1) PRICE BASED ON LUMP SUM PAY UNIT

a. Measurement for payment of Gruening Park Lift Station Electrical will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

b. The lift station pumps, pump control panel, and level sensor are Owner-procured. See Pay Item No. 11176.1.

c. Gruening Park Lift Station Electrical shall include, but not be limited to, the installation of the pump control panel and everything fed from the pump control panel as well as the power feeder and telephone line connections to the pump control panel and any other material and WORK necessary for a complete, working, and acceptable electrical installation for the Gruening Park Lift Station pumps, level sensor, and pump control panel as shown on the electrical Drawings and included in DIVISION 16000 – ELECTRICAL. This pay item shall also include, but not be limited to all demolition of all existing electrical facilities and utility services as well as electrical work, earthwork, concrete, metal fabrication, conduit and wiring, electrical controls, switches, power connections, conduit, buried conduit, pull boxes, circuit breakers, metering equipment, automatic transfer switch, protective enclosures, splice enclosures, and all associated systems and accessories, standby generator receptacle, flexible cords, plugs, alarms, testing, warranties, operations and technical data as required, and any other material and WORK necessary for a complete, working, and acceptable installation for the Gruening Park Lift Station as shown on the electrical Drawings and included in DIVISION 16000 – ELECTRICAL. The only electrical work not included in this pay item is the portable trailer mounted generator as described in pay item 16000.2, and coordination with and payment for electrical utilities as described in pay item 16000.3.

d. The installation of the pump control panel, pump wiring, and level sensor installation is included in this Specification section.

e. Payment for Gruening Park Lift Station Electrical will be made at the amount shown in the Bid Schedule under Pay Item No. 16000.1, which payment will constitute full compensation for all WORK described in DIVISION 16000 – ELECTRICAL, as described in the Contract Documents and as directed by the ENGINEER. The provision of the pumps, pump control panel and level sensor are included in the Sewer Pump Station specification section and are Owner-procured. Delivery is paid for under GRUENING PARK LIFT STATION (Pay Item No. 11176.1). The installation of the pump control panel, level sensor and wiring for the pumps is included in the electrical specification sections (Division 16000) and paid for under this pay item. All other electrical work on this project shall be considered incidental to this pay item and no other measurement for payment will be made.

16.2 GRUENING PARK PORTABLE GENERATOR (Pay Item No. 16000.2) PRICE BASED ON LUMP SUM PAY UNIT

a. Measurement for payment of Gruening Park Generator Building Electrical will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

b. Gruening Park Portable Generator shall include a trailer mounted generator with all features shown on the drawings and in the specifications. This includes all commissioning, set up, and all other contractual requirements for the trailer mounted generator. The only electrical work not included in this pay item is the installation of the pump panel, level sensor, and electrical for the pumps as described in pay item 16000.1, and coordination with electrical utilities as described in pay item 16000.3.

c. Payment for Gruening Park Portable Generator will be made at the amount shown in the Bid Schedule under Pay Item No. 16000.2, which payment will constitute full compensation for all WORK described in DIVISION 16000 – ELECTRICAL, as described in the Contract Documents and as directed by the ENGINEER.

16.3 GRUENING PARK LIFT STATION AEL&P AND ACS SERVICES (Pay Item No. 16000.3) PRICE BASED ON LUMP SUM PAY UNIT

a. Measurement for payment of Gruening Park Lift Station AEL&P and ACS Services will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.

b. Gruening Park Lift Station AEL&P and ACS Services shall include coordination with AEL&P and ACS to disconnect the existing services to the existing lift station and to provide temporary and permanent service to the lift station including allowing the utilities time in the project schedule to complete their work. The utility charges for their work will be paid for in this pay item. This pay item covers all coordination with the utilities to allow them to do their work. Utility conduit where required to be provided by the CONTRACTOR is included in this item. It includes all WORK necessary for a complete, working and acceptable installation.

c. Payment for Gruening Park Lift Station AEL&P and ACS Services will be made at the amount shown on the Bid Schedule under Pay Item No. 16000.3, which payment will constitute full compensation for all WORK described in DIVISION 16000 – ELECTRICAL, as described in the Contract Documents and as directed by the ENGINEER.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

SECTION 01300 – CONTRACTOR SUBMITTALS

PART 1 – GENERAL

1.1 GENERAL

A. Wherever submittals are required hereunder, all such submittals shall be submitted to the ENGINEER by the CONTRACTOR.

B. Within 14 Days after the date of commencement as stated in the Notice To Proceed, the CONTRACTOR shall submit the following items to the ENGINEER for review:

1. A preliminary schedule of Shop Drawings, sample, and proposed substitutes or "or-equal" submittals.
2. A list of all permits and licenses the CONTRACTOR shall obtain indicating the agency required to grant the permit and the expected date of submittal for the permit and required date for receipt of the permit.
3. A complete progress schedule for all phases of the Project.
4. Material Safety Data Sheets on products used on the Project.
5. A traffic maintenance plan, as required.
6. A plan for temporary erosion control and pollution control, as required.
7. A letter designating the CONTRACTOR's Superintendent, defining that person's responsibility and authority.

8. A letter designating the CONTRACTOR's safety representative and the Equal Employment Opportunity (EEO) Officer and that person's responsibility and authority.
9. Individual Mining Plan shall be submitted and approved, by CBJ Engineering, prior to any materials extraction from the CBJ/State Lemon Creek Gravel Pit.

C. No payments shall be made to the CONTRACTOR until all of these items are submitted in their entirety, as determined by the ENGINEER.

1.2 SHOP DRAWING SUBMITTAL

A. Wherever called for in the Contract Documents, or where required by the ENGINEER, the CONTRACTOR shall furnish to the ENGINEER, for review, eight (8) copies of each Shop Drawing submittal. The term "Shop Drawings" as used herein shall be understood to include detail design calculations, Shop Drawings, fabrication drawings, installation drawings, erection drawings, lists, graphs, operating instructions, catalog sheets, data sheets, and similar items.

B. All Shop Drawing submittals shall be accompanied by the CONTRACTOR's standard submittal transmittal form. Any submittal not accompanied by such a form, or where all applicable items on the form are not completed, will be returned for re-submittal.

C. Normally, a separate transmittal form shall be used for each specific item or class of material or equipment for which a submittal is required. Transmittal of a submittal of various items using a single transmittal form will be permitted only when the items taken together constitute a manufacturer's "package" or are so functionally related that expediency indicates review of the group or package as a whole. A multiple-page submittal shall be collated into sets, and each set shall be stapled or bound, as appropriate, prior to transmittal to the ENGINEER.

D. Except as may otherwise be provided herein, the ENGINEER will return prints of each submittal to the CONTRACTOR with its comments noted thereon, within 30 calendar days following receipt of them by the ENGINEER. It is considered reasonable that the CONTRACTOR shall make a complete and acceptable submittal to the ENGINEER by the second submission of a submittal item. The OWNER reserves the right to withhold monies due to the CONTRACTOR to cover additional costs of the ENGINEER's review beyond the second submittal. The ENGINEER's maximum review period for each submittal including all re-submittals will be 30 days per submission. In other works, for a submittal that requires two re-submittals before it is complete, the maximum review period for that submittal could be 90 days.

E. If three (3) copies of a submittal are returned to the CONTRACTOR marked "NO EXCEPTIONS TAKEN," formal revision and resubmission of said submittal will not be required.

F. If three (3) copies of a submittal are returned to the CONTRACTOR marked "MAKE CORRECTIONS NOTED," formal revision and resubmission of said submittal is not required.

G. If one (1) copy of the submittal is returned to the CONTRACTOR marked "AMEND-RESUBMIT," the CONTRACTOR shall revise said submittal and shall resubmit the required number of copies of said revised submittal to the ENGINEER.

H. If one (1) copy of the submittal is returned to the CONTRACTOR marked "REJECTED-RESUBMIT," the CONTRACTOR shall revise said submittal and shall resubmit the required number of copies of said revised submittal to the ENGINEER.

I. Fabrication of an item may be commenced only after the ENGINEER has reviewed the pertinent submittal and returned copies to the CONTRACTOR marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED." Corrections indicated on submittals shall be considered as changes necessary to meet the requirements of the Contract Documents and shall not be taken as the basis for changes to the Contract requirements only a Change Order can alter the Contract Price, Contract Time, or Specifications.

J. All CONTRACTOR Shop Drawing submittals shall be carefully reviewed by an authorized representative of the CONTRACTOR, prior to submission to the ENGINEER. Each submittal shall be dated, signed, and certified by the CONTRACTOR, as being correct and in strict conformance with the Contract Documents. In the case of Shop Drawings, each sheet shall be dated, signed, and certified. No consideration for review by the ENGINEER of any CONTRACTOR submittal will be made for any items which have not been so certified by the CONTRACTOR. All non-certified submittals will be returned to the CONTRACTOR without action taken by the ENGINEER, and any delays caused by thereby shall be the total responsibility of the CONTRACTOR.

K. The ENGINEER's review of CONTRACTOR Shop Drawing submittals shall not relieve the CONTRACTOR of the entire responsibility for the correctness of details and dimensions. The CONTRACTOR shall assume all responsibility and risk for any misfits due to any errors in CONTRACTOR submittals. The CONTRACTOR shall be responsible for the dimensions and the design of adequate connections and details.

1.3 SAMPLES SUBMITTAL

A. Whenever in the Specifications samples are required, the CONTRACTOR shall submit not less than three (3) samples of each item or material to the ENGINEER for acceptance at not additional cost to the OWNER.

B. Samples, as required herein, shall be submitted for acceptance a minimum of 21 days prior to ordering such material for delivery to the job site, and shall be submitted in an orderly sequence so that dependent materials or equipment can be assembled and reviewed without causing delays in the WORK.

C. All samples shall be individually and indelibly labeled or tagged indicating thereon all specified physical characteristics and supplier's names for identification and submitted to the ENGINEER for acceptance. Upon receiving acceptance of the

ENGINEER, one (1) set of the samples will be stamped and dated by the ENGINEER and returned to the CONTRACTOR, and one (1) set of samples will be retained by the ENGINEER, and one (1) set of samples shall remain at the job site until completion of the WORK.

D. Unless clearly stated otherwise, it is assumed that all colors and textures of specified items presented in sample submittal are from the manufacturer's standard colors and standard materials, products, or equipment lines. If the samples represent non-standard colors, materials, products or equipment lines, and their selection will require an increase in Contract Time or Contract Price, the CONTRACTOR will clearly indicate this on the transmittal page of the submittal.

1.4 OPERATIONS AND MAINTENANCE MANUAL SUBMITTAL

A. The CONTRACTOR shall include in the Operations and Maintenance Manuals for each item of mechanical, electrical, and instrumentation equipment, the following:

1. Complete operating instructions, including location of controls, special tools or other equipment required, related instrumentation, and other equipment needed for operation.
2. Lubrication schedules, including the lubricant SAE grade and type, temperature range of lubricants, and including frequency of required lubrication.
3. Preventive maintenance procedures and schedules.
4. Parts lists, by generic title and identification number, complete, with exploded views of each assembly.
5. Disassembly and reassembly instructions.
6. Name and location of nearest supplier and spare parts warehouse.
7. Recommended troubleshooting and startup procedures.
8. Reproducible prints of the record Drawings, including diagrams and schematics, as required under the electrical and instrumentation portions of these Specifications.
9. Tabulation of proper settings for all pressure relief valves, (low/high) pressure switches and other related equipment protection devices.
10. Detailed test procedures to determine performance efficiency of equipment.
11. List of all electrical relay settings including alarm and contract settings.

B. The CONTRACTOR shall furnish to the ENGINEER five identical sets of technical manuals. Each set shall consist of one or more volumes, each of which shall be bound in a standard size, 3-ring, loose-leaf vinyl plastic hard cover binder suitable for bookshelf storage. Binder ring size shall not exceed 2.5 inches. A table of contents shall be provided which indicates all equipment in the technical manuals.

C. All technical manuals shall be submitted complete and in final form to the ENGINEER prior to the requests for final payment.

D. Incomplete or unacceptable Operations and Maintenance Manuals shall constitute sufficient justification to withhold payment for WORK completed.

1.5 SPARE PARTS LIST SUBMITTAL

A. The CONTRACTOR shall furnish to the ENGINEER five (5) identical sets of spare parts information for all mechanical, electrical, and instrumentation equipment. The spare parts list shall include the current list price of each spare part. The spare parts list shall be limited to those spare parts which each manufacturer recommends be maintained by the OWNER in the inventory at the plant site. Each manufacturer or supplier shall indicate the name, address, and telephone number of its nearest outlet of spare parts to facilitate the OWNER in ordering. The CONTRACTOR shall cross-reference all spare parts lists to the equipment numbers designated in the Contract Documents. The spare parts lists shall be bound in standard size, 3-ring, loose leaf, vinyl plastic hard cover binders suitable for bookshelf storage. Binder ring size shall not exceed 2.5 inches.

1.6 RECORD DRAWINGS SUBMITTALS

A. The CONTRACTOR shall keep and maintain, at the job site, one record set of Drawings. On these, it shall mark all project conditions, locations, configurations, and any other changes or deviations which may vary from the details represented on the original Contract Drawings, including buried or concealed construction and utility features which are revealed during the course of construction. Special attention shall be given to recording the horizontal and vertical location of all buried utilities that differ from the locations indicated, or which were not indicated on the Contract Drawings. Said record drawings shall be supplemented by any detailed sketches as necessary or directed to indicate, fully, the WORK as actually constructed. These master record Drawings, of the CONTRACTOR's representation of as-built conditions, including all revisions made necessary by Addenda, Change Orders, and the like shall be maintained up-to-date during the progress of the WORK.

B. In the case of those Drawings which depict the detail requirement for equipment to be assembled and wired in the factory, such as motor control centers and the like, the record drawings shall be updated by indicating those portions which are superseded by Change Order Drawings or final Shop Drawings, and by including appropriate reference information describing the Change Orders by number and the Shop Drawings by manufacturer, Drawing, and revision numbers.

C. Record drawings shall be accessible to the ENGINEER at all times during the construction period and shall be delivered to the ENGINEER on the 20th working day of every third month after the month in which the Notice to Proceed is given as well as upon completion of the WORK.

D. Final payment will not be acted upon until the CONTRACTOR-prepared Record Drawings have been delivered to the ENGINEER.

1.7 PROGRESS SCHEDULES

A. The progress schedule shall be in Bar Chart or Critical Path Method (CPM) form as required by the ENGINEER.

B. The progress schedule shall show the order in which the CONTRACTOR proposes to carry out the WORK and the contemplated date on which the CONTRACTOR and their Subcontractors will start and finish each of the salient features of the WORK, including any scheduled periods of shutdown. The schedule shall also indicate any anticipated periods of multiple-shift WORK.

C. Upon substantial changes to the CONTRACTOR's progress schedule of work or upon request of the ENGINEER, the CONTRACT shall submit a revised progress schedule(s) in the form required. Such revised schedule(s) shall conform with the contract time and take into account delays which may have been encountered in the performance of the WORK. In submitting a revised schedule, the CONTRACTOR shall state specifically the reason for the revision and the adjustments made in his schedule or methods of operation to ensure the completion of all the WORK within the contract time.

1.8 PROPOSED SUBSTITUTES OR "OR-EQUAL" ITEM SUBMITTAL

A. Whenever materials or equipment are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular supplier, the naming of the item is intended to establish the type, function, and equality required. If the name is followed by the words "or-equal" indicating that a substitution is permitted, materials or equipment of other suppliers may be accepted by the ENGINEER if sufficient information is submitted by the CONTRACTOR to allow the ENGINEER to determine that the material or equipment proposed is equivalent or equal to that named, subject to the following requirements:

1. The burden of proof as to the type, function, and quality of any such substitute material or equipment shall be upon the CONTRACTOR.
2. The ENGINEER will be the sole judge as to the type, function, and quality of any such substitute material or equipment and the ENGINEER's decision shall be final.
3. The ENGINEER may require the CONTRACTOR, to furnish at the CONTRACTOR's expense, additional data about the proposed substitute.
4. The OWNER may require the CONTRACTOR to furnish at the CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute.
5. Acceptance by the ENGINEER of a substitute item proposed by the CONTRACTOR shall not relieve the CONTRACTOR of the responsibility for full compliance with the Contract Documents and for adequacy of the substitute item.
6. The CONTRACTOR shall be responsible for resultant changes and all additional costs which the accepted substitution requires in the CONTRACTOR's WORK, the WORK of its Subcontractors and of other contractors, and shall effect such changes without cost to the OWNER. This shall include the cost for redesign and claims of other Contractor affected by the resulting change.

B. The procedure for review by the ENGINEER will include the following:

1. If the CONTRACTOR proposes to furnish or use a substitute item of material or equipment, the CONTRACTOR shall make written application to the ENGINEER on the "Substitution Request Form" for acceptance thereof.
2. Unless otherwise provided by law or authorized in writing by the ENGINEER, the "Substitution Request Form(s)" shall be submitted within the 21-day period after Notice To Proceed.
3. Wherever a proposed substitute material or equipment has not been submitted within said 21-day period, or wherever the submission of a proposed substitute material or equipment has been judged to be unacceptable by the ENGINEER, the CONTRACTOR shall provide material or equipment named in the Contract Documents.
4. The CONTRACTOR shall certify that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified, and be suited to the same use as that specified.
5. The ENGINEER will be allowed a reasonable time within which to evaluate each proposed substitute. In no case will this reasonable time period be less than 30 days.
6. As applicable, no Shop Drawing submittals will be made for a substitute item nor will any substitute item be ordered, installed, or utilized without the ENGINEER's prior written acceptance of the CONTRACTOR's "Substitution Request Form" which will be evidenced by a Change Order.
7. The ENGINEER will record the time required by the ENGINEER in evaluating substitutions proposed by the CONTRACTOR and in making changes in the Contract Documents occasioned thereby. Whether or not the ENGINEER accepts a proposed substitute, the CONTRACTOR shall reimburse the OWNER for the charges of the ENGINEER for evaluating each proposed substitute.

C. The CONTRACTOR's application using the "Substitution Request Form" shall contain the following statements and/or information which shall be considered by the ENGINEER in evaluating the proposed substitution:

1. The evaluation and acceptance of the proposed substitute will not prejudice the CONTRACTOR's achievement of Substantial Completion on time.
2. Whether or not acceptance of the substitute for use in the WORK will require a change in any of the Contract Documents to adopt the design to the proposed substitute.
3. Whether or not incorporation or use of the substitute in connection with the WORK is subject to payment of any license fee or royalty.
4. All variations of the proposed substitute for that specified will be identified.
5. Available maintenance, repair, and replacement service and its estimated cost will be indicated.
6. Itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including cost of redesign and claims of other contractors affected by the resulting change.

1.9 MATERIAL CERTIFICATION SUBMITTAL

A. The ENGINEER may permit the use, prior to sampling, inspection and testing, of certain materials or assemblies when accompanied by manufacturer's material certifications stating that such materials or assemblies fully comply with the requirements of the Contract. The certification shall be signed by the manufacturer, and will specifically reference the material's compliance with the AASHTO, ASTM and/or CBJ Standards specified in the applicable Contract Documents.

B. Material certifications shall be submitted to the ENGINEER prior to incorporating the item into the WORK.

C. Materials or assemblies used on the basis of material certifications may be sampled, inspected and/or tested at any time, and if found not in conformity with these specifications, will be subject to rejection whether in place or not.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

(SUBSTITUTION REQUEST FORM - next page)

CBJ Engineering Department
SUBSTITUTION REQUEST FORM

TO: _____ Project: _____

Contract No.: _____

OWNER: _____

SPECIFIED ITEM:

_____	_____	_____	_____
Section	Page	Paragraph	Description

The undersigned requests consideration of the following:

PROPOSED SUBSTITUTION: _____
Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of the request. Applicable portions of the data are clearly identified.

The undersigned states that the following paragraphs, unless modified on attachments are correct:

1. The proposed substitution does not affect dimensions shown on Drawings and will not require a change in any of the Contract Documents.

2. The undersigned will pay for changes to the design, including engineering design, detailing, and construction costs caused by the requested substitution which is estimated to be $_____.

3. The proposed substitution will have no adverse effect on other contractors, the construction schedule (specifically the date of substantial completion), or specified warranty requirements.

4. Maintenance and service parts will be locally available for the proposed substitution.

5. The incorporation or use of the substitute in connection with the WORK is not subject to payment of any license fee or royalty.

The undersigned further states that the function, appearance, and quality of the Proposed Substitution are equivalent or superior to the Specified item.

Submitted by CONTRACTOR: _____
Signature _____
Firm: _____
By: _____
Title: _____
Date: _____
Attachments: _____

Reviewed by ENGINEER _____
□ Accepted □ Accepted as Noted
□ Not Accepted □ Received Too Late
Date: _____
Telephone: _____

END OF SECTION

SECTION 01550 – SITE ACCESS AND STORAGE, PART 1 – GENERAL, Article 1.3, MAINTENANCE OF TRAFFIC, ***revise*** paragraph M. *to read:*

M. Provide pedestrian detours as necessary in areas adjacent to new construction following demolition of existing surfacing. The CONTRACTOR shall provide smooth, graded pathways free of mud, muck, and other materials that will be objectionable to people in street shoes. The pathways shall be a minimum of 36-inches-wide, and shall be clearly marked with staking, warning ribbons, or other methods to guide pedestrians through the construction areas and to their residence walkways, if applicable.

SECTION 01570 – EROSION AND SEDIMENT CONTROL, PART 1 – GENERAL, Article 1.1, THE REQUIREMENT, ***add*** the following paragraphs:

D. The area of disturbance for this project is less than 1 acre.

E. It is the responsibility of the CONTRACTOR to consult with ADEC regarding contaminated sites within 1,500 feet of the Project Limits and obtain all necessary permits for performing excavation dewatering.

SECTION 01700 – PROJECT CLOSE-OUT, PART 1 – GENERAL, Article 1.3, FINAL SUBMITTALS, Paragraph A. ***Delete*** *items 6, 7 and 8 and* ***replace*** *with the following subparagraph*:

6. Compliance Certificate and Release, signed by the CONTRACTOR, shall be submitted to the Engineering Contract Administrator.

SECTION 01700 – PROJECT CLOSE-OUT, PART 1 – GENERAL, Article 1.3, FINAL SUBMITTALS, ***Add*** *the following paragraph:*

C. Before final payment, the CONTRACTOR shall provide the OWNER with clearance from the Alaska Department of Labor and Workforce Development for the CONTRACTOR and all Subcontractors that have worked on the Project. This clearance shall indicate that all Employment Security Taxes have been paid. A sample form for this propose is at the end of Section 00800 – Supplementary General Conditions.

SECTION 01700 – PROJECT CLOSE-OUT, PART 1 – GENERAL, ***Replace*** *the* COMPLIANCE CERTIFICATE AND RELEASE FORM *with the following forms:*

COMPLIANCE CERTIFICATE AND RELEASE FORM

PROJECT: Gruening Park Lift Station Stand Alone Lift Station
CONTRACT NO: BE21-264

The **CONTRACTOR** must complete and submit this form to the Contract Administrator with respect to the entire contract and submit completed Subcontractor Compliance forms for each Subcontractor used on the Contract and listed on the Subcontractor report.

Completed forms shall be submitted upon completion of the Project. All requirements and submittals must be met before final payment will be made to the CONTRACTOR.

I certify that the following and any referenced attachments are true:

- All WORK has been performed, materials supplied, and requirements met in accordance with the applicable Drawings, Specifications, and Contract Documents.

- All payments to Subcontractors and Suppliers have been made in accordance with Alaska Statute 36.90.210. If not, please provide written explanation, for each case, why and the specific mutual payment agreement reached with the Supplier or Subcontractor.

- CHECK ONE:
  - ☐ All Suppliers and Subcontractors have been paid in full with no claims for labor, materials or other services outstanding.

  - ☐ The following Suppliers and Subcontractors are due final payment which will be made upon the release of the final payment by the CBJ. List the Suppliers and Subcontractors and the amount they are due below (attach separate sheet if necessary) :

  ☐

	Supplier or Subcontractor	Amount Owed
1.		$
2.		$
3.		$
4.		$
5.		$
6.		$
7.		$

- All employees have been paid not less than the current prevailing wage rates set by the State of Alaska (or U.S. Department of Labor, as applicable).

- All equal employment opportunity, certified payroll and other reports have been filed in accordance with the prime contract.

- The attached list of Subcontractors is complete (required from CONTRACTOR). The City Engineer was advised and approved of all Subcontractors before WORK was performed and has approved any substitutions of Subcontractors.

- All DBE firms listed as a precondition of the prime contract award must have performed a commercially useful function in order for the WORK to count to a DBE goal. All DBE firms performed the WORK stated and have received at least the amount claimed for credit in the Contract Documents.

- All DBE Subcontractors must attach a signed statement of the payment amount received, the nature of WORK performed, whether any balance is outstanding, and indicate that no rebates are involved.

- If the amount paid is less than the amount originally claimed for DBE credit, the CONTRACTOR has attached approval from the City Engineer for underutilization.

I understand it is unlawful to misrepresent information in order to receive a payment which would otherwise be withheld if these conditions were not met. I am an authorized agent of this firm and sign this freely and voluntarily. The foregoing statements are true and apply to the following project contractor.

_____ Capacity: CONTRACTOR

Firm Name

_____ _____ _____

Signature Printed Name and Title Date

Return completed form to: Engineering Contracts Division, City and Borough of Juneau, 155 South Seward Street, Juneau, AK 99801 or by email to: contracts@juneau.org

Call (907) 586-0800 ext. 4194 if we can be of further assistance or if you have any questions.

SUBCONTRACTOR COMPLIANCE CERTIFICATE AND RELEASE FORM

PROJECT: Gruening Park Lift Station Stand Alone Lift Station
CONTRACT NO: BE21-264

Each **SUBCONTRACTOR** must complete and submit this form to the Contract Administrator, through the General Contractor, with respect to the entire contract.

Completed forms shall be submitted upon completion of the Project. All requirements and submittals must be met before final payment will be made to the CONTRACTOR.

I certify that the following and any referenced attachments are true:

- All WORK has been performed, materials supplied, and requirements met in accordance with the applicable Drawings, Specifications, and Contract Documents.

- _____(name of firm) has been paid by the Contractor in accordance with Alaska Statute 36.90.210. (If not, please provide written explanation on an attached sheet, for each case. Provide specific details why payment was not made and the specific mutual payment agreement reached with the Contractor if it is still unresolved.)

- CHECK ONE:
  - ☐ I / WE have been paid in full by the Contractor, with no claims for labor, materials or other services outstanding.

  - ☐ I / WE are due the following amount from the Contractor which is included in the Contractors Request for Final Payment. WE are due a total of $_____ for the following individual items that have yet to be paid (attach separate sheet if necessary).

	Outstanding Payment Item	Outstanding Amount Owed
1.		$
2.		$
3.		$
4.		$
5.		$
6.		$
7.		$

- All employees have been paid not less than the current prevailing wage rates set by the State of Alaska (or U.S. Department of Labor, as applicable).

- All equal employment opportunity, certified payroll and other reports have been filed in accordance with the prime contract.

I understand it is unlawful to misrepresent information in order to receive a payment which would otherwise be withheld if these conditions were not met. I am an authorized agent of this firm and sign this freely and voluntarily. The foregoing statements are true and apply to the following project contractor.

_____ Capacity: SUBCONTRACTOR

Firm Name

_____	_____	_____
Signature	Printed Name and Title	Date

Prime Contractor shall return completed form to: Engineering Contracts Division, City and Borough of Juneau, 155 South Seward Street, Juneau, AK 99801 or email: greg.smith@juneau.org Call (907) 586-0800 ext. 4194 if we can be of further assistance or if you have any questions.

Add the following Section:

SECTION 02050 – DEMOLITION

PART 1 – GENERAL

1.1 THE REQUIREMENT

A. Prior to the start of the WORK, the CONTRACTOR shall coordinate with the OWNER regarding items from the existing lift station to be delivered to CBJ Wastewater by the CONTRACTOR. The CONTRACTOR shall dispose of all other items at the CONTRACTOR's expense.

B. The CONTRACTOR shall furnish materials, equipment, and labor necessary to perform and complete demolition WORK called for in the Contract Documents.

C. The existing Gruening Park Lift Station along with pumps, piping, electrical, and electrical services shall be demolished as shown, in an orderly and careful manner.

D. The WORK shall include, but not be limited to, removal and disposal of existing piping, pumps, pump housing, and mechanical.

E. After demolition of the mechanical and electrical items, the pump station shall be backfilled with pea gravel as indicated on Drawings.

F. Sanitary sewer pipe and manhole structures shall be disconnected, removed, or capped and filled as shown on Drawings.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Division 16 Electrical

1.3 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. All codes, as referenced herein, are specified in Section 01090, "Reference Standards."

1.4 CONTRACTOR SUBMITTALS

A. Demolition Schedule: The CONTRACTOR shall submit a complete coordination schedule for demolition WORK including shut-off and continuation of utility services prior to start of the WORK. The schedule shall indicate proposed methods and operations of facility demolition and provide a detailed sequence of demolition and removal WORK to ensure uninterrupted operation of occupied areas.

1.5 JOB CONDITIONS

A. Condition of Facilities: OWNER assumes no responsibility for actual condition of facilities to be demolished. The CONTRACTOR shall visit the site and inspect the existing facilities.

END OF SECTION

SECTION 02202 – EXCAVATION AND EMBANKMENT, PART 2 - PRODUCTS, *Article 2.7 SHOT ROCK BORROW, **replace** Paragraph A with the following:*

A. Shot Rock Borrow shall consist of 6-inch minus shot rock and shall contain no mulch, frozen material, roots, sod or other deleterious matter. The shot rock borrow shall be evenly graded, with at least 10% by weight retained on the 6-inch screen. Shot rock will be obtained from quarry rock, unless otherwise approved by the ENGINEER.

SECTION 02202 – EXCAVATION AND EMBANKMENT, PART 2 - PRODUCTS, ***add** the following Articles:*

2.8 OVER EXCAVATION

A. All over excavation shall be unclassified excavation, and shall consist of excavation and disposal of all materials, of whatever character, encountered in the WORK.

2.9 USABLE MATERIAL FROM EXCAVATION

A. Usable material from excavation shall meet the requirements for Selected Borrow.

SECTION 02203 – TRENCHING, PART 2 - MATERIALS, Article 2.2 BEDDING, ***replace** paragraph A with the following and **add** paragraph D:*

A. Pea gravel, or similar product, shall not be used for bedding. Class B bedding material shall be used for all pipe installed on this project.

D. Class A bedding shall be used for all water pipe.

SECTION 02204 – BASE COURSE, PART 2 – PRODUCTS Article 2.1, MATERIALS, ***add** the following paragraph:*

E. Base course for this project shall have a maximum Nordic Abrasion Value of 18, as determined by ATM 312, and shall meet the gradation requirements for grading D-1.

SECTION 02204 – BASE COURSE, PART 3 – EXECUTION Article 3.1, GENERAL, ***replace** Paragraph I with the following:*

I. The surface of the base course, when using a taut string line or straight edge of adequate length, spanning between two known grade control points (blue top hubs, lip of gutter, edge existing asphalt etc.) shall not show any deviation in excess of 3/8 inch. This shall be checked perpendicular and longitudinally to the grade control points and be documented by the INSPECTOR. The finish surface shall not vary more than 1/2 inch from established grade. Additionally, the algebraic average of all deviations from established grade of the finish base course surface elevations taken at 50-foot intervals shall be less than 0.02 foot.

SECTION 02402 – **SANITARY SEWER MANHOLES AND CLEANOUTS**, PART 3 - EXECUTION, Article 3.1 CONSTRUCTION, Paragraph M, ***delete*** sub-paragraph 4 and ***replace*** with the following:

4. Rubber grade ring adjustment risers shall be bonded to adjacent surfaces by laying at least 3 beads, a minimum of 5/16" thick of *Liquid Nails- Polyurethane Construction Adhesive* on each side of the rubber risers or the top surface of the concrete course. Two of the adhesive beads shall be within 1" of the edges of the rubber grade ring adjustment riser, the third shall be equidistant between the two outer beads. The beads shall be continuous around the rubber grade ring adjustment riser.

SECTION 02605 – WATER SERVICES, Part 1 – GENERAL, Article 1.2 SUBMITTALS, ***add*** the following paragraph:

F. Yard hydrant: Catalog cut

SECTION 02605 – WATER SERVICES, PART 2 – PRODUCTS, Article 2.1 WATER SERVICES, ***add*** the following paragraph:

G. Yard hydrant shall be Eclipse X2 Post Hydrants, with a 2 ½" nozzle size. Yard hydrant shall be NSF 61 certified.

SECTION 02605 – WATER SERVICES, PART 3 – EXECUTION, Article 3.1 CONSTRUCTION, ***add*** the following paragraph:

E. The yard hydrant shall be installed in accordance with manufacturer recommendations. The yard hydrant shall be protected by bollards as shown in CBJ standard detail 404.

SECTION 02702 – CONSTRUCTION SURVEYING, PART 3 – EXECUTION, Article 3.1, CONSTRUCTION, ***add*** *the following paragraphs:*

M. A closed level loop is required through survey control points listed on the Drawings. No side shots will be permitted. A copy of the surveyor's notes shall be provided to the ENGINEER. No payment will be made for Pay item No. 2702.1 until the ENGINEER has received a copy of these surveyor's notes.

N. Global Position System (GPS) survey methods shall not be used for grading control unless approved in writing by the ENGINEER.

SECTION 02707 – CHAIN LINK FENCE, PART – GENERAL, ***add*** the following article:

1.2 SUBMITTALS

A. Temporary Fencing: Catalogue cut.

SECTION 02707 – CHAIN LINK FENCE, PART 2 – PRODUCTS, Article 2.1, MATERIALS, ***delete*** paragraphs A through J and ***add*** the following paragraphs:

A. Fencing shall be a temporary chain link fence, six (6) feet high, with top and bottom rails, and square footing (hoop shaped, approximately 16"X36", or approved equal), T-base style.

B. Panels shall be linked together using saddle clamps, four clamps per panel.

C. Sandbags shall weigh a minimum thirty (30) pounds. Sacks shall be made of polypropylene.

D. Provide a man-gate as shown on the drawings. Gate shall have a frost-free latching mechanism with padlock. Provide (2) keys to the Owner.

E. Mesh and wire size shall be two-inch mesh, 0.148-inch in diameter.

SECTION 02707 – CHAIN LINK FENCE, PART 3 – EXECUTION, Article 3.1, GENERAL, ***delete*** paragraphs A to H and ***add*** the following:

A. Install temporary fence as shown on the drawings. Sandbags shall be placed on each side of every footing, for a total of 2 per post.

SECTION 02801 – ASPHALT CONCRETE PAVEMENT, PART 1 – GENERAL, Article 1.1, DESCRIPTION, ***revise*** *paragraph B as follows:*

B. Asphaltic concrete mix for this Project shall be Type IIA, Class B. See Table 02801-1 and Table 02801-2.

SECTION 02801 – ASPHALT CONCRETE PAVEMENT, PART 1 - GENERAL, Article 1.1, DESCRIPTION, ***add*** *paragraph C as follows:*

C. Asphalt concrete mix for sidewalks, driveways and hydrant pads may be either Type III, Class B, or Type II-A, Class B. See Table 02801-1 and Table 02801-2.

SECTION 02801 – ASPHALT CONCRETE PAVEMENT, PART 1 – GENERAL, Article 1.1, DESCRIPTION, ***revise*** TABLE 02801-1, ASPHALTIC CONCRETE MIX REQUIREMENTS, *as follows:*

Design Parameters	Class A	Class B
Voids in total mix, percent	2.5 – 4.0	2.5 – 4.0%
Percent oil content	5.8 – 6.8	5.8 – 6.8% *

* Percent oil content for Type III Mix designs shall be 5.0 – 6.8

SECTION 02801 – ASPHALT CONCRETE PAVEMENT, PART 2 – PRODUCTS, Article 2.1, COMPOSITION OF ASPHALT CONCRETE MIXTURES – JOB MIX DESIGN, paragraph C., ***delete*** *subparagraph 6 and* ***replace*** *with the following:*

6. The mix design shall be 50 blow Marshall Method.

SECTION 02801 – ASPHALT CONCRETE PAVEMENT, PART 2 – PRODUCTS, Article 2.3, ASPHALT MATERIALS, ***revise*** *paragraph B as follows:*

B. Asphalt cement shall be designated PG58-28.

SECTION 02801 – ASPHALT CONCRETE PAVEMENT, PART 3 – EXECUTION, Article 3.2, EQUIPMENT, ***add*** *the following:*

F. Heavy, full size, self-propelled laydown units that will place concentrated loading on curb and gutter sufficient to cause breakage or other damage to the concrete will not be permitted.

SECTION 02801 – ASPHALT CONCRETE PAVEMENT, PART 3 - EXECUTION, Article 3.8, SPREADING AND PLACING, ***delete*** *paragraph H and* ***replace*** *with the following:*

H. Manholes, cleanouts and water valve boxes shall be raised to grade prior to paving the final lift. The structures shall have no less than 3/8" and no greater than 3/4" depression from adjacent asphalt to top of the lid. Structures not meeting tolerances will be repaired as per CBJ Standard Detail 126 – CONCRETE COLLAR.

SECTION 02801 – APHALT CONCRETE PAVEMENT, PART 3 – EXECUTION, Article 3.10, JOINTS, ***replace*** Paragraph C with the following:

C. Improperly formed joints resulting in surface irregularities or rock segregation shall be removed, full road width, replaced with new material, and thoroughly compacted. The edge of pavement along the centerline joint shall not be allowed to drop below 200 degrees Fahrenheit prior to the asphalt mix from the adjacent lane being placed against this edge.

SECTION 02801 – APHALT CONCRETE PAVEMENT, PART 3 – EXECUTION, Article 3.10, JOINTS, ***add*** *the following paragraph:*

J. All joints with existing asphalt pavement shall be resealed with asphalt cement after the new pavement has cooled to ambient temperature. All joints with concrete gutters found to have a gap shall be blown out using a weed burner torch, filled with asphalt cement and covered with a layer of dry sand. Excess sand shall be removed and asphalt cement placed on the concrete gutter more than one-inch from the edge of gutter shall be removed using solvent or other approved methods.

SECTION 02801 – ASPHALT CONCRETE PAVEMENT, PART 3 – EXECUTION, Article 3.13, Acceptance Sampling and Testing, ***add*** *the following paragraph:*

K. For each lot of asphalt pavement produced, at least two (2) samples shall be taken by the CONTRACTOR for purposes of acceptance testing by the OWNER. The CONTRACTOR shall split the sample with the OWNER to retain a portion for their use. The sample shall be taken according to proper sampling methods, from the asphalt pavement on the grade.

1. Based on the averaged results of the acceptance testing, a deduction from the asphalt pavement pay item may be made at the following amounts: #200 Sieve: the greater of either 1.0% the contract price for asphalt pavement placed within the sampled lot or $500 per each 0.1% outside the job mix design tolerance, not exceeding 6% maximum, of the percent passing the #200 sieve.

2. Asphalt Content: the greater of either 1.0% the contract price for asphalt pavement placed within the sampled lot or $500 per each 0.1% outside the allowable job mix design asphalt content tolerance. The allowable asphalt content tolerance for this Contract shall be +/- 0.4% of the target job mix design asphalt content and shall not exceed the asphalt oil content limits specified in this Contract.

3. The pay deductions for exceeding the job mix design tolerances does not constitute acceptance of a mix that does not meet the Specifications. Further acceptance testing will be performed to determine if the asphalt pavement Specifications have been met. No payment for asphalt pavement will be made for asphalt pavement exceeding job mix design tolerances, or not meeting asphalt pavement Specifications, until additional testing determines whether the asphalt pavement meets all other Specifications.

4. For the purposes of this Contract, one lot of asphalt pavement is defined as 500 tons, or a single day's asphalt pavement production of at least 100 tons.

Add the following Section:

SECTION 11176 – SEWAGE PUMP STATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. The CONTRACTOR shall deliver and install Owner-procured ITT Flygt heavy-duty submersible non-clog pumps, pump control panels, and level controls, and furnish and install wet wells, valve vaults, site work, miscellaneous piping and fittings, guard posts and all appurtenant WORK, complete and operable, in accordance with the requirements of the Contract Documents and as shown on the Drawings.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01300 CONTRACTOR Submittals

B. Section 02201 Clearing and Grubbing

C. Section 02202 Excavation and Embankment

D. Section 02203 Trenching

E. Section 02204 Base Course

F. Section 02401 Sanitary Sewer Pipe

G. Section 03302 Concrete Structures

H. Division 16 Electrical

1.3 CONTRACTOR SUBMITTALS

A. Shop Drawings: Shop Drawings of all pumps shall be submitted to the ENGINEER in accordance with Section 01300, "Contractor Submittals." Shop Drawings shall contain the following information:

1. Electrical data shall be submitted in accordance with the requirements of Division 16. These submittals shall include catalog cut sheets of all equipment, wiring diagrams, an elevation of the proposed Local Control Panel showing panel mounted devices, single line diagram of power distribution and current draw of the panel. Provide a list of all terminals to receive inputs or to transmit outputs from the Local Control Panel.
2. Assembly and installation Drawings including shaft size, seal, coupling, anchor bolt plan, part nomenclature, material list, outline dimensions and shipping weights.
3. List any exceptions taken or deviations to the Contract Documents.

B. Technical Manuals: Prior to start-up the CONTRACTOR shall furnish to the OWNER complete technical manuals for each pump station in accordance with Section 01300, "Contractor Submittals."

D. Maintenance: Printed instructions relating to proper maintenance, including lubrication, and parts lists indicating the various parts by name, number, and diagram where necessary, shall be furnished in duplicate with each unit or set of identical units in each pumping station.

E. Field Procedures: Instructions for field procedures for erection, adjustments, inspection, and testing shall be provided prior to installation of the pumps.

PART 2 – PRODUCTS

2.1 GENERAL

A. All manufactured items provided under this Section shall be new, of current manufacture, and shall be the products of reputable manufacturers specializing in the manufacture of such products; such manufacturers shall have had previous experience in such manufacture and shall, upon request of the ENGINEER, furnish the names of not less than 5 successful installations of its equipment of comparable nature to that offered under this contract.

B. All combinations of manufactured equipment which are provided under these Specifications shall be entirely compatible, and the CONTRACTOR and the designated single manufacturer shall be responsible for the compatible and successful operation of the various components of the units conforming to specified requirements.

C. Where 2 or more units of the same type and/or size of pumping equipment are required, such units shall all be produced by the same manufacturer.

2.2 WET WELLS, VALVE VAULTS AND APPURTENANCES

A. Portland cement concrete cast in place shall conform to Sections 03301 - Structural Concrete and 03302 - Concrete Structures.

B. All precast concrete sections, including flat slab tops for the wet well and valve vault for each pump station, shall comply with the requirements of Section 02402 and with the manhole details as shown on the Drawings.

C. Lever and Spring Operated Horizontal Swing Check Valves shall be Clow F-5381 or approved equal.

D. Mechanical Joint Couplings with Megalugs shall be Clow F-1012 or equal.

E. Eccentric Plug Valves in the valve vault shall be Clow F-5412 with handwheel operator or approved equal.

F. Manhole Covers and Frames shall comply with the requirements of Section 02402 Sanitary Sewer Manholes and Cleanouts.

2.3 MISCELLANEOUS

A. Bentonite-Cement sealing plaster shall consist of two parts Bentonite, one part Type 3 cement, and one part sand, with sufficient water to obtain workable consistency.

B. Mortar shall consist of one part Portland cement to two parts clean well graded sand which will pass a No. 4 screen. Admixtures may be used not exceeding the following percentages of weight of cement; hydrated lime, 10%; diatomaceous earth, or other inert material 5%. Consistency of mortar shall be such that it will readily adhere to the surface. Mortar mixed for longer than thirty minutes shall not be used. A non-shrink mortar may be submitted for approval as a substitute.

C. Grout shall be a non-shrink type complying with ASTM C-1107 and approved by the ENGINEER.

D. Concrete and reinforcing steel shall comply with the requirements of Sections 03301 - Structural Concrete and 03302 - Concrete Structures.

E. Bar screens shall be provided as shown on the Drawings and CBJ Standard Details. Bar screens shall be fabricated from Aluminum Alloy 6061-T6.

F. Wetwell ladders shall be polypropylene ladders and shall be provided as shown on the Drawings for each wetwell.

G. Lifting chains shall be provided for each pump. Lifting chains shall be a minimum 5/16" chain size and shall be 316 stainless steel.

2.4 PIPE AND FITTINGS

A. Piping in the wet well, valve vault and the force main piping between the valve vault and the 12" wye shall be HDPE as detailed on the plans provided in accordance with CBJ Standard Specification 02401. All couplings shall be butt fused or flanged.

B. Fittings shall be butt fused or flanged as shown on the Plans.

C. Vent piping shall be 4" diameter galvanized Schedule 40 steel pipe. Fittings may be either threaded or welded.

D. Air Intake piping shall be PVC SDR 35 conforming to the requirements of Specification Section 02401 - Sanitary Sewer Pipe.

E. All nuts and bolts for flanged fittings and rigid grooved type mechanical couplings in wet wells and valve vaults shall be 300 series stainless steel.

F. Mechanical couplings rigid grooved type shall be Victaulic Style 31 couplings or approved equal and shall comply with the requirements of ANSI/AWWA C-606.

2.5 ELECTRICAL

A. All electrical equipment shall comply with the requirements of Division 16

PART 3 - EXECUTION

3.1 GENERAL

A. HDPE to HDPE connections shall be thermal butt fusion, following CBJ Standard Specification 02401.

B. The pumps, piping and controls shall be installed in accordance with the manufacturer's instructions and recommendations at the locations shown. Installation shall include furnishing the required oil and grease for initial operation in accordance with the manufacturer's recommendations. Anchor bolts shall be set only after the discharge piping has been properly installed, to ensure exact fit with embedded piping components.

C. Manholes, piping and appurtenances shall be installed consistent with methods and requirements of the Contract Documents as a whole.

D. Piping to be installed in accordance with accepted industry standards. Run piping parallel to walls of wet wells and vaults as shown on the Drawings. Completed installation to present a neat and orderly appearance. Coordinate wall penetrations to ensure placement of piping can be accomplished as shown and specified.

E. Support piping as shown on the Drawings. Allow adequate clearance for placement of flange nuts and bolts.

F. Flange bolts shall be tightened so the gasket is uniformly compressed and sealed. Bolt threads and nut-bearing surfaces shall be lubricated before tightening. Do not distort flanges.

G. Holes for embedded bolts shall be installed with care so that multiple or oversized holes are not drilled. In the event that holes are not drilled properly in accordance with the manufacturer's recommendation, repairs shall be made with non-shrink grout in a manner that the full integrity of the structure is achieved as intended.

3.2 MANHOLES

A. Installation of manholes for the submersible pumps shall be in accordance with Section 02402 - Sanitary Sewer Manholes and Cleanouts.

B. Concrete used for pads around the inlet cover shall be as specified in Section 03302 – Concrete Structures. Dimensions of the concrete entrance pads shall be as shown on the Drawings.

3.3 FIELD TESTS OF PUMPS

A. All pumping units shall be field tested after installation, in accordance with the Contract Documents, to demonstrate satisfactory operation, without causing excessive noise, vibration, cavitation, and overheating of the bearings. The field testing shall be performed in the presence of an experienced field representative of the manufacturer of each major item of equipment, who shall supervise the following tasks and shall certify in writing that the equipment and controls have been properly installed, aligned, lubricated, adjusted, and readied for operation:

1. Start-up, check, and operate the equipment under normal operating conditions.
2. Pump performance shall be documented by obtaining concurrent readings, showing motor voltage, amperage, pump suction head, pump discharge head and pump flow. Each power lead to the motor shall be checked for proper current balance.
3. Electrical and instrumentation testing shall conform to the requirements of Division 16 Electrical.
4. The field testing shall be witnessed by the OWNER or its representative. In the event any of the pumping equipment fails to meet the above test requirements, it shall be modified and retested in accordance with the requirements of these Specifications. The CONTRACTOR shall then certify in writing that the equipment has been satisfactorily tested, and that all final adjustments thereto have been made. Certification shall include date of final acceptance test, as well as a listing of all persons present during tests, and resulting test data. The costs of all WORK performed in this Paragraph by factory-trained representatives shall be borne by the CONTRACTOR. When available, the OWNER's operating personnel will provide assistance in the field testing.

3.4 TESTING

A. All testing of force main pipes shall conform to Section 02401 – Sanitary Sewer Pipe.

END OF SECTION

SECTION 16010 – ELECTRICAL SCOPE OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. The scope of electrical work for this project includes demolishing the electrical systems for the existing lift station, and providing new electrical systems for the new lift station.

B. The scope of work includes removing the existing electrical panels and wiring in the existing wet well/dry well.

C. The electrical work includes providing the power, lighting, and pump controls for the new Gruening Park Lift Station. The lift station electrical work includes new utility services, service equipment, a portable standby generator with associated equipment, automatic transfer switch, portable generator receptacle, load bank and associated controls and equipment, lighting, with associated equipment. The generator includes a self-contained trailer mounted generator with exterior enclosure, subbase fuel tank, fuel controls, exhaust system with silencer, batteries, battery charger, and other associated systems. The pumps, pump control panel and multitrode level sensor are provided in the Sewage Pump Station Spec section 11176 and paid for in its associated pay item. The installation of the pump control panel and multitrode level, and wiring of the pumps including associated conduit, wiring, junction boxes, enclosures, etc. necessary for installation is included in this specification section and paid for in the pay item for the Lift Station Electrical. See measurement and payment section for pay items and their descriptions.

D. All work shown on the electrical Drawings and included in Division 16 of these specifications shall be provided.

END OF SECTION

Add the following Section:

SECTION 16050 – BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following electrical materials and methods:

1. Supporting devices for electrical components.
2. Electrical identification.
3. Electrical demolition.
4. Cutting and patching for electrical construction.
5. Touchup painting.

1.3 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of Section 01300 CONTRACTOR Submittals.

B. Provide catalog cut sheets providing product data for each type of product specified. Note specifically what component is being submitted when more than one model or version is shown on the cut sheet. Where there is more than one of each type of component (circuit breaker), label the top of each cut sheet with the specific component that the cut sheet applies to.

C. Provide Shop Drawings detailing fabrication and installation of supports and anchorage for electrical items. Show all components of a system and how they relate to each other during installation. Include details of mounting brackets, wiring interconnections, single line diagrams, component layout diagrams for enclosures, materials list for components in enclosures, wiring schematic diagrams with each wire numbered and each terminal numbered for wiring in enclosures.

D. Verify all parts will fit inside building, change parts as required during the submittal process. This includes the generator, exhaust system, fuel system, and louvers with all ducting, piping, insulation, mufflers, thimbles, as well as panels, and all other electrical equipment. If things do not fit properly, procure items that will after obtaining engineer's approval. It is the contractor's responsibility to verify that all parts will fit in the building.

1.4 QUALITY ASSURANCE

A. Comply with NFPA 70 for components and installation.

B. Listing and Labeling: Provide products specified in this Section that are listed and labeled.
   1. The Terms "Listed and Labeled": As defined in the National Electrical Code, Article 100.
   2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7.

1.5 SEQUENCING AND SCHEDULING

A. Coordinate electrical equipment installation with other trades.

B. Arrange for chases, slots, and openings in building structure during progress of construction to allow for electrical installations.

C. Coordinate installing required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.

   1. Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the WORK.

D. Coordinate connecting electrical systems with exterior underground utilities and services. Comply with requirements of governing regulations, utility requirements, and controlling agencies.

E. Coordinate installing electrical identification after completion of finishing where identification is applied to field-finished surfaces.

PART 2 - PRODUCTS

2.1 SUPPORTING DEVICES

A. Channel and angle support systems, hangers, anchors, sleeves, brackets, fabricated items, and fasteners are designed to provide secure support from the building structure for electrical components.

   1. Material: Steel, except as otherwise indicated, protected from corrosion with zinc coating or with treatment of equivalent corrosion resistance using approved alternative finish or inherent material characteristics.
   2. Metal Items for Use Outdoors or in Damp Locations: Hot-dip galvanized steel, or type 316L stainless steel, except as otherwise indicated.

B. Steel channel supports have 9/16-inch (14-mm) diameter holes at a maximum of 8 inches (203 mm) o.c., in at least 1 surface.

   1. Fittings and accessories mate and match with channels and are from the same manufacturer.

C. Nonmetallic Channel and Angle Systems: Structural-grade, factory-formed, fiberglass-resin channels and angles with 9/16-inch (14-mm) diameter holes at a maximum of 8 inches (203 mm) o.c., in at least 1 surface.

1. Fittings and accessories mate and match with channels or angles and are from the same manufacturer.
2. Fitting and Accessory Material: Same as channels and angles, except metal items may be stainless steel.

D. Raceway and Cable Supports: Manufactured clevis hangers, riser clamps, straps, threaded C-clamps with retainers, ceiling trapeze hangers, wall brackets, and spring steel clamps or "click"- type hangers.

E. Sheet-Metal Sleeves: 0.0276-inch (0.7-mm) or heavier galvanized sheet steel, round tube, closed with welded longitudinal joint.

F. Pipe Sleeves: ASTM A 53, Type E, Grade A, Schedule 40, galvanized steel, plain ends.

G. Cable Supports for Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug for nonarmored electrical cables in riser conduits. Plugs have number and size of conductor gripping holes as required to suit individual risers. Body constructed of malleable iron casting with hot-dip galvanized finish.

H. Expansion Anchors: Red Head, Hilti, or equal. Stainless steel.

I. Toggle Bolts: All-steel springhead type.

J. Powder-Driven Threaded Studs: Heat-treated steel.

2.2 ELECTRICAL IDENTIFICATION

A. Manufacturer's Standard Products: Where more than one type is listed for a specified application, selection is Installer's option, but provide single type for each application category. Use colors prescribed by ANSI A13.1, NFPA 70, and these Specifications.

B. Raceway and Cable Labels: Conform to ANSI A13.1, Table 3, for minimum size of letters for legend and minimum length of color field for each raceway or cable size.

1. Type: Preprinted, flexible, self-adhesive, vinyl. Legend is over laminated with a clear, weather- and chemical-resistant coating.
2. Color: Black legend on orange field.
3. Legend: Indicates voltage.

C. Colored Adhesive Marking Tape for Raceways, Wires, and Cables: Self-adhesive vinyl tape not less than 3 mils thick by 1-inch-wide (0.08 mm thick by 25 mm wide).

D. Underground Line Warning Tape: Permanent, detectable, bright-colored, continuous-printed, vinyl tape with the following features:
1. Size: Not less than 4 mils thick by 6 inches wide (0.102 mm thick by 152 mm wide).

a. Compounded for permanent direct-burial service.
b. Not less than 6 inches wide by 4 mils thick.
c. Embedded continuous metallic strip or core (detectable)
d. Printed legend that indicates type of underground line.

E. Tape Markers: Vinyl or vinyl-cloth, self-adhesive, wraparound type with preprinted numbers and letters.

F. Color-Coding Cable Ties: Type 6/6 nylon, self-locking type. Colors to suit coding scheme.

G. Engraved, Plastic-Laminated Labels, Signs, and Instruction Plates: Engraving stock, melamine plastic laminate punched for mechanical fasteners 1/16-inch (1.6-mm) minimum thick for signs up to 20 sq. in. (129 sq. cm), 1/8 inch (3.2 mm) thick for larger sizes. Engraved legend in black letters on white face.

H. Fasteners for Plastic-Laminated and Metal Signs: Self-tapping stainless-steel screws or No. 10/32 stainless-steel machine screws with nuts and flat and lock washers.

2.3 TOUCHUP PAINT

A. For Equipment: Provided by equipment manufacturer and selected to match equipment finish.

B. For Nonequipment Surfaces: Matching type and color of undamaged, existing adjacent finish.

C. For Galvanized Surfaces: Zinc-rich paint recommended by item manufacturer.

PART 3 - EXECUTION

3.1 EQUIPMENT INSTALLATION REQUIREMENTS

A. Install components and equipment to provide the maximum possible headroom where mounting heights or other location criteria are not indicated.

B. Install items level, plumb, and parallel and perpendicular to other building systems and components, except where otherwise indicated.

C. Install equipment to facilitate service, maintenance, and repair or replacement of components. Connect for ease of disconnecting, with minimum interference with other installations.

D. Give right of way to raceways and piping systems installed at a required slope.

3.2 ELECTRICAL SUPPORTING METHODS

A. Damp Locations and Outdoors: Hot-dip galvanized materials or nonmetallic, U-channel system components. Consider the exterior of the building a damp location.

B. Support Clamps for PVC Raceways: Click-type clamp system.

C. Conform to manufacturer's recommendations for selecting supports.

D. Strength of Supports: Adequate to carry all present and future loads, times a safety factor of at least 4; 200-lb- (90-kg-) minimum design load.

3.3 INSTALLATION

A. Install devices to securely and permanently fasten and support electrical components.

B. Raceway Supports: Comply with NFPA 70 and the following requirements:

1. Conform to manufacturer's recommendations for selecting and installing supports.
2. Install individual and multiple raceway hangers and riser clamps to support raceways. Provide U bolts, clamps, attachments, and other hardware necessary for hanger assembly and for securing hanger rods and conduits.
3. Support parallel runs of horizontal raceways together on trapeze- or bracket-type hangers.
4. Spare Capacity: Size supports for multiple conduits so capacity can be increased by a 25 percent minimum in the future.
5. Support individual horizontal raceways with separate, malleable iron pipe hangers or clamps.
6. Hanger Rods: 1/4-inch (6-mm) diameter or larger threaded steel, except as otherwise indicated.
7. Spring Steel Fasteners: Specifically designed for supporting single conduits or tubing. May be used in lieu of malleable iron hangers for 1-1/2-inch (38-mm) and smaller raceways serving lighting and receptacle branch circuits above suspended ceilings and for fastening raceways to channel and slotted angle supports.
8. In vertical runs, arrange support so the load produced by the weight of the raceway and the enclosed conductors is carried entirely by the conduit supports, with no weight load on raceway terminals.

C. Vertical Conductor Supports: Install simultaneously with conductors.

D. Miscellaneous Supports: Install metal channel racks for mounting cabinets, panelboards, disconnects, control enclosures, pull boxes, junction boxes, transformers, and other devices except where components are mounted directly to structural features of adequate strength.

E. Sleeves: Install for cable and raceway penetrations of concrete slabs and walls, except where core-drilled holes are used. Install for cable and raceway penetrations of masonry and fire-rated gypsum walls and of all other fire-rated floor and wall assemblies. Install sleeves during erection of concrete and masonry walls.

F. Fastening: Unless otherwise indicated, securely fasten electrical items and their supporting hardware to the building structure. Perform fastening according to the following:

1. Fasten by means of wood screws or screw-type nails on wood; toggle bolts on hollow masonry units; concrete inserts or expansion bolts on concrete or solid masonry; and by machine screws, welded threaded studs, or spring-tension clamps on steel.
2. Threaded studs driven by a powder charge and provided with lock washers and nuts may be used instead of expansion bolts, machine screws, or wood screws.
3. Drill holes in concrete beams so holes more than 1-1/2 inches (38 mm) deep do not cut main reinforcing bars.
4. Drill holes in concrete so holes more than 3/4 inch (19 mm) deep do not cut main reinforcing bars.
5. Fill and seal holes drilled in concrete and not used.
6. Select fasteners so the load applied to any fastener does not exceed 25 percent of the proof-test load.

G. Install identification devices where required.

1. Install labels where indicated and at locations for best convenience of viewing without interference with operation and maintenance of equipment.
2. Coordinate names, abbreviations, colors, and other designations used for electrical identification with corresponding designations indicated on the contract documents or required by codes and standards. Use consistent designations throughout the Project.
3. Self-Adhesive Identification Products: Clean surfaces of dust, loose material, and oily films before applying.
4. Tag or label all circuits in raceways and enclosures with other circuits. Tag with circuit numbers and source on all conduit. Identify source and circuit numbers in each cabinet, pull box, junction box, and outlet box. Color coding may be used for voltage and phase indication. For control wires that leave the control panel, tag with the terminal number in the control panel that feeds the wire. Add the terminal numbers labeling in the control panel and on the shop drawings and as-built drawings.
5. Identify Paths of Underground Electrical Lines: During trench backfilling, for exterior underground power, control, signal, and communication lines, install continuous, detectable underground plastic line marker located directly above power and communication lines. Locate 6 to 8 inches (150 to 200 mm) below finished grade. Where multiple lines installed in a common trench or concrete envelope do not exceed an overall width of 16 inches (400 mm), use a single line marker.
6. For panelboards, provide framed, typed circuit schedules with explicit description and identification of items controlled by each individual breaker.

H. Store all material and equipment in a dry, heated area until it is installed. Keep all material dry and if it has printed circuit boards or any other electronic components, keep it in a dry heated location after it is installed.

3.4 DEMOLITION

A. Where electrical WORK to remain is damaged or disturbed in the course of the WORK, remove damaged portions and install new products of equal capacity, quality, and functionality.

B. Keep all existing electrical systems on the project site fully operational during the course of the WORK

3.5 CUTTING AND PATCHING

A. Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces necessary for electrical installations. Perform cutting by skilled mechanics of the trades involved.

B. Repair disturbed surfaces to match adjacent undisturbed surfaces.

3.6 TOUCH-UP PAINTING

A. Thoroughly clean damaged areas and provide primer, intermediate, and finish coats to suit the degree of damage at each location.

B. Follow paint manufacturer's written instructions for surface preparation and for timing and application of successive coats.

END OF SECTION

Add the following Section:

SECTION 16120 – CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes building wires and cables and associated connectors, splices, and terminations for wiring systems rated 600 V and less.

1.3 SUBMITTALS

A. Catalog cut sheets for all products used.

1.4 QUALITY ASSURANCE

A. Listing and Labeling: Provide wires and cables specified in this Section that are listed and labeled.

1. The Terms "Listed" and "Labeled": As defined in NFPA 70, Article 100.
2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" as defined in OSHA Regulation 1910.7.

B. Comply with NFPA 70.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver wires and cables according to NEMA WC 26.

1.6 COORDINATION

A. Coordinate layout and installation of cables with other installations.

B. Revise locations and elevations from those indicated, as required to suit field conditions and as approved by ENGINEER.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the WORK include, but are not limited to, the following:

1. Wires and Cables:

a. American Insulated Wire Corp.; Leviton Manufacturing Co.
b. Carol Cable Co., Inc.
c. Southwire Company.

2. Connectors for Wires and Cables:

a. AMP Incorporated.
b. General Signal; O-Z/Gedney Unit.
c. Monogram Co.; AFC.
d. Square D Co.; Anderson.
e. 3M Company; Electrical Products Division.

2.2 BUILDING WIRES AND CABLES

A. UL-listed building wires and cables with conductor material, insulation type, cable construction, and rating as specified in Part 3 "Wire and Insulation Applications" Article.

B. Rubber Insulation Material: Comply with NEMA WC 3.

C. Thermoplastic Insulation Material: Comply with NEMA WC 5.

D. Cross-Linked Polyethylene Insulation Material: Comply with NEMA WC 7.

E. Ethylene Propylene Rubber Insulation Material: Comply with NEMA WC 8.

F. Conductor Material: Copper.

G. Stranding: Solid conductor for No. 10 AWG and smaller; stranded conductor for larger than No. 10 AWG. Provide stranded conductors on all equipment subject to vibration including circuits between the generator, load bank, and fixed equipment.

H. Fiber Optic Cable: Multi-mode (62.5/125 μm) as shown on the Drawings. See Section 16140 – Wiring Devices for fiber converters.

2.3 CONNECTORS AND SPLICES

A. UL-listed, factory-fabricated wiring connectors of size, ampacity rating, material, type, and class for application and service indicated. Comply with Project's installation requirements and as specified in Part 3 "Wire and Insulation Applications" Article.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine raceways and building finishes to receive wires and cables for compliance with requirements for installation tolerances and other conditions affecting performance of wires and cables. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 WIRE AND INSULATION APPLICATIONS

A. Underground: Type RHW or XHHW, in raceway.

B. Feeders: Type THWN, XHHW, in raceway.

C. Branch Circuits: Type THWN, XHHW, in raceway.

D. Class 1 Control Circuits: Type THWN, XHHW, in raceway.

E. Class 2 Control Circuits: Type THWN, XHHW, in raceway.

3.3 INSTALLATION

A. Install wires and cables as indicated, according to manufacturer's written instructions and NECA's "Standard of Installation."

B. Pull Conductors: Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

D. Support cables according to Division 16 Section 16050 - Basic Electrical Materials And Methods.

E. Identify wires and cables according to Division 16 Section 16050 - Basic Electrical Materials And Methods.

3.4 CONNECTIONS

A. Conductor Splices: Keep to minimum. In underground circuits, the only splices shall be in the electrical service equipment, panels, or wall mounted enclosures.

B. Install splices and taps that possess equivalent or better mechanical strength and insulation ratings than conductors being spliced.

C. Use splice and tap connectors compatible with conductor material.

D. Wiring at Outlets: Install conductors at each outlet, with at least 12 inches (300 mm) of slack.

E. Connect outlets and components to wiring and to ground as indicated and instructed by manufacturer.

F. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.5 FIELD QUALITY CONTROL

A. Testing: On installation of wires and cables and before electrical circuitry has been energized, demonstrate product capability and compliance with requirements.

1. Procedures: Perform each visual and mechanical inspection and electrical test stated in NETA ATS, Section 7.3.1. Certify compliance with test parameters.

B. Correct malfunctioning conductors and cables at Project site, where possible, and retest to demonstrate compliance; otherwise, remove and replace with new units and retest.

END OF SECTION

Add the following Section:

SECTION 16130 – RACEWAYS AND BOXES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.

1. Raceways include the following:

a. RMC.
b. IMC.
c. EMT.
d. FMC.
e. LFNC.
f. RNC.

2. Boxes, enclosures, and cabinets include the following:

a. Device boxes.
b. Outlet boxes.
c. Pull and junction boxes.
d. Cabinets and hinged-cover enclosures.

B. Related Sections include the following:

1. Section 16050 Basic Electrical Materials and Methods for raceways and box supports.
2. Section 16140 Wiring Devices for devices installed in boxes and for floor-box service fittings.

1.3 DEFINITIONS

A. EMT: Electrical metallic tubing.

B. FMC: Flexible metal conduit.

C. IMC: Intermediate metal conduit.

D. LFNC: Liquid tight flexible nonmetallic conduit.

E. RMC: Rigid metal conduit.

F. RNC: Rigid nonmetallic conduit.

1.4 SUBMITTALS

A. Product Data: For raceways and fittings, boxes, hinged-cover enclosures, and cabinets.

1.5 QUALITY ASSURANCE

A. Listing and Labeling: Provide raceways and boxes specified in this Section that are listed and labeled.

1. The Terms "Listed" and "Labeled": As defined in NFPA 70, Article 100.
2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" as defined in OSHA Regulation 1910.7.

B. Comply with NECA's "Standard of Installation."

C. Comply with NFPA 70.

1.6 COORDINATION

A. Coordinate layout and installation of raceways and boxes with other construction elements to ensure adequate headroom, working clearance, and access.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the WORK include, but are not limited to, the following:

1. Metal Conduit and Tubing:

a. Carol Cable Co., Inc.
b. Grinnell Co.; Allied Tube and Conduit Div.
c. Monogram Co.; AFC.
d. Triangle PWC, Inc.

2. Nonmetallic Conduit and Tubing:

a. Duraline.

3. Conduit Bodies and Fittings:

a. American Electric; Construction Materials Group.
b. Crouse-Hinds; Div. of Cooper Industries.
c. Emerson Electric Co.; Appleton Electric Co.
d. Hubbell, Inc.; Killark Electric Manufacturing Co.
e. Lamson & Sessions; Carlon Electrical Products.
f. O-Z/Gedney; Unit of General Signal.
g. ETCO Speciality Products, Inc.

4. Boxes, Enclosures, and Cabinets:

a. Butler Manufacturing Co.; Walker Division.
b. Crouse-Hinds; Div. of Cooper Industries.
c. Hoffman Engineering Co.; Federal-Hoffman, Inc.
d. O-Z/Gedney; Unit of General Signal.
e. Robroy Industries, Inc.; Electrical Division.
f. Thomas & Betts Corp.

2.2 METAL CONDUIT AND TUBING

A. Rigid Steel Conduit: ANSI C80.1.

B. IMC: ANSI C80.6.

C. EMT and Fittings: ANSI C80.3.

1. Fittings: Set-screw or compression type.

D. FMC: Zinc-coated steel.

E. Fittings: NEMA FB 1; compatible with conduit/tubing materials.

2.3 NONMETALLIC CONDUIT AND TUBING

A. RNC: Schedule 40 PVC per NEMA TC 2.

B. RNC Fittings: Use rigid steel elbows when using PVC conduit.

2.4 OUTLET AND DEVICE BOXES

A. Sheet Metal Boxes: NEMA OS 1.

B. Cast-Metal Boxes: NEMA FB 1, Type FD, cast box with gasketed cover.

C. Nonmetallic Boxes: NEMA OS 2.

2.5 PULL AND JUNCTION BOXES

A. Small Sheet Metal Boxes: NEMA OS 1.

B. Cast-Metal Boxes: NEMA FB 1, malleable iron with gasketed cover.

C. All boxes installed outside of the building interior shall be hot-dipped galvanized cast steel boxes.

2.6 ENCLOSURES AND CABINETS

A. Hinged-Cover Enclosures: NEMA 250, Type 1, with continuous hinge cover and flush latch.

1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.

B. Exterior: NEMA 4X. All enclosures and cabinets mounted outside shall be NEMA 4X 316 stainless steel, unless otherwise noted. Meter/Disconnect may be NEMA 3R stainless steel.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces to receive raceways, boxes, enclosures, and cabinets for compliance with installation tolerances and other conditions affecting performance of raceway installation. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 WIRING METHODS

A. Outdoors: Use the following wiring methods:

1. Exposed: Rigid steel.
2. Underground, Single Run: Rigid Steel.
3. Boxes and Enclosures: NEMA 250, Type 1, except as follows:

a. Damp or Wet Locations: NEMA 250, Type 4X, 316 stainless steel or hot-dipped galvanized steel (boxes only). All enclosures shall be stainless steel. Any box larger than 4”x4”x2” shall be considered to be an enclosure.

A. Outdoors: Use the following wiring methods:

1. Exposed: Rigid Steel under the concrete slab, up through the concrete slab to 12" above finished floor. EMT and FMC 12" above finished floor.

3.3 INSTALLATION

A. Install raceways, boxes, enclosures, and cabinets as indicated, according to manufacturer's written instructions.

B. Complete raceway installation before starting conductor installation.

C. Support raceways as specified in Division 16 Section 16050 Basic Electrical Material And Methods.

D. Use temporary closures to prevent foreign matter from entering raceways.

E. Protect stub-ups from damage where conduits rise through slabs. Arrange so curved portion of bends is not visible above the finished slab.

F. Make bends and offsets so ID is not reduced. Keep legs of bends in the same plane and straight legs of offsets parallel, unless otherwise indicated.

G. Use raceway fittings compatible with raceways and suitable for use and location. For intermediate steel conduit, use threaded rigid steel conduit fittings, unless otherwise indicated.

H. Install exposed raceways parallel to or at right angles to nearby surfaces or structural members, and follow the surface contours as much as practical.

1. Run parallel or banked raceways together, on common supports where practical.
2. Make bends in parallel or banked runs from same centerline to make bends parallel. Use factory elbows only where elbows can be installed parallel; otherwise, provide field bends for parallel raceways.

I. Join raceways with fittings designed and approved for the purpose and make joints tight.

1. Make raceway terminations tight. Use bonding bushings or wedges at connections subject to vibration. Use bonding jumpers where joints cannot be made tight.
2. Use insulating bushings to protect conductors.

J. Tighten set screws of threadless fittings with suitable tools.

K. Terminations: Where raceways are terminated with locknuts and bushings, align raceways to enter squarely and install locknuts with dished part against the box. Where terminations are not secure with 1 locknut, use 2 locknuts: 1 inside and 1 outside the box.

L. Where raceways are terminated with threaded hubs, screw raceways or fittings tightly into the hub so the end bears against the wire protection shoulder. Where chase nipples are used, align raceways so the coupling is square to the box and tighten the chase nipple so no threads are exposed.

M. Install pull wires in empty raceways. Use No. 14 AWG zinc-coated steel or monofilament plastic line with not less than 200-lb (90-kg) tensile strength. Leave at least 12 inches (300 mm) of slack at each end of the pull wire.

N. All raceways shall be offset to enter enclosures, panelboards, wireways, boxes, etc. perpendicular to the surface. All raceways shall exit from concrete slabs perpendicular to the slab. No slight angles shall be allowed.

O. Route conduit between devices inside generator building under the slab where possible. Conduit may be surface mounted inside generator building. Devices may be surface mounted.

3.4 PROTECTION

A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure coatings, finishes, and cabinets are without damage or deterioration at the time of Substantial Completion.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to paint finishes with matching touchup coating recommended by manufacturer.

3.5 CLEANING

A. On completion of installation, including outlet fittings and devices, inspect exposed finish. Remove burrs, dirt, and construction debris and repair damaged finish, including chips, scratches, and abrasions.

END OF SECTION

Add the following Section:

SECTION 16140 – WIRING DEVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes receptacles, connectors, switches, and finish plates.

1.3 SUBMITTALS

A. Product Data: For each product specified.

1.4 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.

B. Comply with NEMA WD 1.

C. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the WORK include, but are not limited to, the following:

1. Wiring Devices:

a. Bryant Electric, Inc.
b. GE Company; GE Wiring Devices.
c. Hubbell, Inc.; Wiring Devices Div.
d. Leviton Manufacturing Co., Inc.
e. Pass & Seymour/Legrand; Wiring Devices Div.

2.2 RECEPTACLES

A. Straight-Blade and Locking Receptacles: Heavy-Duty grade. 120 volt, 20 amp rated, min.

2.3 SWITCHES

A. Snap Switches: Heavy-duty, quiet type. 120 volt, 20 amp rated, min.

2.4 WALL PLATES

A. Single and combination types match corresponding wiring devices.

1. Galvanized steel.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install devices and assemblies plumb and secure.

B. Install wall plates when painting is complete.

C. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical, and grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.

D. Protect devices and assemblies during painting.

3.2 IDENTIFICATION

A. Comply with Section 16050 Basic Electrical Material and Methods.

1. Switches: Where three or more switches are ganged, and elsewhere as indicated, identify each switch with approved legend engraved on wall plate.
2. Receptacles: Identify panelboard and circuit number from which served. Use machine-printed, pressure-sensitive, abrasion-resistant label tape on face of plate and durable wire markers or tags within outlet boxes.

3.3 CONNECTIONS

A. Connect wiring device grounding terminal to branch-circuit equipment grounding conductor.

B. Tighten electrical connectors and terminals according to manufacturers published torque-tightening values. If manufacturers torque values are not indicated, use those specified in UL 486A and UL 486B.

3.4 FIELD QUALITY CONTROL

A. Test wiring devices for proper polarity and ground continuity. Operate each device at least six times.

B. Replace damaged or defective components.

3.5 CLEANING

A. Internally clean devices, device outlet boxes, and enclosures. Replace stained or improperly painted wall plates or devices.

END OF SECTION

Add the following Section:

SECTION 16232 – PORTABLE ENGINE GENERATORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and applicable sections of the Specifications apply to this Section.

1.2 SUMMARY

A. This Section includes packaged diesel-engine generator sets with the following features and accessories:

1. Battery charger.
2. Engine generator set.
3. Muffler.
4. Starting battery.
5. Internal silencer system.
6. Exterior Enclosure.
7. Sub base fuel tank.
8. Jacket coolant heater.
9. Battery Charger
10. Oil Heater
11. Battery Warmer
12. Trailer

The generator set shall be a “turn key” item assembled by one manufacturer complete with exterior enclosure and trailer and all additional equipment and requirements defined in the Plans and Specifications. Provide a 20 amp, 120V, 30’ cord with a 20 amp, twist lock plug to power the generator shore power connection for coolant heater, battery charger, oil heater, and battery warmer.

B. Related Sections include the following:

1. Division 16 Section 16415 "Transfer Switches" for transfer switches, including sensors and relays to initiate automatic-starting and -stopping signals for engine generator sets.

1.3 DEFINITIONS

A. Standby Rating: Power output rating equal to the power the generator set delivers continuously under loading as shown on the drawings.

B. Operational Bandwidth: The total variation from the lowest to highest value of a parameter over the range of conditions indicated, expressed as a percentage of the nominal value of the parameter.

C. Steady-State Voltage Modulation: The uniform cyclical variation of voltage within the operational bandwidth, expressed in Hertz or cycles per second.

1.4 SUBMITTALS

The power system has been designed to the specified manufacturer's electrical and physical characteristics. The equipment sizing, spacing, amounts, electrical wiring, ventilation equipment, fuel and exhaust components have all been sized and designed around the specified manufacturer. The specified manufacturer is Cummins Onan Corporation. Should any substitutions be made, the CONTRACTOR shall bear responsibility for the installation, coordination, and operation of the system as well as any engineering and redesign costs, which may result from such substitutions. Provide the following information on the packaged engine generator chosen:

A. Product Data: Include data on features, components, ratings, and performance. Include the following:

1. Dimensioned outline plan and elevation Drawings of engine generator set and other components specified.
2. Thermal damage curve for generator.
3. Time-current characteristic curves for generator protective device.
4. Weights of all equipment and components.
5. All accessories listed in summary, engine, alternator, trailer.

B. Shop Drawings: Indicate fabrication details, dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

1. Wiring Diagrams: Detail wiring for power and control connections and differentiate between factory-installed and field-installed wiring.

C. Qualification Data: For firms and persons specified in "Quality Assurance" Article.

D. Field Test and Observation Reports: Indicate and interpret test results and inspection records relative to compliance with performance requirements.

E. Certified summary of prototype-unit test report.

F. Certified Test Reports: For components and accessories that are equivalent, but not identical, to those tested on prototype unit.

G. Certified Summary of Performance Tests: Demonstrate compliance with specified requirement to meet performance criteria for sensitive loads.

H. Factory Test Reports: For units to be shipped for this Project, showing evidence of compliance with specified requirements.

I. Exhaust Emissions Test Report: To show compliance with applicable regulations.

J. Sound measurement test report.

K. Certification of Torsional Vibration Compatibility: Comply with NFPA 110.

L. Field test report of tests specified in Part 3.

M. Catalog cut sheets for all auxiliary components such as battery charger, control panel, exterior enclosure, etc.

N. Maintenance Data: For each packaged engine generator and accessories to include in maintenance manuals specified in Division 1. Include the following:

1. List of tools and replacement items recommended to be stored at the Project for ready access. Include part and drawing numbers, current unit prices, and source of supply.
2. Detail operating instructions for both normal and abnormal conditions.

O. Manufacturer's and dealer's written warranty.

QUALITY ASSURANCE

A. Manufacturer Qualifications: Maintains a service center capable of emergency maintenance and repairs at the Project with 24 hours' maximum response time. Manufacturer shall be ISO9001 certified.

B. Dealer Qualifications: The dealer shall maintain qualified factory trained service personnel.

C. Testing Agency Qualifications: Testing agency as defined by OSHA in 29 CFR 1910.7 or a member company of the International Electrical Testing Association and that is acceptable to authorities having jurisdiction.

D. Source Limitations: Obtain packaged engine generator and auxiliary components specified in this Section and the automatic transfer switch in specified in Section 16415 through one source from a single manufacturer.

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.

F. Comply with NFPA 70.

G. Engine Exhaust Emissions: Comply with applicable state and local government requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver engine generator set and system components to their final locations in protective wrappings, containers, and other protection that will exclude dirt and moisture and prevent damage from construction operations. Remove protection only after equipment is safe from such hazards. Keep generator in a dry, heated environment until it is accepted by the OWNER.

1.7 WARRANTY

A. General Warranty: Special warranty specified in this Article shall not deprive OWNER of other rights OWNER may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by CONTRACTOR under requirements of the Contract Documents.

B. Special Warranty: Written warranty, executed by manufacturer agreeing to repair or replace packaged engine generator and auxiliary components that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

1.8 MAINTENANCE SERVICE

A. Maintenance: At Substantial Completion, begin 12 months' full maintenance by skilled employees of the manufacturer's designated service organization. Include quarterly exercising to check for proper, starting and running under load. Include routine preventive maintenance as recommended by manufacturer and adjusting as required for proper operation. Maintenance agreements shall include parts and supplies as used in the manufacture and installation of original equipment, as well as generator parts and accessories, filters, recommended fluids, necessary labor, and travel expenses.

1.9 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Fuses: One for every ten of each type and rating, but not less than one of each.
2. Circuit Breakers: One for every ten of each type and rating, but not less than one of each type and rating.
3. Filters: One set each of lubricating oil, fuel, and combustion-air filters.

4. Two copies of the operations & maintenance (O&M) manuals for the generator and all accessories.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the WORK include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cummins Onan Corp; Industrial Business Group.
2. Kohler Co; Generator Division.
3. Caterpillar, Inc.; Engine Div.

2.2 ENGINE GENERATOR SET

A. Furnish a coordinated assembly of compatible components. Assembled and listed by one manufacturer.

B. 100KW standby, 90KW prime, 277/480V, 0.8 power factor, three phase, four wire, 60 Hz (with selector switch for other voltages) generator, diesel, US EPA Tier IV Final without requiring a diesel particulate filter (DPF) mounted to a subbase fuel tank which is mounted on a trailer. This shall be a portable generator with all options associated with a rental unit. It shall have all the features and functions necessary to be parked outside (temp ranges -20 to 90F) indefinitely as a standby power unit for a wastewater lift station with shore power plugged in at 120V, 20 amps. When a utility outage occurs, the automatic transfer switch will close a contact that shall be wired to the automatic side of the generator selector switch on the control panel. The generator shall start automatically and provide power to the automatic transfer switch in the same manner as a permanently mounted genset. When the utility power is restored, the automatic transfer switch will transfer back to utilty power and the generator shall commence an automatic shutdown procedure. If these features are not standard with the portable genset, then the manufacturer shall modify the genset with these features. If they are unwilling, the generator may not be modified by the contractor and may not be used for the project. A manufacturer that can provide a genset with the stated features shall be used.

C. Provide with electronic engine controls.

D. Output Connections: 4 position voltage selector switch (277/480V, or 139/240V, or 120/208V, three phase, or 120/240V single phase.

E. 12-lead reconnectable alternators fitted with voltage selection switch.

F. Permanent magnet excitation alternator.

G. Safety Standard: Comply with ASME B15.1.

H. Nameplates: Each major system component is equipped with a conspicuous nameplate of component manufacturer. Nameplate identifies manufacturer of origin and address, and model and serial number of item.

I. Rental Package enclosure with the following features:
   a. Camlock, barrel lugs, and bus bar distribution panel
   b. Sound attenuated, powder coated lockable enclosure.
   c. 24 hour fuel tank (75% Prime Rating) with leak detection sensor.
   d. Single wall fuel tank with 110% fluid containment basin including fuel and engine fluids.
   e. Roof mounted single point lift.
   f. Cooling system rated for 120 degrees F at 100% Standby ambient.
   g. Complete engine fluid containment reservoir.
   h. Shore power (15A/120V) – for coolant heater, battery charger, oil heater, and battery warmer.
   i. Conveniently located analog gauges and heated Human Machine Interface (HMI) display.
   j. Auxiliary Fuel and DEF connections.
   k. DOT approved electric brake trailer with heavy duty center mounted jack, ball or pintle hitch.
   l. Rental Operator oriented control interface including :
      i. Integrated microprocessor based generator set control system providing voltage regulation, engine protection, alternator protection, operator interface, and isochronous governing.
      ii. Simplified display for rental operators for ease of use.
      iii. Control function provides battery monitoring and testing features and smart starting control system.
      iv. Three phase sensing, full wave rectified voltage regulation, with a PWM output for stable operation with all load types.
      v. Prototype tested: UL, CSA, and CE compliant.
      vi. PC based service tool available for detailed diagnostics, setup, data logging and fault simulation.
      vii. Designed for reliable operation in harsh environment.
      viii. 320x240 pixels graphic LED backlight LCD, heated HMI with alpha numeric display with push buttons.

J. Limiting dimensions indicated for system components are not exceeded (16’ long x 7’ wide).

K. Power Output Ratings: Nominal ratings as indicated, with capacity as required to operate as a unit as evidenced by records of prototype testing.

L. Skid: Adequate strength and rigidity to maintain alignment of mounted components without depending on a concrete foundation. Skid is free from sharp edges and corners. Lifting attachments are arranged to facilitate lifting with slings without damaging any components. The unit shall be able to be removed from the trailer and set on a concrete pad for permanent operation if desired by the owner.

M. Digital Voltage Regulation with integrated digital electronic voltage regulator. Provide with three phase, 4 wire line to line sensing. Configurable torque matching.

2.3 GENERATOR-SET PERFORMANCE

A. Steady-State Voltage Operational Bandwidth: 4 percent of rated output voltage from no load to full load.

B. Steady-State Voltage Modulation Frequency: Less than 1 Hz.

C. Transient Voltage Performance: Not more than 15 percent variation for 50 percent step-load increase or decrease. Voltage recovers to remain within the steady-state operating band within three seconds.

D. Steady-State Frequency Operational Bandwidth: 0.5 percent of rated frequency from no load to full load.

E. Steady-State Frequency Stability: When system is operating at any constant load within rated load, there are no random speed variations outside the steady-state operational band and no hunting or surging of speed.

F. Transient Frequency Performance: Less than 5 percent variation for a 50 percent step-load increase or decrease. Frequency recovers to remain within the steady-state operating band within five seconds.

G. Output Waveform: At no load, harmonic content measured line to line or line to neutral does not exceed 5 percent total and 3 percent for single harmonics. The telephone influence factor, determined according to NEMA MG 1, shall not exceed 50.

H. Sustained Short-Circuit Current: For a three-phase, bolted short circuit at system output terminals, the system will supply a minimum of 250 percent of rated full-load current for not less than 10 seconds and then clear the fault automatically, without damage to any generator system component.

I. Start Time: Comply with NFPA 110, Type 10, system requirements.

2.4 SERVICE CONDITIONS

A. Environmental Conditions: Engine generator system withstands the following environmental conditions without mechanical or electrical damage or degradation of performance capability:

1. Ambient Temperature: -40 to +70 deg C.
2. Relative Humidity: 0 to 95 percent, 30 to 60 deg C.
3. Altitude: Sea level to 1000 feet (300 m).
4. IP22 protection
5. 5% salt spray, 48 hours, +38 deg C, 36.8V system voltage.
6. Shock: withstand 15G
7. Sinusoidal vibration 4.3G’s RMS, 24-1000Hz

2.5 ENGINE

A. General: Engine shall be diesel fueled, four cycle, water-cooled, while operating with nominal speed not exceeding 1800 RPM. The engine will utilize in-cylinder combustion technology.

B. Emissions: Engine shall comply with the State Emission regulations at the time of installation/commissioning. Actual engine emissions values must be in compliance with applicable EPA emissions standards per ISO 8178 - D2 Emissions Cycle at specified ekW / bHP rating. The in-cylinder engine technology must not permit unfiltered exhaust gas to be introduced into the combustion cylinder. Emissions requirements / certifications of this package: EPA TIER 3.

C. Comply with NFPA 37.

D. Fuel: Fuel oil, Grade DF-2.

E. Rated Engine Speed: 1800 rpm.

F. Maximum Piston Speed for Four-Cycle Engines: 2250 fpm (11.4 m/s).

G. Lubrication System: Pressurized by a positive-displacement pump driven from engine crankshaft. The following items are mounted on engine or skid:

1. Filter and Strainer: Rated to remove 90 percent of particles 5 micrometers and smaller while passing full flow.
2. Thermostatic Control Valve: Controls flow in system to maintain optimum oil temperature. Unit is capable of full flow and is designed to be fail-safe.
3. Crankcase Drain: Arranged for complete gravity drainage to an easily removable container with no disassembly and without use of pumps or siphons or special tools or appliances.

H. Engine Fuel System: Comply with NFPA 37. System includes the following:

1. Main Fuel Pump: Mounted on engine. Pump ensures adequate primary fuel flow under starting and load conditions.
2. Relief/Bypass Valve: Automatically regulates pressure in fuel line and returns excess fuel to source.
3. Two stage fuel filtration with particle and water separation.
4. High Pressure common rail fuel system.

I. Coolant Jacket Heater: Electric-immersion type, factory installed in coolant jacket system. Comply with NFPA 110 requirements for Level 1 equipment. Sized to insure that genset will start within the specified time period and ambient conditions. Powered from load center inside genset enclosure.

2.6 GOVERNOR

A. Type: Electronic governor providing isochronous frequency regulation within +/- 0.5% for any constant load between no load and full load. The regulator shall be a totally solid state design and environmentally sealed.

2.7 ENGINE COOLING SYSTEM

A. Description: Closed loop, liquid cooled, with radiator factory mounted on engine generator-set skid and integral engine-driven coolant pump.

B. Radiator: Rated for specified coolant.

C. Coolant: Solution of 50 percent ethylene-glycol-based antifreeze and 50 percent water, with anticorrosion additives as recommended by engine manufacturer.

D. Expansion Tank: Constructed of welded steel plate and equipped with gage glass and petcock.

E. Temperature Control: Self-contained, thermostatic-control valve modulates coolant flow automatically to maintain optimum constant coolant temperature as recommended by engine manufacturer.

F. Coolant Hose: Flexible assembly with inside surface of nonporous rubber and outer covering of aging-, ultraviolet-, and abrasion-resistant fabric.

1. Rating: 50-psig (345-kPa) maximum working pressure with 180 deg F (82 deg C) coolant, and noncollapsible under vacuum.
2. End Fittings: Flanges or steel pipe nipples with clamps to suit piping and equipment connections.

G. Provide a coolant heater powered from load center inside genset enclosure.

2.8 FUEL SUPPLY SYSTEM

A. Comply with NFPA 30 and NFPA 37.

B. Sub-base Mounted Fuel Oil Tank: Factory-installed and -piped, listed and labeled fuel oil tank. Features include the following:

1. Mechanical reading fuel level gauge.
2. Capacity: Fuel for twenty four hours' continuous operation at 100 percent rated power output.
3. Locking Fill cap.
4. Containment Provisions: Provide with double wall.
5. Tank shall be isolated from generator vibration.
6. Provide vent piping of black iron pipe with rust inhibiting paint. Provide a vent for the fuel tank to the outside adjacent to the generator.

7. Low fuel level alarm contacts and a fuel tank rupture alarm contact shall be provided.

C. The CONTRACTOR shall provide a full tank of diesel fuel for the completion of all testing.

D. Fuel system shall be integral with the engine. In addition to the standard fuel filters provided by the engine manufacturer, there shall also be installed a primary fuel filter/water separator in the fuel inlet line to the engine.

E. All fuel piping shall be black iron or flexible fuel hose rated for this service. No galvanized piping will be permitted. Flexible fuel lines shall be minimally rated for 300 deg F and 100 psi. Paint all piping with a rust resistant exterior paint. Prep per paint manufacturer's instructions and recommendations including etch, primer, etc.

2.9 COMBUSTION-AIR-INTAKE SYSTEM

A. Air-Intake Silencer: Critical grade silencer, filter type provides filtration as recommended by engine manufacturer.

1. Mounting: factory installed, internally mounted within generator enclosure, at a location readily accessible for service. Complete with companion flanges, and flexible stainless steel exhaust fitting properly sized per manufacturer recommendations.

2.10 GENERATOR ENCLOSURE

A. The complete diesel engine generator set, including generator control panel, critical grade silencer, exhaust pipe, engine starting batteries, battery charger, and fuel oil tank, shall be enclosed in a factory assembled, weather protective enclosure mounted on the fuel tank base. Provide intake and exhaust cooling air weather tight louvers with galvanized or stainless steel screens.

B. The generator enclosure shall be weather resistant, and vandal-resistant, made of steel with electrostatically applied powder coated baked polyester paint. It shall consist of a roof, side walls, and end walls. Fasteners shall be either zinc plated or stainless steel. Handles shall be key lockable, all doors keyed alike, and hinges shall be stainless steel. Access doors shall be hinged and can be lifted off after opening 90 degrees. Intake openings shall be screened to prevent the entrance of rodents, pests, and debris. Provide a min of 4 access doors. The dBA attenuation of the total unit shall be 72 dBA or less on an eight point average at 23 feet.

C. Lube oil and coolant drains shall be extended to the exterior of the enclosure and terminated with drain valves. Cooling fan and charging alternator shall be fully guarded to prevent injury.

2.11 STARTING SYSTEM

A. Description: DC electric starting system with positive engagement, motor voltage by manufacturer and including the following items:

1. Components: Sized so they will not be damaged during a full engine-cranking cycle with ambient temperature at maximum specified in "Environmental Conditions" Paragraph in "Service Conditions" Article above.
2. Cranking Motor: Heavy-duty unit that automatically engages and releases from engine flywheel without binding.
3. Cranking Cycle: 60 seconds.
4. Battery: A lead-acid storage battery set of the heavy-duty diesel starting type. Battery voltage compatible with starting system. Adequate capacity within ambient temperature range specified in "Environmental Conditions" Paragraph in "Service Conditions" Article above to provide specified cranking cycle at least three times without recharging.
5. Battery Cable: Size as recommended by generator set manufacturer for cable length indicated. Include required interconnecting conductors and connection accessories.
6. Battery-Charging Alternator: Factory mounted on engine with solid-state voltage regulation and 35-A minimum continuous rating.
7. Battery Charger: Current-limiting, automatic-equalizing and float-charging type. Unit complies with UL 1236 and includes the following features:

    a. Operation: Equalizing-charging rate of 10 A is initiated automatically after battery has lost charge until an adjustable equalizing voltage is achieved at battery terminals. Unit then automatically switches to a lower float-charging mode and continues operating in that mode until battery is discharged again.
    b. Automatic Temperature Compensation: Adjusts float and equalizes voltages for variations in ambient temperature from minus 40 deg C to plus 60 deg C to prevent overcharging at high temperatures and undercharging at low temperatures.
    c. Automatic Voltage Regulation: Maintains output voltage constant regardless of input voltage variations up to plus or minus 10 percent.
    d. Ammeter and Voltmeter: Flush mounted in door. Meters indicate charging rates.
    e. Safety Functions: Include sensing of abnormally low battery voltage arranged to close contacts providing low battery voltage indication on control and monitoring panel. Also include sensing of high battery voltage and loss of ac input or dc output of battery charger. Either condition closes contacts that provide a battery-charger malfunction indication at system control and monitoring panel.
    f. Enclosure and Mounting: Mount within genset enclosure per Manufacturer recommendations.

2.12 CONTROL AND MONITORING

Provide a fully solid-state, microprocessor based, generator set control. The control panel shall be designed and built by the engine manufacturer. The control shall provide all operating, monitoring, and control functions for the generator set as follows:

A. Functional Description: When the mode-selector switch on the control and monitoring panel is in the automatic position, remote-control contacts in an automatic transfer switch initiate starting and stopping of the generator set (this feature shall be provided, and will be used for this project). When the mode-selector switch is switched to the on position, the generator set manually starts. The off position of the same switch initiates generator-set shutdown. When the generator set is running, specified system or equipment failures or derangements automatically shut down the generator set and initiate alarms. Operation of a remote emergency-stop switch also shuts down the generator set. Mount the stop switch (NEMA 4X Corrosion Resistant with red mushroom head Square D Type K, Class 9001 in NEMA 4X enclosure) on the side of the generator that has the portable cord and plug. In the automatic mode, the generator shall have an adjustable cool down cycle that is initiated when the remote control contacts in the transfer switch open. The automatic cool down cycle feature shall be provided but won't be used for this project.

B. Configuration: Operating and safety indications, protective devices, basic system controls, and engine gauges are grouped on a common control and monitoring panel mounted on the generator set. Mounting method isolates the control panel from generator-set vibration.

C. Indicating and Protective Devices and Controls: Include the following:

1. AC voltmeter.
2. AC ammeter.
3. AC frequency meter.
4. DC voltmeter (alternator battery charging).
5. Engine-coolant temperature gage.
6. Engine lubricating-oil pressure gage.
7. Running-time meter.
8. Ammeter-voltmeter, phase-selector switch(es).
9. Generator-voltage adjusting rheostat.
10. H-O-A switch.
11. Overspeed shutdown device.
12. Coolant high-temperature shutdown device.
13. Coolant low-level shutdown device.
14. Oil low-pressure shutdown device.
15. Fuel tank high-level shutdown of fuel supply alarm.
16. Generator overload.
17. Fuel level gauge, Diesel Exhaust Fluid level gauge, and battery voltage gauge.

D. Supporting Items: Include sensors, transducers, terminals, relays, and other devices, and wiring required to support specified items. Locate sensors and other supporting items on engine, generator, or elsewhere as indicated. Where not indicated, locate to suit manufacturer's standard. Include the ability to operate six (6) programmable relay output signals, integral to the controller. The output relays shall be rated for 2A @ 30VDC.

E. Common Remote Strobe Light: Signal the occurrence of any events listed below without differentiating between event types. Locate weather proof strobe on the side of the generator. Add an integral, audible alarm to the control panel of the generator.

1. Engine high-temperature shutdown.
2. Lube-oil low-pressure shutdown.

3. Overspeed shutdown.
4. Engine high-temperature prealarm.
5. Lube-oil low-pressure prealarm.
6. Fuel tank low level.
7. Overcrank shutdown.
8. Coolant low-temperature alarm.
9. Coolant high-temperature alarm.
10. Loss of coolant shutdown.
11. Emergency stop depressed shutdown.
12. Control switch not in auto position.
13. Battery-charger malfunction alarm.
14. Battery low-voltage alarm.

2.13 GENERATOR OVERCURRENT AND FAULT PROTECTION

A. Generator Circuit Breaker: Molded-case, electronic-trip type; 100 percent rated; complying with UL 489.

1. Tripping Characteristic: Adjustable long-time and short-time delay and instantaneous.
2. Trip Rating: Matched to generator thermal damage curve as closely as possible.
3. Shunt Trip: Connected to trip breaker when generator set is shut down by other protective devices. See Plans for details.
4. Mounting: Breaker shall be housed in an extension terminal box which is isolated from vibrations induced by the generator set. Provide with mechanical type lugs, sized for the circuit breaker feeders shown on the drawings, shall be supplied on the load side of the breaker.
5. Provide generator circuit breaker with ground fault interruption capability.

2.14 GENERATOR, EXCITER, AND VOLTAGE REGULATOR

A. Comply with NEMA MG 1 and specified performance requirements.

B. Drive: Single bearing generator, generator shaft is directly connected to engine shaft. Exciter is rotated integrally with generator rotor.

C. Electrical Insulation: Class H.

D. Stator-Winding Leads: Brought out to terminal box to permit future reconnection for other voltages if required.

E. Construction prevents mechanical, electrical, and thermal damage due to vibration, overspeed up to 125 percent of rating, and heat during operation at 110 percent of rated capacity.

F. Excitation uses no slip or collector rings, or brushes, and is arranged to sustain generator output under short-circuit conditions as specified.

G. Enclosure: Drip proof, self-ventilated.

H. Instrument Transformers: Mounted within generator enclosure.

I. Voltage Regulator: Solid-state type, separate from exciter, providing performance as specified.

1. Adjusting rheostat on control and monitoring panel provides plus or minus 5 percent adjustment of output- voltage operating band.

J. Strip Heater: Thermostatically controlled unit arranged to maintain stator windings above dew point.

K. Windings: Two-thirds pitch stator winding and fully linked amortisseur winding.

L. Subtransient Reactance: 12 percent, maximum.

2.15 FINISHES

A. Outdoor Enclosures and Components: heavy gauge aluminized steel.

B. Generator Enclosure: All surfaces thoroughly cleaned prior to coatings. Manufacturer's standard enamel over corrosion-resistant pretreatment and compatible standard primer. Manufacturer's standard color.

2.16 SOURCE QUALITY CONTROL

A. Factory Tests: Include prototype testing.

B. Prototype Testing: Performed on a separate engine generator set using same engine model, constructed of identical or equivalent components and equipped with identical or equivalent accessories.

1. Generator Tests: Comply with IEEE 115.
2. Components and Accessories: Items furnished with installed unit that are not identical to those on tested prototype have been tested to demonstrate compatibility and reliability.

C. Project-Specific Equipment Tests: Factory test engine generator set and other system components and accessories before shipment. Perform tests at rated load and power factor. Include the following tests.

1. Full load run.
2. Maximum power.
3. Voltage regulation.
4. Transient and steady-state governing.
5. Single-step load pickup.
6. Safety shutdown.

D. Report factory test results within 10 days of completion of test.

2.17 TRAILER

A. Provide a commercial grade, street/highway legal, hot dipped galvanized trailer with tail lights, turn lights, side running lights, and electric brakes. Provide with a standard trailer electrical harness for connection to a vehicle. Trailer shall be designed for 150% of the generator package dead load plus applicable live loads for street/highway legal trailers. If no standard exists, assume a live load of five times the dead load.

B. Provide the trailer and generator combination licensed in the State of Alaska to the OWNER. Pay all registration and licensing fees.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas, equipment foundations, and conditions, with Installer present, for compliance with requirements for installation and other conditions affecting packaged engine generator performance.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 INSTALLATION

A. Comply with packaged engine generator manufacturers' written installation and alignment instructions, and with codes for optional standby power systems.

B. Install packaged engine generator to provide access for periodic maintenance, including removal of drivers and accessories.

3.4 CONNECTIONS

A. Provide a portable cable per the plans for the power and shore power connection. Provide all materials and labor necessary to connect to the generator.

3.5 IDENTIFICATION

A. Identify system components according to Division 16 Section 16050 "Basic Electrical Materials and Methods."

3.6 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including piping and electrical connections, and to assist in testing. Report results in writing.

B. Testing: Perform field quality-control testing under the supervision of the manufacturer's factory-authorized service representative.

C. Tests: Include the following:

1. Tests recommended by manufacturer.
2. Perform tests required by code for optional standby generators that are additional to those specified here including, but not limited to, the following:

    a. Single-step full-load pickup test.
    b. Simulated utility outage via opening service disconnect.

3. Battery Tests: Measure charging voltage and voltages between available battery terminals for full-charging and float-charging conditions. Check electrolyte level and specific gravity under both conditions. Test for contact integrity of all connectors. Perform an integrity load test and a capacity load test for the battery. Verify acceptance of charge for each element of battery after discharge. Verify measurements are within manufacturer's Specifications.
4. Battery-Charger Tests: Verify specified rates of charge for both equalizing and float-charging conditions.
5. System Integrity Tests: Methodically verify proper installation, connection, and integrity of each element of engine generator system before and during system operation. Check for air, exhaust, and fluid leaks.
7. Voltage and Frequency Transient Stability Tests: Use recording oscilloscope to measure voltage and frequency transients for 50 and 100 percent step-load increases and decreases, and verify that performance is as specified.
8. Harmonic-Content Tests: Measure harmonic content of output voltage under 25 percent and at 100 percent of rated linear load. Verify that harmonic content is within specified limits.

9. Provide a portable load bank for the testing. Remove after testing.

F. Coordinate tests with tests for transfer switches and run them concurrently.

G. Retest: Correct deficiencies identified by tests and observations and retest until specified requirements are met.

H. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation resistances, time delays, and other values and observations. Attach a label or tag to each tested component indicating satisfactory completion of tests.

I. Test instruments shall have been calibrated within the last 12 months, traceable to standards of the National Institute for Standards and Technology, and adequate for making positive observation of test results. Make calibration records available for examination on request.

A. Replace all blown fuses and any none functioning devices prior to completion of the project.

3.8 CLEANING

A. On completion of installation, inspect system components. Remove paint splatters and other spots, dirt, and debris. Repair damaged finish to match original finish. Clean components internally using methods and materials recommended by manufacturer.

3.9 DEMONSTRATION

A. Engage a factory-authorized service representative to train OWNER's maintenance personnel to adjust, operate, and maintain packaged engine generators as specified below:

1. Train OWNER's maintenance personnel on procedures and schedules for starting and stopping, using all features and functions of the equipment, and troubleshooting, servicing, and maintaining equipment.
2. Review data in maintenance manuals.
3. Schedule training with OWNER, through ENGINEER, with at least seven days' advance notice.
4. Minimum Instruction Period: two hours.

END OF SECTION

Add the following Section:

SECTION 16411 – POWER FACTOR CORRECTION CAPACITORS

PART 1- GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes non-automatic power-factor-correction units and equipment for low-voltage circuits and equipment.

1.3 SYSTEM DESCRIPTION

A. Power-factor-correction capacitors for low-voltage electrical systems with inductive motor loads.

1.4 SUBMITTALS

A. Product Data: For each type of product specified. Include data on features, components, ratings, and performance. Include dimensioned plan and elevation views of enclosures and details of control panels. Show access and workspace requirements.

B. Shop Drawings: From manufacturer detailing equipment assemblies and indicating dimensions, weights, loadings, required clearances, method field assembly, components, and location and size of each field connection.

C. Wiring Diagrams: Detail internal and interconnecting wiring and differentiate between manufacturer installed and field-installed wiring.

D. Factory Test Reports: Evidence of product's compliance with specified requirements.

E. Field Test Reports: Indicate and interpret test results for compliance with performance requirements for tests specified in PART 3 – EXECUTION.

F. Maintenance Data: For equipment to include in the maintenance manuals specified in Division 1. Include the following:

1. Lists of spare parts and replacement components recommended for storage at the Project site for ready access.

2. Detailed operating instructions covering operation under both normal and abnormal conditions.

G. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

A. Listing and Labeling: Provide electrically operated equipment specified in this Section that is listed and labeled.

1. The Terms "Listed" and "Labeled": As defined in the National Electrical Code, Article 100.

2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" as defined in OSHA Regulation 1910.7.

B. Comply with NFPA 70.

C. Comply with NEMA CP 1 and IEEE 18.

1.6 WARRANTY

A. General Warranty: The special warranty specified in this Article shall not deprive the OWNER of other rights the OWNER may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the CONTRACTOR under requirements of the Contract Documents.

B. Special Warranty: A written warranty, executed by manufacturer, agreeing to repair or replace components of power factor correction capacitors that fail in materials or workmanship within the specified warranty period.

1. Warranty Period: 3 years from date of Substantial Completion.

PART 2- PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. ABB Power T&D Co., Inc.

2. Aerovox, Inc.

3. General Electric Co.

4. Square D Co.

2.2 CAPACITORS, GENERAL

A. Construction: Multiple capacitor cells or elements factor wired in 3-phase groups and mounted in metal enclosures.

B. Capacitor Cells: Dry metalized-dielectric with no liquid dielectrics.

C. Cell Rupture Protection: Pressure-sensitive interrupter for each cell.

D. Enclosure: NEMA 250, steel or aluminum, arranged to contain the fluid leakage from capacitor cells. Factory equip with mounting brackets suitable for type of mounting indicated. Enclosure types are as follows:

1. Outdoor enclosures: NEMA 250, Type 3R, equipped with watertight conduit connections.

2.3 FIXED CAPACITORS

A. Description: Integrally fused, unless otherwise indicated, with quantities, ratings, mounting provisions, and electrical connections as indicated.

B. Discharge Resistors: Factory installed and wired. Resistors may be omitted if permitted by NFPA 70.

C. Internal Wiring: Factory wired, ready for field connection to external circuits at a single set of pressure terminals.

D. Provide with blown fuse indicators.

2.4 FACTORY FINISH

A. Manufacturer's standard enamel over corrosion-resistant treatment or primer coat.

2.5 SOURCE QUALITY CONTROL

A. Factory test power-factor-correction equipment before shipment. Comply with NEMA CP 1. Include the following:

1. Routine capacitor production tests, including short-time overvoltage, capacitance, leak, and dissipation-factor tests.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Maintain minimum workspace according to manufacturer's written instructions. Mount inside or outside of the pump control panel in their own enclosures.

3.2 IDENTIFICATION

A. Identify components according to Division 16 Section Basic Electrical Materials and Methods.

3.3 FIELD QUALITY CONTROL

A. Inspections and tests: Inspect and test component features, functions, operations, and protective devices according to manufacturer's written instructions and NETA ATS.

B. Retest: Correct deficiencies identified by tests and observations and retest until specified requirements are met.

C. Adjust system for optimum automatic power-factor correction.

3.4 CLEANING

A. On completion of installation, inspect system components. Remove paint splatters and other spots, dirt, and debris. Touch up scratches and mars of finish to match original finish. Clean components internally using methods and materials recommended by manufacturer.

END OF SECTION

Add the following Section:

SECTION 16415 – TRANSFER SWITCH

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and applicable sections of the Specifications apply to this Section.

1.2 SUMMARY

A. This Section includes transfer switches rated 600 V and less, including the following:

1. Automatic transfer switch.

1.3 SUBMITTALS

A. Product Data: Include ratings and dimensioned plans, sections, and elevations showing minimum clearances, conductor entry provisions, gutter space, installed features and devices, and material lists for each switch specified.

B. Wiring Diagrams: Detail wiring for transfer switches and differentiate between manufacturer-installed and field-installed wiring. Show both power and control wiring.

C. Single-Line Diagram: Show connections between transfer switch, bypass/isolation switch, power sources, and load; and show interlocking provisions for each combined transfer switch and bypass/isolation switch.

D. Product Certificates: Signed by manufacturer certifying that products furnished comply with requirements and that switches have been tested for load ratings and short-circuit closing and withstand ratings applicable to units for Project.

E. Qualification Data: For firms and persons specified in "Quality Assurance" Article.

F. Field Test Reports: Indicate and interpret test and inspection results for compliance with performance requirements.

G. Maintenance Data: For each type of product to include in maintenance manuals. Include all features and operating sequences, both automatic and manual. List all factory settings of relays and provide relay-setting and calibration instructions, including software, where applicable.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Maintain a service center capable of providing emergency maintenance and repairs at Project site with an eight-hour maximum response time.

B. Testing Agency Qualifications: Testing agency as defined by OSHA in 29 CFR 1910.7 or a member company of the International Electrical Testing Association and that is acceptable to authorities having jurisdiction.

1. Testing Agency's Field Supervisor: Person currently certified by the International Electrical Testing Association or the National Institute for Certification in Engineering Technologies (Level 3 or higher), to supervise on-site testing specified in Part 3.

C. Source Limitations: Obtain automatic transfer switch, bypass/isolation switch, nonautomatic transfer switch, remote annunciators, and remote annunciator and control panels through one source from a single manufacturer.

D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, for emergency service under UL 1008, by a testing agency acceptable to authorities having jurisdiction.

E. Comply with NEMA ICS 1.

F. Comply with NFPA 70.

G. Comply with UL 1008, unless requirements of these Specifications are stricter.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the WORK include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Conventional Transfer Switches:

a. Same manufacturer as the generator

2.2 GENERAL TRANSFER-SWITCH PRODUCT REQUIREMENTS

A. Indicated Current Ratings: Apply as defined in UL 1008 for continuous loading and total system transfer, including tungsten filament lamp loads not exceeding 30 percent of switch ampere rating, unless otherwise indicated.

B. Tested Fault-Current Closing and Withstand Ratings: Adequate for duty imposed by protective devices at installation locations in Project under the fault conditions indicated, based on testing according to UL 1008.

1. Where Transfer Switch Includes Internal Fault-Current Protection: Rating of switch and trip unit combination exceeds indicated fault-current value at installation location.

C. Annunciation, Control, and Programming Interface Components: Devices at transfer switches for communicating with remote programming devices, annunciators, or annunciator and control panels have communications capability matched with remote device.

D. Solid-State Controls: Repetitive accuracy of all settings is plus or minus 2 percent or better over an operating temperature range of minus 20 to plus 70 deg C.

E. Resistance to Damage by Voltage Transients: Components meet or exceed voltage-surge withstand capability requirements when tested according to IEEE C62.41. Components meet or exceed voltage-impulse withstand test of NEMA ICS 1.

F. Neutral Terminal: Solid and fully rated, unless otherwise indicated.

G. Enclosures: NEMA 4X stainless steel.

H. Heater: Equip switches exposed to outdoor temperature and humidity conditions, and other units indicated, with an internal heater. Provide thermostat within enclosure to control heater.

I. Factory Wiring: Train and bundle factory wiring and label consistent with Shop Drawings, either by color code or by numbered or lettered wire and cable tape markers at terminations.

1. Designated Terminals: Pressure type suitable for types and sizes of field wiring indicated.
2. Power-Terminal Arrangement and Field-Wiring Space: Suitable for top, side, or bottom entrance of feeder conductors as indicated.
3. Control Wiring: Equipped with lugs suitable for connection to terminal strips.

J. Electrical Operation: Accomplish by a nonfused, momentarily energized solenoid or electric-motor-operated mechanism, mechanically and electrically interlocked in both directions.

K. Switch Characteristics: Designed for continuous-duty repetitive transfer of full-rated current between active power sources.

1. Limitation: Switches using molded-case switches or circuit breakers or insulated-case circuit-breaker components are not acceptable.
2. Switch Action: Double throw; mechanically held in both directions.
3. Contacts: Silver composition or silver alloy for load-current switching. Conventional automatic transfer-switch units rated 225 A and greater have separate arcing contacts.

2.3 AUTOMATIC TRANSFER SWITCHES

A. Comply with Level 1 equipment according to NFPA 110.

B. Switching Arrangement: Double-throw type, with a delay at neutral position pause or intermediate position stop during normal functioning.

C. Manual Switch Operation: Under load, with door closed and with either or both sources energized. Transfer time is the same as for electrical operation. Control circuit automatically disconnects from electrical operator during manual operation.

D. Manual Switch Operation: Unloaded. Control circuit automatically disconnects from electrical operator during manual operation.

E. Signal-before-Transfer Contacts: A set of normally open/normally closed dry contacts operates in advance of retransfer to normal source. Interval is adjustable from 1 to 30 seconds.

F. Transfer Switches Based on Molded-Case-Switch Components: Comply with NEMA AB 1, UL 489, and UL 869A.

E. Programmed Neutral Switch Position: Switch operator has a programmed neutral position arranged to provide a midpoint between the two working switch positions, with an intentional, time-controlled pause at midpoint during transfer. Pause is adjustable from 0.5 to 30 seconds minimum and factory set for 0.5 second, unless otherwise indicated. Time delay occurs for both transfer directions. Pause is disabled, unless both sources are live.

F. Microprocessor based control with digital display. Controls allow operator to enter settings and make adjustments to software enabled features easily and accurately. Accommodates up to eight event schedules.

G. Heavy Duty silver alloy contacts with multi-leaf arc chutes shall be rated for motor loads and total system transfer at switch rating. There shall be no requirement for routine maintenance. Continuous load current not to exceed 100% of switch rating.

H. Single plug harness connection and compatible terminal markings. Controls shall be door mounted and require no tools for programming. All controls are field programmable.

2.4 AUTOMATIC TRANSFER-SWITCH FEATURES

A. Under voltage Sensing for Each Phase of Normal Source: Senses low phase-to-ground voltage on each phase. Pickup voltage is adjustable from 85 to 100 percent of nominal, and dropout voltage is adjustable from 75 to 98 percent of pickup value. Factory set for pickup at 90 percent and dropout at 85 percent.

B. Time delay for override of normal-source voltage sensing delays transfer and engine start signals. Adjustable from zero to six seconds, and factory set for one second.

C. Voltage/Frequency Lockout Relay: Prevents premature transfer to generator set. Pickup voltage is adjustable from 85 to 100 percent of nominal. Factory set for pickup at 90 percent. Pickup frequency is adjustable from 90 to 100 percent of nominal. Factory set for pickup at 95 percent.

D. Time Delay for Retransfer to Normal Source: Adjustable from 0 to 30 minutes; factory set for 10 minutes. Provides automatic defeat of delay on loss of voltage or sustained under voltage of emergency source, provided normal supply has been restored.

E. Test Switch: Simulates normal-source failure.

F. Switch-Position Pilot Lights: Indicate source to which load is connected.

G. Source-Available Indicating Lights: Supervise sources via transfer-switch, normal- and emergency-source sensing circuits.

1. Normal Power Supervision: Green light with nameplate engraved "Normal Source Available."
2. Emergency Power Supervision: Red light with nameplate engraved "Emergency Source Available."

H. Unassigned Auxiliary Contacts: Two normally open single-pole, double-throw contacts for each switch position, rated 10 A at 240-V ac.

I. Transfer Override Switch: Overrides automatic retransfer control so automatic transfer switch will remain connected to emergency power source regardless of condition of normal source. Pilot light indicates override status.

J. Engine Starting Contacts: One isolated, normally closed and one isolated, normally open, rated 10 A at 32-V dc minimum.

K. Engine Shutdown Contacts: Time delay adjustable from zero to five minutes; factory set for five minutes. Initiates shutdown at remote engine-generator controls after retransfer of load to normal source.

L. Engine-Generator Exerciser: Solid-state, programmable-time switch starts engine-generator set and transfers load to it from normal source for a preset time, then retransfers and shuts down engine after a preset cool-down period. Initiates exercise cycle at preset intervals adjustable from 7 to 30 days. Running periods are adjustable from 10 to 30 minutes. Factory settings are for 7-day exercise cycle, 20-minute running period, and 5-minute cool-down period. Exerciser features include the following:

1. Exerciser Transfer Selector Switch: Permits selection of exercise with and without load transfer.
2. Push-button programming control with digital display of settings.
3. Integral battery operation of time switch when normal control power is not available.

2.5 FINISHES

A. Enclosures: Stainless Steel NEMA 4X.

2.6 SOURCE QUALITY CONTROL

A. Factory Test Components, Assembled Switches, and Associated Equipment: Ensure proper operation. Check transfer time and voltage, frequency, and time-delay settings for compliance with specified requirements. Perform dielectric strength test complying with NEMA ICS 1.

PART 3 - EXECUTION

3.1 APPLICATION

A. Three-Pole Switches: Provide a three-pole switch.

3.2 INSTALLATION

A. Wall-Mounted Switch: Surface mount on wall.

C. Identify components according to Division 16 Section "Basic Electrical Materials and Methods."

3.3 CONNECTIONS

A. Ground equipment as indicated and as required by NFPA 70.

3.4 FIELD QUALITY CONTROL

A. Testing: Test transfer-switch products by operating them in all modes. Perform tests recommended by manufacturer under the supervision of manufacturer's factory-authorized service representative. Correct deficiencies and report results in writing. Record adjustable relay settings.

B. Coordinate tests with tests of generator plant and run them concurrently.

C. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation and contact resistances and time delays. Attach a label or tag to each tested component indicating satisfactory completion of tests.

3.5 CLEANING

A. After completing equipment installation, inspect unit components. Remove paint splatters and other spots, dirt, and debris. Repair damaged finish to match original finish.

B. Clean equipment internally, on completion of installation, according to manufacturer's written instructions.

3.6 DEMONSTRATION

A. Engage a factory-authorized service representative to train OWNER's personnel to adjust, operate, and maintain transfer switches and related equipment as specified below:

1. Coordinate this training with that for generator equipment.
2. Train OWNER's maintenance personnel on procedures and schedules for starting and stopping, troubleshooting, servicing, and maintaining equipment.
3. Review data in maintenance manuals.
4. Schedule training with OWNER, through ENGINEER, with at least seven days' advance notice.
5. Provide a minimum of four hours of instruction.

END OF SECTION

Add the following Section:

SECTION 16452 - GROUNDING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes grounding of electrical systems and equipment and basic requirements for grounding for protection of life, equipment, circuits, and systems. Grounding requirements specified in this Section may be supplemented in other Sections of these Specifications.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Section 16120 Conductors and Cables.

1.3 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the contract and Division 1 Specification Sections.

B. Product Data for grounding rods, connectors and connection materials, and grounding fittings.

1.4 QUALITY ASSURANCE

A. Comply with NFPA 70.

B. Comply with UL 467.

C. Listing and Labeling: Provide products specified in this Section that are listed and labeled.

1. The Terms "Listed" and "Labeled": As defined in the National Electrical Code, Article 100.
2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the WORK include, but are not limited to, the following:

1. Ideal Industries, Inc.
2. Burndy
3. O-Z/Gedney Co.
4. Thomas & Betts, Electrical.

2.2 GROUNDING AND BONDING PRODUCTS

A. Governing Requirements: Where types, sizes, ratings, and quantities indicated are in excess of National Electrical Code (NEC) requirements, the more stringent requirements and the greater size, rating, and quantity indications govern.

2.3 WIRE AND CABLE GROUNDING CONDUCTORS

A. Comply with Section 16120 – Conductors and Cables. Conform to NEC Table 8, except as otherwise indicated, for conductor properties, including stranding.

1. Material: copper. Use only copper wire.

B. Equipment Grounding Conductors: Insulated with green color insulation.

C. Grounding-Electrode Conductors: Stranded cable.

D. Underground Conductors: Bare, tinned, stranded, except as otherwise indicated.

E. Bare Copper Conductors: Conform to the following:

1. Solid Conductors: ASTM B 3.

2.4 MISCELLANEOUS CONDUCTORS

A. Grounding Bus: Bare, annealed-copper bars of rectangular cross section.

B. Braided Bonding Jumpers: Copper tape, braided No. 30 AWG bare copper wire, terminated with copper ferrules.

D. Bonding Straps: Soft copper, 0.05 inch (1 mm) thick and 2 inches (50 mm) wide, except as indicated.

2.5 CONNECTOR PRODUCTS

A. Bolted Connections and other grounding connectors other than Exothermic-Welded Connections or Irreversible Grounding Connectors are not allowed.

B. Irreversible Grounding Connectors.

C. Exothermic-Welded Connections: Provided in kit form and selected per manufacturer's written instructions for specific types, sizes, and combinations of conductors and connected items.

2.6 GROUNDING ELECTRODES AND TEST WELLS

A. Grounding Rods: Sectional type; copper-clad steel.

1. Size: 3/4 inch by 120 inches (19 by 3000 mm).

PART 3 - EXECUTION

3.1 APPLICATION

A. Equipment Grounding Conductors: Comply with NEC Article 250 for types, sizes, and quantities of equipment grounding conductors, except where specific types, larger sizes, or more conductors than required by NEC are indicated.

1. Install equipment grounding conductor with circuit conductors for the items below in addition to those required by Code:

a. Feeders and branch circuits.
b. Lighting circuits.
c. Receptacle circuits.
d. Single-phase motor or appliance branch circuits.
e. Three-phase motor or appliance branch circuits.
f. Flexible raceway runs.
g. Armored and metal-clad cable runs.

2. Nonmetallic Raceways: Install an equipment grounding conductor in nonmetallic raceways unless they are designated for telephone or data cables.

B. Signal and Communication Systems: For telephone, alarm, voice and data, and other communication systems, provide a No. 4 AWG minimum insulated grounding conductor in raceway from grounding-electrode system to each service location, terminal cabinet, wiring closet (telephone terminal board), and central equipment location.

1. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a 1/4-by-2-by-12-inch (6-by-50-by-300-mm) grounding bus.
2. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.

C. Separately Derived Systems: Where NEC requires grounding, ground according to NEC Paragraph 250-26. Ground generator. Do not bond ground to neutral at generator.

3.2 INSTALLATION

A. General: Ground electrical systems and equipment according to NEC requirements, except where Drawings or Specifications exceed NEC requirements.

B. Grounding Rods: Locate a minimum of 1-rod length from each other and at least the same distance from any other grounding electrode.

1. Drive until tops are 2 inches (50 mm) below finished floor or final grade, except as otherwise indicated.
2. Interconnect with grounding-electrode conductors. Use exothermic welds, except at test wells and as otherwise indicated. Make these connections without damaging copper coating or exposing steel.

C. Grounding Conductors: Route along the shortest and straightest paths possible, except as otherwise indicated. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

D. Underground Grounding Conductors: Use bare copper wire. Bury at least 24 inches (600 mm) below grade.

E. Metal Water Service Pipe: Provide insulated copper grounding conductors, sized as indicated, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes by irreversible grounding connectors. Where a dielectric main water fitting is installed, connect grounding conductor to street side of fitting. Do not install a grounding jumper across dielectric fittings. Bond grounding-conductor conduit to conductor at each end.

F. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with irreversible grounding connectors.

G. Bond interior metal piping systems and metal air ducts to equipment grounding conductors of associated pumps, fans, blowers, electric heaters, and air cleaners. Use braided-type bonding straps.

3.3 CONNECTIONS

A. General: Make connections so possibility of galvanic action or electrolysis is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.

1. Use electroplated or hot-tin-coated materials to assure high conductivity and to make contact points closer in order of galvanic series.
2. Make connections with clean, bare metal at points of contact.
3. Make aluminum-to-steel connections with stainless-steel separators and mechanical clamps.
4. Make aluminum-to-galvanized steel connections with tin-plated copper jumpers and mechanical clamps.
5. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.

B. Exothermic-Welded Connections: Use for connections to structural steel and for underground connections, except those at test wells. Comply with manufacturer's written instructions. Welds that are puffed up or that show convex surfaces indicating improper cleaning are not acceptable.

C. Equipment Grounding-Wire Terminations: For No. 8 AWG and larger, use pressure-type grounding lugs. No. 10 AWG and smaller grounding conductors may be terminated with winged pressure-type connectors.

D. Noncontact Metal Raceway Terminations: Where metallic raceways terminate at metal housings without mechanical and electrical connection to housing, terminate each conduit with a grounding bushing. Connect grounding bushings with a bare grounding conductor to grounding bus or terminal in housing. Bond electrically noncontinuous conduits at both entrances and exits with grounding bushings and bare grounding conductors, except as otherwise indicated.

E. Tighten screws and bolts for grounding and bonding connectors and terminals according to manufacturer's published torque-tightening values. Where these requirements are not available, use those specified in UL 486A and UL 486B.

F. Compression-Type Connections: Use hydraulic compression tools to provide correct circumferential pressure for compression connectors. Use tools and dies recommended by manufacturer of connectors. Provide embossing die code or other standard method to make a visible indication that a connector has been adequately compressed on grounding conductor.

G. Moisture Protection: Where insulated grounding conductors are connected to grounding rods or grounding buses, insulate entire area of connection and seal against moisture penetration of insulation and cable.

3.4 FIELD QUALITY CONTROL

A. Tests: Subject the completed grounding system to a megger test at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, and at ground test wells. Measure ground resistance not less than 2 full days after the last trace of precipitation, and without the soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance. Perform tests by the 2-point method according to IEEE 81.

B. Maximum grounding to resistance values are as follows:

1. Equipment Rated 500 kVA and Less: 10 ohms.

C. Excessive Ground Resistance: Where resistance to ground exceeds specified values, notify OWNER promptly and include recommendations to reduce ground resistance and to accomplish recommended WORK.

D. Report: Prepare test reports of ground resistance at each test location. Include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.

3.5 ADJUSTING AND CLEANING

A. Restore surface features, including vegetation, at areas disturbed by WORK of this Section. Reestablish original grades, except as otherwise indicated. Where sod has been removed, replace it as soon as possible after backfilling is completed. Restore areas disturbed by trenching, storing of dirt, cable laying, and other activities to their original condition. Include topsoiling, fertilizing, liming, seeding, sodding, sprigging, and mulching. Maintain restored surfaces. Restore disturbed paving as indicated.

END OF SECTION

Add the following Section:

SECTION 16470 - PANELBOARDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes lighting and power panelboards and associated auxiliary equipment rated 600 V and less.

B. Related Sections include the following:

1. Division 16 Section 16050 – “Basic Electrical Materials and Methods” for general materials, installation, and labeling methods.

1.3 SUBMITTALS

A. Product Data: For each type of panelboard, accessory item, and component specified.

B. Panelboard Schedules: For installation in panelboards. Submit final versions after load balancing.

C. Maintenance Data: For panelboard components to include in the maintenance manuals specified in Division 1. Include manufacturer's written instructions for testing circuit breakers.

1.4 QUALITY ASSURANCE

A. Listing and Labeling: Provide products specified in this Section that are listed and labeled.

1. The Terms "Listed" and "Labeled": As defined in the National Electrical Code, Article 100.
2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" as defined in OSHA Regulation 1910.7.

B. Comply with NFPA 70.

C. Comply with NEMA PB 1.

1.5 EXTRA MATERIALS

A. Keys: 6 spares of each type for panelboard cabinet lock.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the WORK include, but are not limited to, the following:

1. Eaton Corp.; Westinghouse & Cutler-Hammer Products.
2. General Electric Co.; Electrical Distribution & Control Div.
3. Siemens Energy & Automation, Inc.
4. Square D Co.

2.2 PANELBOARD FABRICATION

A. Enclosures: Flush- or surface-mounted cabinets as indicated. NEMA PB 1, Type 1, unless otherwise indicated to meet environmental conditions at installed location.

1. Outdoor Locations: NEMA 250, Type 4X.
2. Other Wet or Damp Indoor Locations: NEMA 250, Type 4.

B. Front: Secured to box with concealed trim clamps, unless otherwise indicated. Front for surface-mounted panelboards shall be same dimensions as box. Fronts for flush panelboards shall overlap box, unless otherwise indicated.

C. Directory Frame: Metal, mounted inside each panelboard door.

D. Bus: Hard drawn copper of 98 percent conductivity.

E. Main and Neutral Lugs: Compression type.

F. Equipment Ground Bus: Adequate for feeder and branch-circuit equipment ground conductors. Bonded to box.

G. Service Equipment Approval: Listed for use as service equipment for MDP panelboard.

H. Future Devices: Equip with mounting brackets, bus connections, and necessary appurtenances, for the overcurrent protective device ampere ratings indicated for future installation of devices.

I. Provide amps interrupting rating of panelboard including all circuit breakers as shown on the plans.

2.3 BRANCH-CIRCUIT PANELBOARDS

A. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.

B. Doors: In panelboard front, with concealed hinges. Secure with flush catch and tumbler lock, all keyed alike.

2.4 DISTRIBUTION PANELBOARDS

A. Doors: In panelboard front, except omit in fusible-switch panelboard, unless otherwise indicated. Secure door with vault-type latch with tumbler lock, all keyed alike.

B. Branch-Circuit Breakers: Where overcurrent protective devices are indicated to be circuit breakers, use bolt-on circuit breakers, except circuit breakers 225-A frame size and greater may be plug-in type where individual positive-locking device requires mechanical release for removal.

2.5 OVERCURRENT PROTECTIVE DEVICES

A. Molded-Case Circuit Breaker: NEMA AB 1, handle lockable.

1. Characteristics: Frame size, trip rating, number of poles, and auxiliary devices as indicated and interrupting capacity rating to meet available fault current.
2. Application Listing: Appropriate for application, including Type SWD for switching fluorescent lighting loads and Type HACR for heating, air-conditioning, and refrigerating equipment.
3. Circuit Breakers, 200 A and Larger: Trip units interchangeable within frame size.
4. Circuit Breakers, 400 A and Larger: Field-adjustable short-time and continuous current settings.
5. Current-Limiting Trips: Where indicated, let-through ratings less than NEMA FU 1, Class RK-5.
6. Current Limiters: Where indicated, integral fuse listed for circuit breaker.
7. Lugs: Mechanical lugs and power-distribution connectors for number, size, and material of conductors indicated.
8. Shunt Trip: Where indicated. Provide a shunt trip circuit breaker for generator.

2.6 ACCESSORY COMPONENTS AND FEATURES

A. Accessory Set: Include tools and miscellaneous items as required for overcurrent protective device test, inspection, maintenance, and operation.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install panelboards and accessory items according to NEMA PB 1.1.

B. Mounting Heights: Top of trim 74 inches (1880 mm) above finished floor, unless otherwise indicated.

C. Mounting: Plumb and rigid without distortion of box. Mount flush panelboards uniformly flush with wall finish.

D. Circuit Directory: Type directory to indicate installed circuit loads after balancing panelboard loads. Obtain approval before installing.

E. Install filler plates in unused spaces.

F. Wiring in Panelboard Gutters: Arrange conductors into groups, and bundle and wrap with wire ties after completing load balancing.

3.2 IDENTIFICATION

A. Identify field-installed wiring and components and provide warning signs as specified in Division 16 Section 16050 – "Basic Electrical Materials And Methods".

B. Panelboard Nameplates: Label each panelboard with engraved laminated-plastic or metal nameplates mounted with corrosion-resistant screws.

3.3 GROUNDING

A. Make equipment grounding connections for panelboards as indicated.

3.4 CONNECTIONS

A. Tighten electrical connectors and terminals, including grounding connections, according to manufacturer's published torque-tightening values. Where manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.5 FIELD QUALITY CONTROL

A. Prepare for acceptance tests as follows:

1. Make insulation-resistance tests of each panelboard bus, component, and connecting supply, feeder, and control circuits.
2. Make continuity tests of each circuit.

B. Testing: After installing panelboards and after electrical circuitry has been energized, demonstrate product capability and compliance with requirements.

1. Procedures: Perform each visual and mechanical inspection and electrical test stated in NETA ATS, Section 7.5 for switches and Section 7.6 for molded-case circuit breakers. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, remove and replace with new units, and retest.

3.6 ADJUSTING

A. Set field-adjustable switches and circuit-breaker trip ranges as indicated.

3.7 CLEANING

A. On completion of installation, inspect interior and exterior of panelboards. Remove paint splatters and other spots, dirt, and debris. Touch up scratches and mars of finish to match original finish.

END OF SECTION

Add the following Section:

SECTION 16476 – DISCONNECT SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes individually mounted switches and circuit breakers used for the following:

1. Service disconnect switches.
2. Feeder and equipment disconnect switches.
3. Feeder branch-circuit protection.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Section 16140 Wiring Devices for attachment plugs and receptacles, and snap switches used for disconnect switches.

1.3 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the contract and Division 1 Specification Sections.

B. Product Data for disconnect switches, circuit breakers, and accessories specified in this Section.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain disconnect switches and circuit breakers from one source and by a single manufacturer.

B. Comply with NFPA 70 for components and installation.

C. Listing and Labeling: Provide disconnect switches and circuit breakers specified in this Section that are listed and labeled.

1. The Terms "Listed" and "Labeled": As defined in the National Electrical Code, Article 100.
2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering disconnect switches and circuit breakers that may be incorporated into the WORK include, but are not limited to, the following:

1. Molded-Case Circuit Breakers:
   a. American Circuit Breaker Corp.
   b. Eaton Corp.; Cutler-Hammer Products.
   c. General Electric Co.; Electrical Distribution and Control Division.
   d. Klockner-Moeller.
   e. Siemens Energy & Automation, Inc.
   f. Square D Co.
   g. Westinghouse Electric Corp.; Distribution & Control Business Unit.

2.2 DISCONNECT SWITCHES

A. Enclosed, Nonfusible Switch: NEMA KS 1, Type Heavy Duty (HD), with lockable handle.

B. Enclosed, Fusible Switch, 800 A and Smaller: NEMA KS 1, Type HD, clips to accommodate specified fuses, enclosure consistent with environment where located, handle lockable with padlock, and interlocked with cover in CLOSED position.

C. Enclosure: NEMA KS 1, Type 1, unless otherwise specified or required to meet environmental conditions of installed location.

1. Outdoor Locations: Type 4X.
2. Other Wet or Damp Indoor Locations: Type 4X

2.3 ENCLOSED CIRCUIT BREAKERS

A. Enclosed, Molded-Case Circuit Breaker: NEMA AB 1, with lockable handle.

B. Characteristics: Frame size, trip rating, number of poles, and auxiliary devices as indicated and interrupting rating to meet available fault current.

C. Application Listing: Appropriate for application, including switching fluorescent lighting loads or heating, air-conditioning, and refrigerating equipment.

D. Circuit Breakers, 200 A and Larger: Trip units interchangeable within frame size.

E. Circuit Breakers, 400 A and Larger: Field-adjustable, short-time and continuous-current settings.

F. Current-Limiting Trips: Provide fuse class and type as shown.

G. Current Limiters: Where indicated, integral fuse listed for circuit breaker.

H. Molded-Case Switch: Where indicated, molded-case circuit breaker without trip units.

I. Lugs: Mechanical lugs and power-distribution connectors for number, size, and material of conductors indicated.

J. Accessories: As indicated.

K. Enclosure: NEMA AB 1, Type 1, unless otherwise specified or required to meet environmental conditions of installed location.

1. Outdoor Locations: Type 4X.
2. Other Wet or Damp Indoor Locations: Type 4X.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install disconnect switches and circuit breakers in locations as indicated, according to manufacturer's written instructions.

B. Install disconnect switches and circuit breakers level and plumb.

C. Install wiring between disconnect switches, circuit breakers, control, and indication devices.

D. Connect disconnect switches and circuit breakers and components to wiring system and to ground as indicated and instructed by manufacturer.

1. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. Where manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

E. Identify each disconnect switch and circuit breaker according to requirements specified in Division 16 Section 16050 – "Basic Electrical Materials And Methods".

3.2 FIELD QUALITY CONTROL

A. Testing: After installing disconnect switches and circuit breakers and after electrical circuitry has been energized, demonstrate product capability and compliance with requirements.

1. Procedures: Perform each visual and mechanical inspection and electrical test stated in NETA ATS, Section 7.5 for disconnect switches and Section 7.6 for molded-case circuit breakers.

B. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, remove and replace with new units and retest.

3.3 ADJUSTING

A. Set field-adjustable disconnect switches and circuit-breaker trip ranges as indicated.

3.4 CLEANING

A. After completing system installation, including outlet fittings and devices, inspect exposed finish. Remove burrs, dirt, and construction debris and repair damaged finish including chips, scratches, and abrasions.

END OF SECTION

Add the following Section:

SECTION 16478 – TRANSIENT VOLTAGE SUPPRESSION

PART 1- GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes transient voltage surge suppressors for low-voltage circuits and equipment.

1.3 SYSTEM DESCRIPTION

A. Transient voltage suppression for low-voltage distribution systems, with suppressors located at each major bus, including service entrances, feeders, and branch-circuit distribution equipment.

B. System Exposure: IEEE C62.41, medium.

1.4 SUBMITTALS

A. Product Data: Include rated capacities; shipping, installed, and operating weights; furnished specialties; and accessories for each model indicated.

B. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.

C. Maintenance Data: For transient voltage surge suppressors to include in the maintenance manuals specified in Division 1.

D. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

A. Listing and Labeling: Provide electrically operated equipment specified in this Section that is listed and labeled.

1. The Terms "Listed" and "Labeled": As defined in the National Electrical Code, Article 100.
2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" as defined in OSHA Regulation 1910.7.

B. Comply with NFPA 70.

1.6 WARRANTY

A. General Warranty: The special warranty specified in this Article shall not deprive the OWNER of other rights the OWNER may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the CONTRACTOR under requirements of the Contract Documents.

B. Special Warranty: A written warranty, executed by manufacturer, agreeing to repair or replace components of transient voltage surge suppressors that fail in materials or workmanship within the specified warranty period.

1. Warranty Period: 3 years from date of Substantial Completion.

PART 2- PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Liebert, Inc.
2. Transtector Systems, Inc.
3. Leviton, Inc.

2.2 TRANSIENT VOLTAGE SURGE SUPPRESSORS

A. Functional Description: Solid-state, 2-stage, transient voltage surge suppressors employing no series-connected suppression components.

1. Primary Suppression: Employs metal oxide varistor suppression modules or silicon avalanche diode suppression modules.
2. Secondary Suppression: Employs metal oxide varistor suppression modules.
3. Fuses in each suppression-module circuit prevent damage to suppressor during failure of any module.

B. Overall Ratings: As indicated and as required to comply with location categories according to NEMA LS 1.

C. Maximum Continuous Operating Voltage: At least 115 percent of nominal system operating voltage.

D. Connection Means: Permanently wired.

E. Protection Modes: Include the following:

1. Line-to-neutral.
2. Line-to-line.
3. Line-to-ground.
4. Neutral-to-ground.

F. Service Conditions: Include the following:

1. Operating Temperature: 30 to 120 deg F.
2. Humidity: 0 to 85 percent, noncondensing.

3. Altitude: Less than 20,000 feet above sea level.

G. Enclosure: NEMA 250, Type 1.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine conditions for compliance with requirements for installation tolerances, power characteristics, and other conditions affecting performance of transient voltage surge suppressors. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 CONNECTIONS

A. Connect transient voltage suppression circuit in line-to-neutral configuration if a neutral conductor is available.

B. Ground each transient voltage surge suppressor enclosure.

1. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. Where manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.3 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Supervision of the field assembly of components and installation of transient voltage surge suppressors, including electrical connections, by a factory-authorized service representative. Report results in writing.

END OF SECTION

Add the following Section:

SECTION 16481 – MOTOR CONTROLLERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes ac motor-control devices rated 600 V and less that are supplied as enclosed units.

B. Related Sections include the following:

1. Section 16050 Basic Electrical Materials and Methods for general materials and installation methods.

1.3 SUBMITTALS

A. Product Data: For products specified in this Section. Include dimensions, ratings, and data on features and components.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain similar motor-control devices through one source from a single manufacturer.

B. Comply with NFPA 70.

C. Listing and Labeling: Provide motor controllers specified in this Section that are listed and labeled.

1. The Terms "Listed" and "Labeled": As defined in the National Electrical Code, Article 100.
2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" as defined in OSHA Regulation 1910.7.

1.5 COORDINATION

A. Coordinate features of controllers and accessory devices with pilot devices and control circuits to which they connect.

B. Coordinate features, accessories, and functions of each motor controller with the ratings and characteristics of the supply circuit, the motor, the required control sequence, and the duty cycle of the motor and load.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the WORK include, but are not limited to, the following:

1. ABB Power Distribution, Inc.; ABB Control, Inc. Subsidiary.
2. Allen-Bradley Co.; Industrial Control Group.
3. Crouse-Hinds ECM.; Cooper Industries, Inc. Div.
4. Danfoss Inc.; Danfoss Electronic Drives Div.
5. Eaton Corp.; Westinghouse & Cutler-Hammer Products.

6. Furnas Electric Co.
7. General Electric Co.; Electrical Distribution & Control Div.
8. Siemens Energy & Automation, Inc.
9. Square D Co.

2.2 SOLID-STATE MOTOR CONTROLLERS

A. Description: Microprocessor controlled starter with electronic motor overload protection integral to the unit. Available options shall include pump control and braking control. Starter shall have the following standard modes of operation:

1. Soft Start
2. Current Limit Start
3. Dual Ramp Start
4. Full Voltage Start
5. Preset Slow Speed
6. Linear Speed Acceleration
7. Soft Stop

Provide Allen Bradley Bulletin 150 series SMC-Flex or equal.

B. Control Circuit: 120 V; obtained from integral control power transformer, unless otherwise indicated. Include a control power transformer with adequate capacity to operate connected pilot, indicating and control devices, plus 100 percent spare capacity.

C. Protection: Controller shall have the following protective and diagnostic features:

1. Overload protection
2. Underload protection
3. Under voltage protection
4. Overvoltage protection
5. Unbalance protection
6. Stall and Jam Protection
7. Ground Fault sensing
8. Thermistor/PTC motor winding temperature sensing.
9. SCR over temperature protection
10. Open Gate SCR sensing.
11. Line Faults – voltage loss, missing load, shorted SCR, line fault, phase reversal

D. Metering: Controller shall have the following power monitoring parameters included:

1. Three-phase current
2. Three-phase voltage
3. Power in kW
4. Power usage in kWH
5. Power factor
6. Motor thermal capacity usage
7. Elapsed time meter

E. Interface: Provide a human interface module (HIM) to control the starter, change set points, monitor parameters, and display voltage, current, and elapsed time continuously.

2.3 ENCLOSURES

A. Description: Flush or surface-mounted cabinets as indicated. NEMA 250, Type 1, unless otherwise indicated to meet environmental conditions at installed location.

1. Outdoor Locations: NEMA 250, Type 4X.
2. Other Wet or Damp Indoor Locations: NEMA 250, Type 4X.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. Select features of each motor controller to coordinate with ratings and characteristics of supply circuit and motor; required control sequence; duty cycle of motor, drive, and load; and configuration of pilot device and control circuit affecting controller functions.

B. Provide starters as shown on the Drawings. Provide oversized starters as shown. Adjust overload relay to motor full load current.

3.2 INSTALLATION

A. Install as shown on the Drawings.

3.3 IDENTIFICATION

A. Identify motor-control components and control wiring according to Division 16 Section 16050 Basic Electrical Materials and Methods.

3.4 CONTROL WIRING INSTALLATION

A. Install wiring between motor-control devices according to Section 16120 Conductors and Cables.

B. Bundle, train, and support wiring in enclosures.

1. Control motor controllers per the ladder diagram for the pump control panel.

3.5 CONNECTIONS

A. Tighten connectors, terminals, bus joints, and mountings. Tighten field-connected connectors and terminals, including screws and bolts, according to manufacturer's published torque-tightening values. Where manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.6 FIELD QUALITY CONTROL

A. Testing: After installing motor controllers and after electrical circuitry has been energized, demonstrate product capability and compliance with requirements.

1. Procedures: Perform each visual and mechanical inspection and electrical test stated in NETA ATS, Sections 7.5, 7.6, and 7.16. Certify compliance with test parameters.
2. Remove and replace malfunctioning units with new units, and retest.

3.7 CLEANING

A. Remove paint splatters and other spots, dirt, and debris. Touch up scratches and mars of finish to match original finish. Clean devices internally, using methods and materials recommended by manufacturer.

END OF SECTION

Add the following Section:

SECTION 16490 – MOTORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes ac motors rated 600 V and less.

B. Related Sections include the following:

1. Section 16050 Basic Electrical Materials and Methods for labeling materials.
2. Section 16481 Motor Controllers for motor starters.

1.3 SUBMITTALS

A. Product Data: For products specified in this Section. Include dimensions, ratings, and data on features and components.

B. Maintenance Data: For products to include in the maintenance manuals specified in Section 01300 Contractor Submittals.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain similar motors through one source from a single manufacturer.

B. Comply with NFPA 70.

C. Listing and Labeling: Provide motors specified in this Section that are listed and labeled.

1. The Terms "Listed" and "Labeled": As defined in the National Electrical Code, Article 100.
2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" as defined in OSHA Regulation 1910.7.

1.5 COORDINATION

A. Coordinate features, accessories, and functions of each motor with the ratings and characteristics of the supply circuit, the motor controller, the required control sequence, and the required duty cycle of the load.

PART 2 - PRODUCTS

2.1 GENERAL

A. Provide motors conforming to NEMA standards. The frame size, enclosures, etc., shall be suited to the application.

B. A label shall be attached to the motor noting the motor ratings.

C. Determine the supply voltage from the drawings. Provide motors capable of operating at rated load at plus or minus 10 percent of the supply voltage.

D. Provide motors as an integral part of their associated equipment and systems. Coordinate with the other Specification Divisions as required. Provide explosion proof motors with pumps.

E. See Sewer Pump Station Section for requirements for the motors in the pumps.

2.2 SERVICE FACTOR

A. Provide motors with a service factor of 1.15 min.

B. Certify motors with intermittent and/or varying duty cycles and loads for their specific applications.

C. Size the motor such that its rating is never exceeded no matter where on the pump curve the pump is operated. Coordinate motor size with pump manufacturer including pump curve data for impeller the pump will be equipped with.

2.3 INSULATION

A. Provide motors with NEMA Class F insulation, unless otherwise noted.

B. The motors greater than 1 horsepower shall have a NEMA Class B temperature rise, based upon ambient temperature of 40 degrees Celsius.

C. Provide motors specifically designed for operation with variable speed drives. Provide motors with a minimum Corona Inception Voltage (CIV) at room temperature (25 degrees Celsius) of 4000 for all phase connections.

2.4 LOCKED ROTOR CURRENT

A. Provide motors less than 15 horsepower with locked rotor current rating less than NEC code M, per NEC Table 430-7(b).

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install the motor as required by the application and in accordance to the manufacturer's requirements.

B. Ensure proper alignment and dynamic balancing.

C. Verify proper rotational direction.

D. Install the motorized equipment ensuring minimal transmission of vibration. Utilize anti-vibration pads and inertial dampeners as required.

E. Connect conductors and raceways allowing for minimal vibration transmission, as required.

F. The drawings indicate motor sizes based upon certain manufacturers' information. Adjust sizes of conductors, fuses, circuit breakers, raceways, motor controllers, variable speed drives, chokes, filters, over-current protection, etc. as necessitated by motor size changes.

Circuit breakers and fuses in control panels are shown in some cases oversized. Do not reduce the ratings of these over current devices without the written consent of the ENGINEER.

3.2 IDENTIFICATION

A. Identify motors and control wiring according to Division 16 Section 16050 "Basic Electrical Materials and Methods".

3.3 CONNECTIONS

A. Tighten connectors, terminals, bus joints, and mountings. Tighten field-connected connectors and terminals, including screws and bolts, according to manufacturer's published torque-tightening values. Where manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

END OF SECTION

Add the following Section:

SECTION 16511 – INTERIOR LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings applicable sections of the Specifications, apply to this Section.

1.2 SUMMARY

A. This Section includes interior lighting fixtures, lighting fixtures mounted on exterior building surfaces, lamps, ballasts, emergency lighting units, and accessories.

1.3 SUBMITTALS

A. Product Data: For each type of lighting fixture indicated, arranged in order of fixture designation. Include data on features, accessories, and the following:

1. Dimensions of fixtures.
2. Certified results of independent laboratory tests for fixtures and lamps for electrical ratings and photometric data.
3. Certified results of laboratory tests for fixtures and lamps for photometric performance.
4. Emergency lighting unit battery and charger.

5. Fluorescent and high-intensity-discharge ballasts.
6. Types of lamps.

1.4 QUALITY ASSURANCE

A. Fixtures, Emergency Lighting Units, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.

B. Comply with NFPA 70.

C. FM Compliance: Fixtures for hazardous locations shall be listed and labeled for indicated class and division of hazard by FM.

1.5 COORDINATION

A. Fixtures, Mounting Hardware, and Trim: Coordinate layout and installation of lighting fixtures with ceiling system and other construction.

1.6 WARRANTY

A. General Warranty: Special warranty specified in this Article shall not deprive OWNER of other rights OWNER may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by CONTRACTOR under requirements of the Contract Documents.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products indicated for each designation in the Luminaire Schedule on the Drawings.

2.2 FIXTURES AND FIXTURE COMPONENTS, GENERAL

A. Metal Parts: Free from burrs, sharp corners, and edges.

B. Sheet Metal Components: Steel, unless otherwise indicated. Form and support to prevent warping and sagging.

C. Doors, Frames, and Other Internal Access: Smooth operating, free from light leakage under operating conditions, and arranged to permit relamping without use of tools. Arrange doors, frames, lenses, diffusers, and other pieces to prevent accidental falling during relamping and when secured in operating position.

D. Reflecting Surfaces: Minimum reflectance as follows, unless otherwise indicated:

1. White Surfaces: 85 percent.
2. Specular Surfaces: 83 percent.
3. Diffusing Specular Surfaces: 75 percent.
4. Laminated Silver Metallized Film: 90 percent.

E. Lenses, Diffusers, Covers, and Globes: 100 percent virgin acrylic plastic or annealed crystal glass, unless otherwise indicated.

1. Plastic: High resistance to yellowing and other changes due to aging, exposure to heat, and ultraviolet radiation.
2. Lens Thickness: 0.125 inch (3 mm) minimum, unless greater thickness is indicated.

F. Electromagnetic Interference Filters: Integral to fixture assembly. Provide one filter for each ballast. Suppress conducted electromagnetic interference filters as required by MIL-STD-461.

2.3 LED LUMINAIRES

A. Provide luminaires with features shown on the luminaire schedule. The color temp of luminaires shall be 4000K unless otherwise noted. All lumen values shown in the luminaire schedule are minimums. Provide luminaires with 0-10V dimming where dimmer switches are shown on the plans. Provide luminaires with photometric performance of the specified luminaires.

2.5 FIXTURE SUPPORT COMPONENTS

A. Comply with Division 16 Section 16050 Basic Electrical Materials and Methods, for channel- and angle-iron supports and nonmetallic channel and angle supports.

2.6 FINISHES

A. Fixtures: Manufacturer's standard, unless otherwise indicated.

1. Paint Finish: Applied over corrosion-resistant treatment or primer, free of defects.
2. Metallic Finish: Corrosion resistant.

2.7 EMERGENCY LIGHTING UNIT BATTERY AND CHARGER

A. Provide emergency power units where shown on the plans. Emergency power units shall be integral with the luminaires.

B. Provide emergency exit signs with red LED lamps, integral nickel-cadmium battery with self-diagnostics and charger. Provide unit with UL listing that meets UL924.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Fixtures: Set level, plumb, and square with ceiling and walls, and secure according to manufacturer's written instructions and approved submittal materials. Install lamps in each fixture.

B. Provide electronic ballasts on all fluorescent luminaries.

3.2 CONNECTIONS

A. Ground equipment.

1. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.3 FIELD QUALITY CONTROL

A. Inspect each installed fixture for damage. Replace damaged fixtures and components.

B. Tests: As follows:

1. Verify normal operation of each fixture after installation.
2. Emergency Lighting: Interrupt electrical supply to demonstrate proper operation.
3. Verify normal transfer to battery source and retransfer to normal.

C. Malfunctioning Fixtures and Components: Replace or repair, then retest. Repeat procedure until units operate properly.

D. Corrosive Fixtures: Replace during warranty period.

3.4 CLEANING AND ADJUSTING

A. Clean fixtures internally and externally after installation. Use methods and materials recommended by manufacturer.

B. Adjust aimable fixtures to provide required light intensities.

END OF SECTION

Add the following Section:

SECTION 16521 – EXTERIOR LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes exterior lighting units with luminaires, lamps, ballasts, poles/support structures, and accessories.

1.3 DEFINITIONS

A. Lighting Unit: A luminaire or an assembly of luminaires complete with a common support, including pole, post, foundation, or other structure, and mounting and support accessories.

B. Luminaire (Light Fixture): A complete lighting device consisting of lamp(s) and ballast(s), when applicable, together with parts designed to distribute light, to position and protect lamps, and to connect lamps to power supply.

1.4 SUBMITTALS

A. Provide catalog cut sheets providing product data for all product used. For each type of lighting unit indicated, arranged in order of lighting unit designation. Note specifically what component is being submitted when more than one model or version is shown on the cut sheet. Where there is more than one of each type of component (circuit breaker), label the top of each cut sheet with the specific component that the cut sheet applies to. Include data on features, accessories, finishes, and the following:

1. Materials and dimensions of luminaires and poles.
2. Certified results of independent laboratory tests for fixtures and lamps for electrical ratings and photometric data.
3. LED drivers and LEDs.
4. Provide information on the candela output along the vertical axis for each luminaire to show compliance with the requirements on the drawings.
5. Show glare control features on each luminaire.
6. Mill cert sheets certifying type of steel, source of steel, etc.
7. Welder Certifications for personnel who are welding the poles.
8. Pole reactions and calculations showing compliance with requirements including wind rating. These shall be stamped by Alaska Registered Engineer as the engineer of record for the pole as submitted.

9. Certificate of compliance by pole fabricator stating the pole meets contract requirements and was fabricated per the submitted shop drawings, welding plan, coating submittals, mill cert sheets, etc.
10. Coating catalog cut sheets showing compliance with contract requirements.

B. Shop Drawings: Anchor-bolt templates keyed to specific poles and certified by manufacturer. Shop Drawings of the poles for use by the pole fabricator and stamped by Alaska Registered Engineer.

C. If an alternate foundation system is proposed by the CONTRACTOR, submit shop drawings and design calculations for the foundation system.

D. Product Certificates: Signed by manufacturers of lighting units certifying that products comply with requirements.

F. Maintenance Data: For lighting units to include in maintenance manuals specified in Division 1.

1.5 QUALITY ASSURANCE

A. Luminaires and Accessories: Listed and labeled as defined in NFPA 70, Article 100, for their indicated use, location, and installation conditions by a testing agency acceptable to authorities having jurisdiction

B. Comply with ANSI C2.

C. Comply with NFPA 70.

D. FM Compliance: Units for hazardous locations shall be listed and labeled for indicated class and division of hazard by FM.

E. Pole fabricator shall provide certificate of compliance showing

1.6 DELIVERY, STORAGE, AND HANDLING OF POLES

A. Retain factory-applied pole wrappings on metal poles until just before pole installation. For all poles, handle with web fabric straps.

1.7 WARRANTY

A. General Warranty: Special warranty specified in this Article shall not deprive OWNER of other rights OWNER may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by CONTRACTOR under requirements of the Contract Documents. Provide a general warranty for all materials and workmanship for a period of three years from the date of Substantial Completion.

B. Special Warranty: Written warranty, signed by manufacturer and Installer agreeing to replace external parts of luminaires and poles exhibiting a failure of finish as specified below. This warranty is in addition to, and not a limitation of, other rights and remedies OWNER may have under requirements of the Contract Documents.

1. Protection of Metal from Corrosion: Warranty against perforation or erosion of finish due to weathering.
2. Color Retention: Warranty against fading, staining, and chalking due to effects of weather and solar radiation.
3. Warranty Period: Manufacturer's standard, but not less than five years from date of Substantial Completion.

1.8 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Lamps: 10 for every 100 of each type and rating installed. Furnish at least one of each type.
2. Glass and Plastic Lenses, Covers, and Other Optical Parts: 1 for every 100 of each type and rating installed. Furnish at least one of each type.
3. Drivers: 1 for every 100 of each type and rating installed. Furnish at least one of each type.
4. Reflectors, Glare Shields, Globes and Guards: 1 for every 20 of each type and rating installed. Furnish at least one of each type.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the products indicated on the drawings.

2.2 LUMINAIRES

A. Comply with IESNA RP-8 for parameters of lateral light distribution patterns indicated for luminaires.

B. Metal Parts: Free from burrs, sharp corners, and edges.

C. Sheet Metal Components: Corrosion-resistant aluminum, unless otherwise indicated. Form and support to prevent warping and sagging.

D. Housings: Rigidly formed, weather- and light-tight enclosures that will not warp, sag, or deform in use. Provide filter/breather for enclosed luminaires.

E. Doors, Frames, and Other Internal Access: Smooth operating, free from light leakage under operating conditions, and arranged to permit relamping without use of tools. Arrange doors, frames, lenses, diffusers, and other pieces to prevent accidental falling during relamping and when secured in operating position. Provide for door removal for cleaning or replacing lens. Arrange to disconnect ballast when door opens.

F. Exposed Hardware Material: Stainless steel.

G. Plastic Parts: No plastic parts.

H. Reflecting Surfaces: Minimum reflectance as follows, unless otherwise indicated:

1. White Surfaces: 85 percent.
2. Specular Surfaces: 83 percent.
3. Diffusing Specular Surfaces: 75 percent.

I. Lenses and Refractors: Materials as indicated. Use heat- and aging-resistant, resilient gaskets to seal and cushion lens and refractor in luminaire doors.

J. Photoelectric Relays: As follows:

1. Contact Relays: Single throw, arranged to fail in the on position and factory set to turn light unit on at 1.5 to 3 fc (16 to 32 lx) and off at 4.5 to 10 fc (48 to 108 lx) with 15-second minimum time delay.
2. Relay Mounting: In electrical enclosures.

K. LED luminaires. Provide per description on drawings.

2.3 LUMINAIRE SUPPORT COMPONENTS

A. Description: Comply with AASHTO LTS-3 for pole or other support structures, brackets, arms, appurtenances, base, and anchorage and foundation. Wind loads shall be in accordance with what is shown on the drawings.

B. Wind-Load Strength of Total Support Assembly: Adequate to carry support assembly plus luminaires at indicated heights above grade with all equipment shown to be mounted to the pole at the wind loads shown on the drawings. Support assembly includes pole or other support structures, brackets, arms, appurtenances, base, and anchorage and foundation.

1. Strength Analysis: For each pole type and luminaire combination, multiply the actual equivalent projected area of luminaires and brackets by a factor of 1.1 to obtain the equivalent projected area to be used in pole selection strength analysis.

C. Finish: Match finish of pole/support structure for arm, bracket, and tenon mount materials.

D. Mountings, Fasteners, and Appurtenances: Corrosion-resistant items compatible with support components.

1. Materials: Will not cause galvanic action at contact points.
2. Mountings: Correctly position luminaire to provide indicated light distribution.
3. Anchor Bolts, Nuts, and Washers: Hot-dip galvanized after fabrication unless stainless-steel items are indicated.
4. Anchor-Bolt Template: Plywood or steel.

E. Shafts and base plates for light poles shall conform to ASTM A572 Grade 50. Connecting bolts shall conform to ASTM F3125 Grade A325. Fasteners for handhole covers, bands

on lighting brackets, and connector attachment brackets shall conform to ASTM F593. Steel used for light poles shall have a controlled silicon content of either 0.00 to 0.04 percent or 0.15 to 0.25 percent. Mill test certificates verifying the silicon content of the steel shall be submitted to both the galvanizer and the Engineer prior to beginning galvanizing operations.

F. Welding of poles and associated parts shall be in accordance with AWS D1.1/D1.1M, latest edition Structural Welding Code. No welding, including tack and temporary welds shall be done in the shop or field unless the location of the welds is shown on the approved shop drawings reviewed and accepted by the Engineer. Welding procedures shall accompany the shop drawings submittal for the light pole. The procedures shall specifiy the type of equipment to be used, electrode selection, preheat requirements, base materials, and joint details. When the procedures are not prequalified by AWS or AASHTO, evidence of qualification tests shall be submitted. Welding shall not begin until the submittals have been approved. Nondestructive testing in addition to visual inspection shall be performed by the Contractor. Testing and inspection shall apply to welding performed in the shop and in the field. An independent firm shall perform the nondestructive testing and shall certify the poles are fabricated per the shop drawings and submittals, as well as contract requirements. All welds shall be 100% visually inspected. Visual inspection shall be performed before, during, and after the completion of welding. Grind welds and polish all surfaces to a smooth, even finish prior to galvanizing.

G. Anchor bolts shall meet the requirements of ASTM F1554 and unless otherwise specified, shall be grade 105 and shall conform to supplemental requirements S2, S3, and S4. Anchor bolts shall be hot dipped galvanized. Nuts for anchor bolts shall either conform to ASTM A563, Grade DH or AASHTO M292, Grade 2H. The bolts shall be tested by the manufacturer and inspected prior to shipping to the project site. The manufacturer shall provide a certificate of compliance for the anchor bolts, nuts, and washers with mill sheets stating the bolts, nuts, and washers have been manufactured per the applicable contract requirements including stating the requirements they have been manufactured to.

H. Light poles and associated parts including anchor bolts and anchor plates shall be hot-dipp galvanized in accordance with AASHTO M111 and ASSHTOM232. The hot dip galvanize shop shall provide a report of random samples of the readings of the mil thickness of the zinc. It shall be at least (3) mils. Each pole shaft end and base as well as base plate shall also be tested with readings provided in the report.

I. Powder coating shall be Polyester TGIC Powder coating, semi gloss smooth FS No. 27038 Black.

The coating shall conform to the following requirements:

Property	**Specification**	**Range**
Gloss @ 60 deg	ASTM D523	20% +/- 5%
Direct Impact (inch lbs)	ASTM D2794	120 in. lbs.
Indirect Impact (inch lbs)	ASTM D2794	120 in. lbs.
Pencil Hardness	ASTM D3363	2H
Cross Hatch Adhesion	ASTM D3359B	4B
Flexibility (Conical Mandrel)	D1737/D522	100%
Specific Gravity	ASTM D792	1.2 minimum

The galvanized steel shall go through a 5 to 7 stage pretreatment per the powder coating manufacturer and shall be degassed at 5 degrees above cure temperature to minimize gassing. All powder coating shall be performed by a company with at least five years' experience powder coating and shall provide a certification of completion stating the powder coating was performed per manufacturer's requirements and above ASTM specifications with the required results.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Luminaire Attachment: Fasten to indicated structural supports.

B. Luminaire Attachment with Adjustable Features or Aiming: Attach luminaires and supports to allow aiming for indicated light distribution.

C. Lamp luminaires with indicated lamps according to manufacturer's written instructions. Replace malfunctioning lamps.

D. Provide hot dipped galvanized poles and mast arms. All luminaires shall be light gray, unless otherwise noted.

3.2 CONNECTIONS

A. Ground equipment.

1. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

B. Ground metal poles/support structures according to Division 16 Section 16452 – Grounding.

3.3 FIELD QUALITY CONTROL

A. Inspect each installed unit for damage. Replace damaged units.

B. Advance Notice: Give dates and times for field tests.

C. Provide instruments to make and record test results.

D. Tests and Observations: Verify normal operation of lighting units after installing luminaires and energizing circuits with normal power source, and as follows:
1. Measure light intensities at night if specific illumination performance is indicated. Use photometers with calibration referenced to NIST standards.
2. Check intensity and uniformity of illumination.
3. Check excessively noisy ballasts.

E. Prepare a written report of tests, inspections, observations and verifications indicating and interpreting results.

F. Malfunctioning Fixtures and Components: Replace or repair, then retest. Repeat procedure until units operate properly.

3.4 CLEANING AND ADJUSTING

A. Clean units after installation. Use methods and materials recommended by manufacturer.

B. Adjust luminaires and luminaires with adjustable lamp position to provide required light distributions and intensities.

END OF SECTION

Add the following Section:

SECTION 16900 – INSTRUMENTATION AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes control and instrumentation equipment including but not limited to the programmable logic controllers (PLC), pump controllers, relays, indicating lights, control switches and pushbuttons, and terminal blocks.

B. Related Sections include the following:

1. Section 16050 Basic Electrical Materials and Methods for general materials and installation methods.
2. Section 16050 Basic Electrical Materials and Methods for labeling materials.
3. Section 16481 Motor Controllers for control of the variable speed drives.

1.3 SYSTEM DESCRIPTION

A. Provide a pump control panel per the Drawings.

1.4 SUBMITTALS

A. Product Data: Include manufacturer's technical literature for each control device. Indicate dimensions, capacities, performance characteristics, electrical characteristics, finishes for materials, and installation and startup instructions for each type of product indicated.

B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

1. Wiring Diagrams: Power, signal, and control wiring. Differentiate between manufacturer-installed and field-installed wiring. The wiring diagrams shall show the wire number for each wire and terminal number for each terminal. All wiring, terminals, and components shall be labeled in each control panel. All wiring exiting the panel shall be labeled and terminated on a terminal block that is numbered and labeled.
2. Details of control panel faces, including controls, instruments, and labeling.
3. System configuration showing peripheral devices, batteries, power supplies, diagrams, digital communicators, and interconnections.
4. Equipment list of all equipment in each control panel.
5. Manufacturer’s installation manual for each piece of equipment.

C. Maintenance Data: For systems to include in maintenance manuals specified in Division 1. Include the following:

1. Maintenance instructions and lists of spare parts for each type of control device or sensor.
2. Interconnection wiring diagrams with identified and numbered system components and devices.

D. Project Record Documents: Record actual locations of control components, including control units, wiring, and sensors. Revise Shop Drawings to reflect actual installation and operating sequences.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm experienced in manufacturing control panels, similar to those indicated for this Project and with a record of successful in-service performance.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

C. Comply with NFPA 70 “National Electrical Code”.

D. All control panels shall be UL 508A listed assemblies.

1.6 COORDINATION

A. Coordinate location of devices and control panels with the other trades before installation.

B. Coordinate equipment with Division 16 Section 16481 "Motor Controllers" to achieve compatibility with equipment that interfaces with that system.

C. Coordinate equipment with Division 16 Section 16490 "Motors" to achieve compatibility with equipment that interfaces with that system.

1.7 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

B. Replacement Materials: Two replacement devices (selector switches, indicating light, and relays, etc.) for each type shown on the Drawings. One set of fuses for each fuse shown on the control schematics. Provide a spare hour meter and resettable run time counter.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Provide the control equipment by the manufacturers shown on the Drawings and specified in this section.

2.2 CONTROL PANELS

A. Control Panels: Unitized cabinet with suitable brackets for wall or floor mounting, located adjacent to each system under automatic control. The control panel shall have a back panel for the mounting of equipment. Provide common keying for all panels.

1. Fabricate panels of 0.06 inch (1.5 mm) thick, furniture-quality steel, or extruded-aluminum alloy, totally enclosed, with hinged doors and keyed lock and with manufacturer's standard shop-painted finish.
2. Provide and mount the equipment in the panel or on the panel door as indicated on the Drawings.
3. The panel including components as an assembly shall be a UL 508A listed assembly.

2.3 DEVICES

A. Indicating lights: Provide oil tight/watertight/corrosion resistant NEMA 4X 30 mm push-to-test indicating lights with an LED lamp. Provide the lens cover indicated on the Drawings. Mount the light in the panel door as shown. Provide Allen Bradley Bulletin 800 Series indicating lights.

B. Selector Switches: Provide oil tight/watertight/corrosion resistant NEMA 4X 30 mm selector switches with the number of positions shown on the Drawings. Provide the switches with gloved hand knobs. The switches shall have labeled position legend plates as shown on the Drawings. Mount the switches in the panel door as shown. Provide Allen Bradley Bulletin 800 Series selector switches.

C. Relays: Provide industrial control relays for all relays. The relays shall have a minimum of two auxiliary contacts. Provide additional contacts as required and as shown. Provide normally open or closed contacts as required and as shown. Provide the relays with a 120V coil unless otherwise shown. Provide Allen Bradley Bulletin 700P relays with finger safe covers over all terminals to prevent accidental contact.

D. Other devices shall be as shown on the Drawings.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install equipment level and plumb.

B. Install all control equipment as shown on the Drawings. Provide all wiring necessary for all control equipment to operate properly.

C. Provide all control wiring between the control panels and all interfacing equipment not located in the panels.

D. Provide all power wiring to sensors powered from power supplies mounted in the control panels.

E. Provide control wiring shown on the Drawings. Provide separate conduit for control wiring and power wiring.

F. Provide adequate mounting space around all equipment per UL and manufacturer recommendations and requirements.

G. Terminate all wiring leaving the control panel on terminal strips. All wiring in the panel including the wiring that leaves the panel shall be numbered and shown and described as to it's function or equipment being served on the panel wiring diagrams. All terminals shall be numbered and shown on the wiring diagrams. All wiring shall be routed in wiring management chases inside the control panel. All wiring shall be routed parallel and perpendicular to the sides of the panel.

H. Rack mount the panel as shown in the drawings. Make the panel the dimensions shown unless a larger panel is required. If a larger panel is required, adjust the mounting rack size as required.

3.2 FIELD QUALITY CONTROL

A. Test each piece of equipment. Test all functions and features of each piece of equipment.

B. Replace damaged or malfunctioning controls and equipment.

1. Start, test, and adjust control systems.

2. Demonstrate compliance with requirements, including calibration and testing, and control sequences.

3. Adjust, calibrate, and fine tune circuits and equipment to achieve sequence of operation specified.

4. Test all operating sequences shown on the Drawings and all display and control features specified and shown on the Drawings.

C. After all testing is complete and all systems are fully operational; notify the ENGINEER in writing seven days prior to requesting an inspection of the system for substantial completion. Demonstrate any and all functions and features of the Control Panels, and all other WORK covered by these Specifications and shown on the electrical Drawings to the ENGINEER. Correct all deficiencies or problems identified by the ENGINEER. Notify the ENGINEER in writing when all deficiencies and/or problems have been corrected at least 3 working days prior to a re-inspection. Continue this process until the ENGINEER has approved the WORK.

3.3 DEMONSTRATION

A. Train OWNER's operations and maintenance personnel to adjust, operate, and maintain control systems and components.

B. Train OWNER'S maintenance personnel on procedures and schedules for starting and stopping, troubleshooting, servicing, and maintaining equipment and schedules.

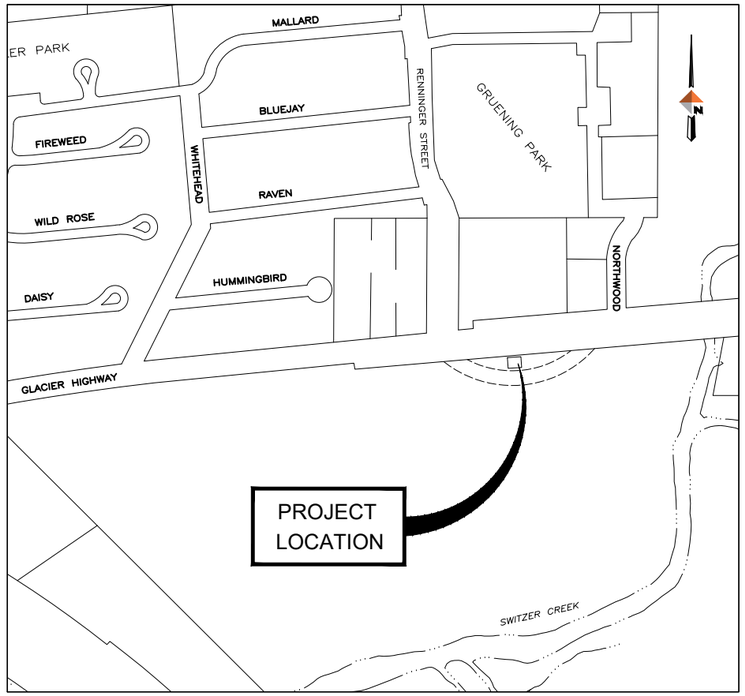
C. Review data in maintenance manuals. Refer to Section 01300 CONTRACTOR Submittals.

D. Schedule training with OWNER, through ENGINEER, with at least seven days' advance notice.

END OF SECTION

END OF SPECIAL PROVISIONS

GRUENING PARK LIFT STATION
STAND-ALONE LIFT STATION
CONTRACT NO. BE21-264



VICINITY MAP
NTS

SHEET INDEX

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PROJECT 1529.50081.01
DATE 5/25/2021

GENERAL NOTES

1. PROPOSED SITE PAD SHALL BE GRADED TO ELEVATIONS AND GRADES SHOWN.

2. EXISTING PIPE LOCATIONS ARE DERIVED FROM EXISTING AS-BUILTS OR FROM FIELD LOCATES. ACTUAL LOCATIONS MAY VARY FROM THOSE SHOWN. THE CONTRACTOR SHALL ARRANGE FOR ELECTRICAL UTILITY LOCATES PRIOR TO ANY EXCAVATION. UNDERGROUND ELECTRICAL UTILITIES, IF SHOWN ON THE DRAWINGS, INDICATE THEIR EXISTENCE ONLY, AND MAY NOT DEPICT THE ACTUAL LOCATION. OTHER BURIED ELECTRICAL UTILITIES MAY EXIST THAT ARE NOT SHOWN ON THE DRAWING. DIAL BEFORE YOU DIG 586-1333.

3. ALL ITEMS DESIGNATED TO BE REMOVED SHALL BE DISPOSED OF AT A PERMITTED LOCATION OFF-SITE, EXCEPT AS NOTED IN THE CONTRACT DOCUMENTS.

4. ALL ASPHALT PAVEMENT TO BE REMOVED AND DISPOSED OF SHALL BE DELIVERED TO A STOCKPILE AREA AT THE LEMON CREEK CITY PIT TO BE DESIGNATED BY THE ENGINEER. CONTACT THE ENGINEER FOR THE EXACT LOCATION OF THE STOCKPILE.

5. THE PLAN DRAWINGS DO NOT SHOW ALL TREES, BUSHES, AND LANDSCAPING THAT WILL BE ENCOUNTERED DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHOULD VISIT THE SITE PRIOR TO BID.

6. CLEARING AND GRUBBING LIMITS SHALL EXTEND TO THE EASEMENT LINE.

7. FILL SHALL NOT EXTEND BEYOND THE PERMITTED WETLAND BOUNDARY.

8. CBJ ENGINEERING STANDARD DETAILS 4TH EDITION – AUGUST 2011, IS MADE PART OF THIS CONTRACT, WITH CURRENT REVISIONS AS APPLICABLE. CBJ STANDARD DETAILS CAN BE FOUND AT THE FOLLOWING WEBSITE:
   http://juneau.org/engineering-public-works/cbj-engineering-standards

9. ONLY HORIZONTAL ELBOW FITTINGS (BENDS) ARE SHOWN ON DRAWINGS. ADDITIONAL FITTINGS WILL BE REQUIRED FOR VERTICAL DEFLECTIONS NEAR CONNECTIONS TO EXISTING PIPES, AND AT OTHER LOCATIONS REQUIRING GRADE CHANGES TO AVOID CONFLICTS.

10. SEWER PIPE SLOPES SHOWN ARE CALCULATED TO ENDS OF PIPE.

11. CONTRACTOR SHALL INSTALL TEMPORARY FILTRATION DEVICES CONSISTING OF, BUT NOT LIMITED, TO SILT FENCES, FILTER FABRIC FENCES, SETTLING PONDS, ETC., TO PROHIBIT SILTLADEN TRENCH OR PIT DEWATERING EFFLUENT AND OTHER CONSTRUCTION RUNOFF FROM ENTERING SWITZER CREEK, GASTINEAU CHANNEL, OR SURROUNDING WETLANDS.

12. THE PROJECT SITE IS LESS THAN 1500 FT FROM AN ADEC IDENTIFIED CONTAMINATED SITE. CONTRACTOR IS RESPONSIBLE FOR OBTAINING AN ADEC EXCAVATION DEWATERING GENERAL PERMIT.

13. CONTRACTOR IS RESPONSIBLE FOR THE QUALITY OF THE DEWATERING EFFLUENT AND OTHER CONSTRUCTION RUNOFF THAT ENTERS SWITZER CREEK OR GASTINEAU CHANNEL AND IS, THEREFORE, RESPONSIBLE FOR VIOLATIONS AND PENALTIES RESULTING FROM ITS OPERATIONS.

14. CONTRACTOR SHALL SCHEDULE ITS OPERATION TO MAINTAIN CONTINUOUS SEWER SERVICE AT THE EXISTING GRUENING PARK LIFT STATION. CONTRACTOR SHALL PROVIDE SUCH TEMPORARY PUMPING AS IS REQUIRED TO INSURE SEWAGE DOES NOT FLOOD LOCAL RESIDENCES, BUSINESSES OR OVER FLOW INTO GASTINEAU CHANNEL OR SWITZER CREEK. PROVIDE PUMPING AND BYPASS PLAN AND SCHEDULE FOR REMOVING EXISTING GRUENING PARK PUMP STATION. PUMPING AND BYPASS PLAN SHALL BE REVIEWED AND APPROVED BY THE ENGINEER.

15. THE CONTRACTOR SHALL REVIEW AND COMPLY WITH ANY CONDITIONS OF THE USCOE WETLAND NATIONWIDE PERMIT. PERMITS ARE AVAILABLE FROM THE CBJ.

16. CONTRACTOR SHALL PROVIDE ALL REQUIRED AS-BUILTS AND OTHER RECORD INFORMATION TO THE ENGINEER FOR SUBMITTAL OF THE ADEC APPROVAL-TO-OPERATE PERMIT.

17. CONTRACTOR SHALL PREPARE A TEMPORARY BYPASS PLAN SUBJECT TO ENGINEER APPROVAL THAT INCLUDES SPECIFICS ON HOW LEAKS WOULD BE DETECTED AND HOW SPILLS WOULD BE PREVENTED AND CLEANED UP. THE PLAN SHALL ALSO SHOW SEPARATION DISTANCES TO NEAREST WATER MAINS. IF THE CONTRACTOR PROPOSES A TEMPORARY SEWER PIPE THAT VIOLATES THE SEPARATION REQUIREMENTS OF 18 AAC 80.020(F), THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE ADEC DRINKING WATER PROGRAM TO OBTAIN A WAIVER.

ABBREVIATIONS

(E)	–	EXISTING
(N)	–	NEW
ACP	–	ASPHALT CONCRETE PAVEMENT
ADEC	–	ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
AVAP	–	AS VERTICAL AS POSSIBLE
CB	–	CATCH BASIN
CBJ	–	CITY AND BOROUGH OF JUNEAU
CONC	–	CONCRETE
CP	–	CONTROL POINT
CPP	–	CORRUGATED POLYETHYLENE PIPE
CTE	–	CONNECT TO EXISTING
DIA	–	DIAMETER
DTL	–	DETAIL
E	–	EASTING
EG	–	EXISTING GROUND
FF	–	FINISH FLOOR
FG	–	FINISH GRADE
FM	–	FORCE MAIN
FT	–	FEET
GB	–	GRADE BREAK
HDPE	–	HIGH-DENSITY POLYETHYLENE
ID	–	INSIDE DIAMETER
IE	–	INVERT ELEVATION
INV	–	INVERT
LF	–	LINEAR FEET
MAX	–	MAXIMUM
ME	–	MATCH EXISTING
MH	–	MANHOLE
MIN	–	MINIMUM
MTE	–	MATCH TO EXISTING
N	–	NORTHING
PSF	–	POUNDS PER SQUARE FOOT
PSI	–	POUNDS PER SQUARE INCH
PVC	–	POLYVINYL CHLORIDE
RP	–	RADIUS POINT
SSMH	–	SANITARY SEWER MANHOLE
STD	–	STANDARD
TBM	–	TEMPORARY BENCHMARK
TP	–	TOP OF PAVEMENT
TYP	–	TYPICAL

SEQUENCE OF CONSTRUCTION

THE FOLLOWING SEQUENCE OF CONSTRUCTION SCHEDULING MUST BE FOLLOWED IN ORDER TO ENSURE THE OWNER CAN ADEQUATELY PROVIDE SEWER SERVICE TO THE SWITZER CREEK AREA. ALL OTHER WORK CAN BE SCHEDULED AT THE CONTRACTOR'S CONVENIENCE.

1. CONTRACTOR SHALL PROVIDE CONTINUOUS TEMPORARY SANITARY SEWER SERVICE THROUGHOUT CONSTRUCTION IN ACCORDANCE WITH THE BYPASS PLAN SUBMITTED TO THE ENGINEER 14 DAYS IN ADVANCE OF MODIFYING THE SANITARY SEWER FLOW. A PROPOSED TEMPORARY BYPASS PLAN IS INCLUDED AS SUPPLEMENTAL INFORMATION IN THE ADEC APPROVAL TO CONSTRUCT APPLICATION, AVAILABLE FROM THE OWNER. CONTRACTOR SHALL USE THIS PLAN AS A BASIS FOR DEVELOPING THE FULL TEMPORARY BYPASS PLAN.

2. CONSTRUCT NEW GRUENING PARK LIFT STATION WITH ASSOCIATED CONTROLS. TEST USING FRESH WATER TO SIMULATE THE DISCHARGE FROM THE LIFT STATION TO THE FORCE MAIN BY ROUTING THE FLOW TO THE EXISTING WET WELL. COORDINATE WITH THE ENGINEER FOR THE MAXIMUM ALLOWED PLUG TIME OF EACH INCOMING LINE. (NOTE: THE 12" PVC SEWER LINE FROM THE EAST CARRIES FLOW FROM THE VALLEY COURT LIFT STATION. MAXIMUM ALLOWED PLUG TIME OF THIS LINE IS REPORTED TO BE 2 HOURS.THIS SHALL BE COORDINATED AND CONFIRMED WITH CBS WASTEWATER.)

3. UPON SUCCESSFUL COMPLETION OF THE TESTING, INSTALL FINAL CONNECTION OF GRAVITY LINE FROM EXISTING GRUENING PARK LIFT STATION TO THE NEW GRUENING PARK LIFT STATION. COORDINATE INTERRUPTION OF FLOW FROM THE EXISTING SEWER LINE (STOPPING THE FLOW WITH A SEWER PLUG) WITH CBJ WASTE WATER COLLECTIONS.

4. VERIFY OPERATIONS OF NEW LIFT STATION FOR A MINIMUM OF 24 HOURS.

5. PROCEED WITH DEMOLITION OF EXISTING GRUENING PARK LIFT STATION AS NOTED ON DRAWING C1.

LEGEND

DESCRIPTION	EXISTING	REMOVE	PROPOSED
ABANDONED SANITARY SEWER PIPE	AS		
BOLLARD			
CATCH BASIN			
CONTROL POINT	MVST-1		
CONTOUR	25		25
CURB & GUTTER			
EASEMENT			
EDGE OF ACP			
EDGE OF GRAVEL			
FENCE LINE	x x x		
FILL LIMITS			
FIRE HYDRANT			
GRADE BREAK LINE			GB GB
GUARDRAIL			
OVERHEAD ELECTRIC	OHE OHE		
POWER POLE			
PROPERTY LINE			
SANITARY SEWER FORCE MAIN	FM		FM
SANITARY SEWER MANHOLE			S
SANITARY SEWER PIPE	S		S
SAWCUT LINE			
SIGN			
STORM DRAIN PIPE	SD SD		
TOP OF BANK			
TRANSFORMER			
WATER LINE	W		W
WATER/SEWER VALVE			
UNDERGROUND ELECTRIC			E
UNDERGROUND TELEPHONE			T T T

REVISIONS

REV	DATE	DESCRIPTION	BY

CITY AND BOROUGH OF JUNEAU
ALASKA'S CAPITAL CITY

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GRUENING PARK LIFT STATION
STAND-ALONE LIFT STATION
BE21-264
GENERAL NOTES, LEGEND, & ABBREVIATIONS

PROJECT 1529.50081.01
DATE 5/25/2021

SHEET 2 OF 20
G2

NOTES:

1. EXISTING LIFT STATION OPERATION TO BE MAINTAINED DURING CONSTRUCTION OF NEW LIFT STATION. AFTER THE NEW LIFT STATION IS OPERATIONAL, THE (3) EXISTING WET WELLS SHALL BE ABANDONED IN PLACE BY REMOVING ALL INTERNAL COMPONENTS, CUTTING THE RIM TO 2 FEET BELOW FG. BACKFILL WITH PEA GRAVEL AND FINISH PER TYPICAL SECTION. ADJUST DEPTH OF CUT TO ACCOMMODATE NEW FORCE MAIN. REMOVE ALL BOLLARDS AND OTHER FEATURES OF THE WET WELLS.
2. THE EXISTING PUMP STATION CONTROLS ARE IN THE WETWELL.
3. EXISTING GENERATOR BUILDING AND ALL APPURTENANCES TO BE ABANDONED.
4. REMOVE AND DISPOSE OF EXISTING ACCESS ROAD ASPHALT PAVEMENT TO LIMITS SHOWN.
5. SEE THE SEQUENCE OF CONSTRUCTION ON G2.

EXTENSIVE VEGETATION AND TREES THIS AREA. CLEAR AND GRUB TO THE EASEMENT LINE

EASEMENT

DEMOLISH SANITARY SEWER MANHOLE AND REPLACE WITH NEW LIFT STATION WET WELL.

REMOVE SANITARY SEWER PIPE AS REQUIRED TO INSTALL NEW WET WELL. FILL REMAINING PIPE WITH CONC SLURRY AND ABANDON IN PLACE

RIM EL = 26.16
INV IN (NE) = 18.14
INV IN (W) = 15.89
INV OUT (NW) = 15.82
SUMP EL = 7.14

PONDED AREA

RIM EL = 26.18
INV IN (SE) =14.95
INV OUT (NW) =7.14
SUMP EL = 7.14

RIM EL = 28.8
INV OUT (NW) =19.69
INV IN (SE) =7.25
SUMP EL = 7.25

REMOVE SANITARY SEWER UP TO THE POINT PROPOSED SSMH IS TO BE INSTALLED. SEE SHEET C3.

EDGE OF EXISTING PAVEMENT

SAWCUT

DEMOLISH EXISTING ACCESS ROAD

SEE NOTE 1

PROTECT GUARDRAIL

EXISTING GENERATOR BUILDING, SEE NOTE 1 & 2

RIM EL = 26.58
INV IN (E) = 7.39
NV OUT (NW) = 7.02
SUMP EL = 7.02

SAWCUT

CAP EXISTING SANITARY SEWER LINE AFTER NEW LIFT STATION IS OPERATIONAL

REMOVE AND REPLACE GUARDRAIL ONLY AS REQUIRED FOR NEW WATER SERVICE. INCLUDE WORK IN ADD.ALT 1.

FILL WITH CONCRETE SLURRY AND ABANDON IN PLACE

PROTECT EXISTING POWER POLE

GLACIER HIGHWAY

NORTHWOOD DRIVE

12" PVC

12" DI FM

10" PVC

16" DIP

DEMOLITION LEGEND

REMOVE ACP

REMOVE PIPE

SCALE IN FEET: 10 0 10 20

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA — REGISTERED PROFESSIONAL ENGINEER — CE-9952 — 5-25-21

CITY AND BOROUGH OF JUNEAU — ALASKA'S CAPITAL CITY

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GRUENING PARK LIFT STATION
STAND-ALONE LIFT STATION
BE21-264

DEMOLITION PLAN

PROJECT 1529.50081.01
DATE 5/25/2021

SHEET 3 OF 20

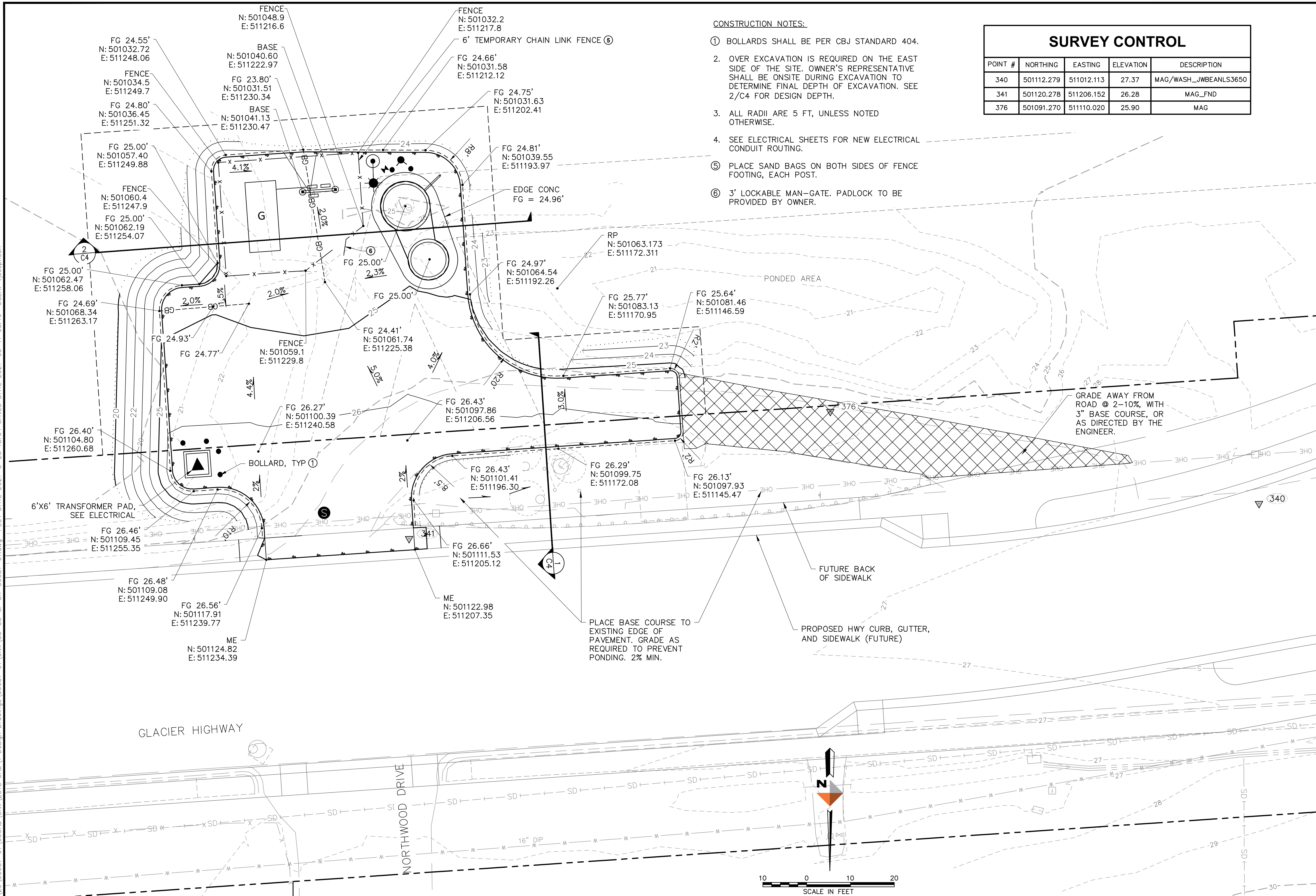
C1

CONSTRUCTION NOTES:

1. BOLLARDS SHALL BE PER CBJ STANDARD 404.
2. OVER EXCAVATION IS REQUIRED ON THE EAST SIDE OF THE SITE. OWNER'S REPRESENTATIVE SHALL BE ONSITE DURING EXCAVATION TO DETERMINE FINAL DEPTH OF EXCAVATION. SEE 2/C4 FOR DESIGN DEPTH.
3. ALL RADII ARE 5 FT, UNLESS NOTED OTHERWISE.
4. SEE ELECTRICAL SHEETS FOR NEW ELECTRICAL CONDUIT ROUTING.
5. PLACE SAND BAGS ON BOTH SIDES OF FENCE FOOTING, EACH POST.
6. 3' LOCKABLE MAN-GATE. PADLOCK TO BE PROVIDED BY OWNER.

SURVEY CONTROL

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
340	501112.279	511012.113	27.37	MAG/WASH_JWBEANLS3650
341	501120.278	511206.152	26.28	MAG_FND
376	501091.270	511110.020	25.90	MAG



REV	DATE	REVISIONS DESCRIPTION	BY

CITY AND BOROUGH OF JUNEAU
ALASKA'S CAPITAL CITY

DOWL
WWW.DOWL.COM
3535 College Road, #100
Fairbanks, Alaska 99709
907-374-0275
AECL848

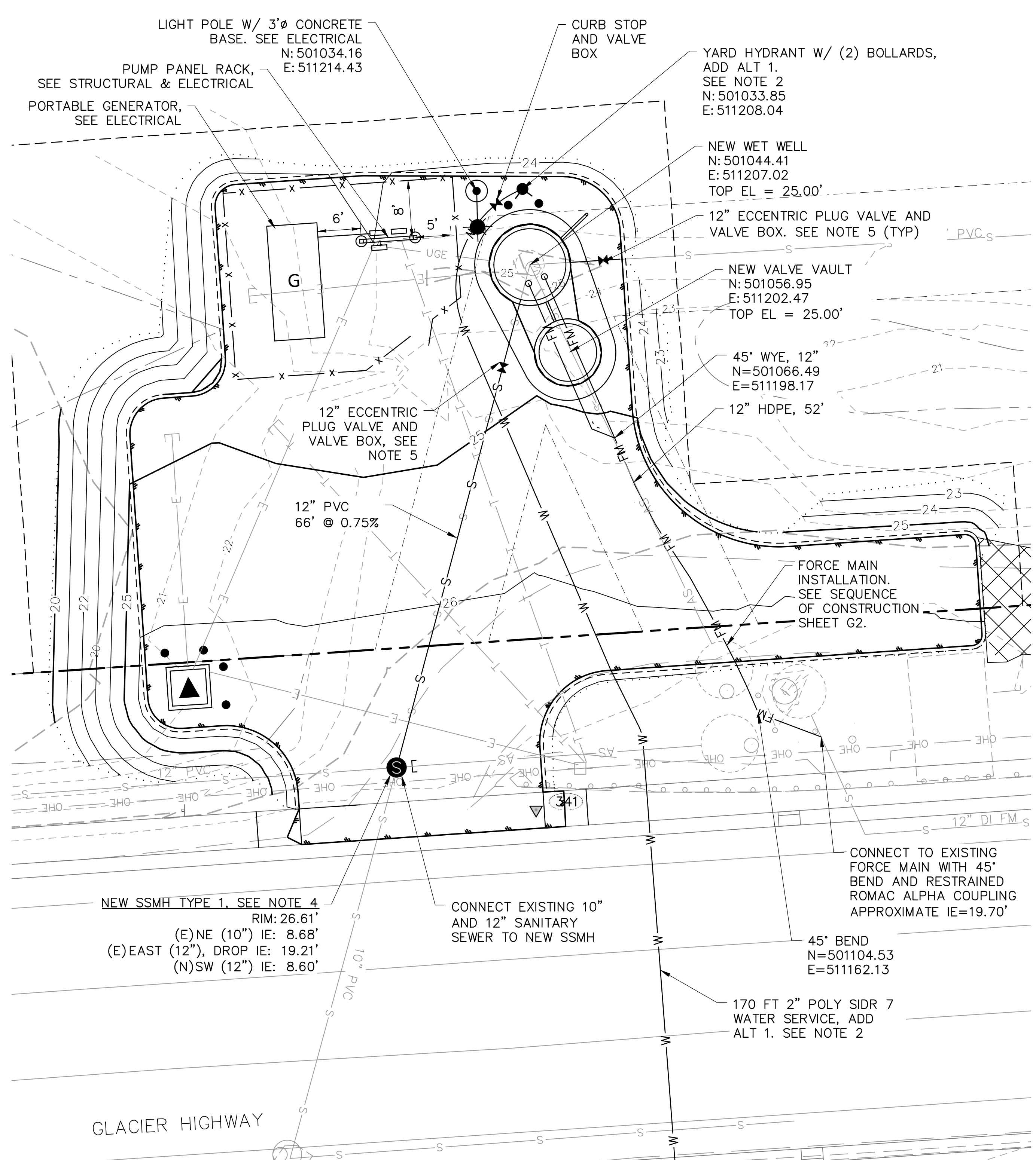
GRUENING PARK LIFT STATION
STAND-ALONE LIFT STATION
BE21-264

SITE LAYOUT & GRADING PLAN

PROJECT 1529.50081.01
DATE 5/25/2021

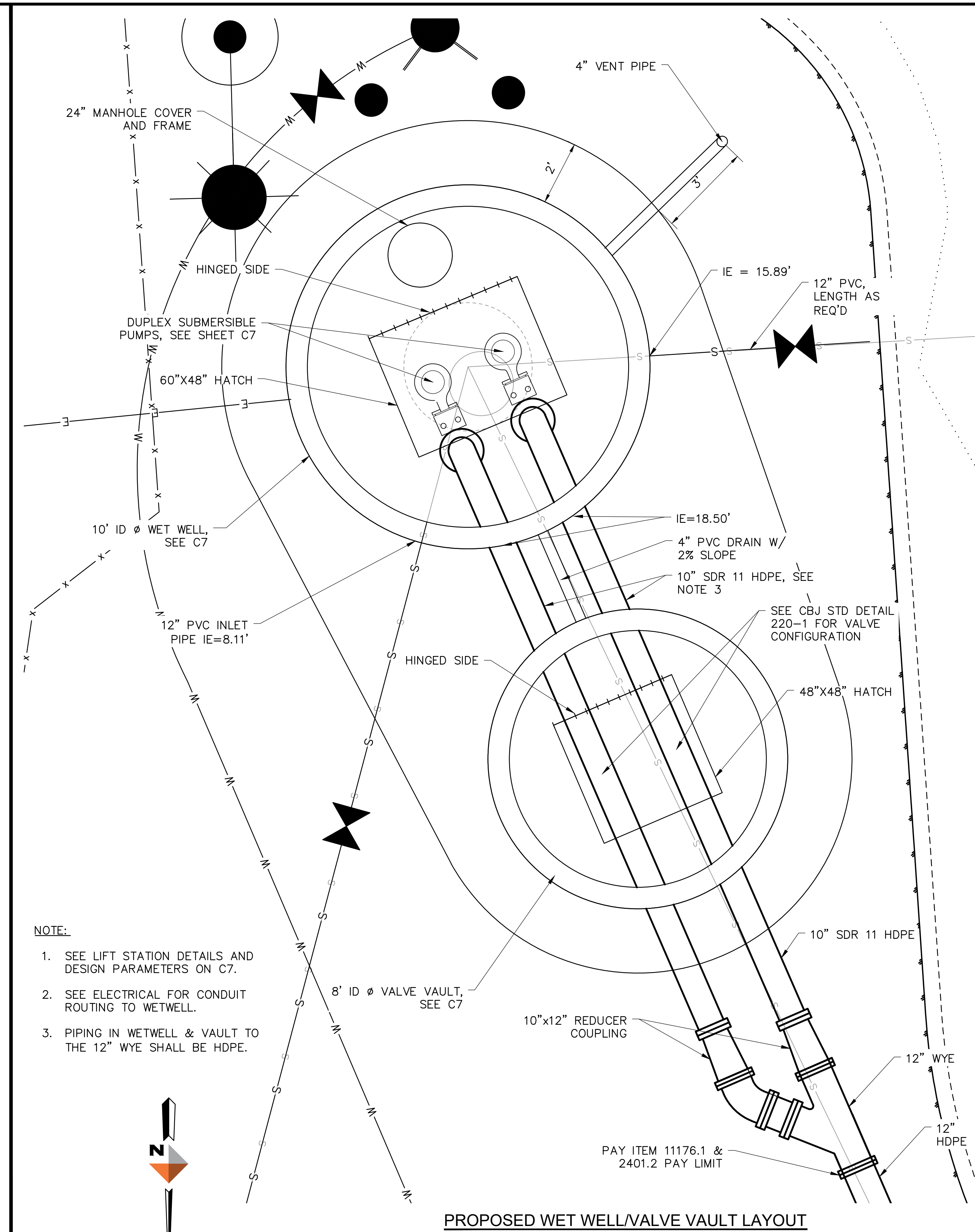
SHEET 4 OF 20

C2



NOTES:

1. SEE ELECTRICAL SHEETS FOR NEW ELECTRICAL ROUTING.
2. ALL WORK AND MATERIALS ASSOCIATED WITH TRENCHING, BACKFILL, PAVING, CURB, SIDEWALK, TOPSOIL/SEEDING, AND INSTALLATION OF THE NEW WATER SERVICE AND YARD HYDRANT WILL BE PAID UNDER ADDITIVE ALTERNATE 1.
3. SEE CBJ STD DTL 220-1 FOR LIFT STATION PLAN LAYOUT. SHEETS C3 AND C5 OF THESE PLANS GOVERN ANY DIFFERENCES.
4. EXISTING 10" PVC SS CROSSES ABOVE 12" PVC SS. NEW SSMH WILL INTERCEPT EXISTING SS MAINS AND DIRECT FLOW TO NEW LIFT STATION. SEE CBJ STD DTL 204 FOR SANITARY SEWER DROP MANHOLE.
5. ECCENTRIC PLUG VALVES SHALL BE CLOW F-5412, OR APPROVED EQUAL, AND MEET THE REQUIREMENTS OF SECTION 02602, 2.1 GATE VALVES, EXCEPT THEY SHALL MEET THE REQUIREMENTS OF AWWA C517 INSTEAD OF AWWA C509. CONTRACTOR SHALL VERIFY THAT ID OF EXISTING GRAVITY MAIN AND VALVE MATCH. CONTRACTOR SHALL PROVIDE TRANSITION FITTING IF ID'S DON'T MATCH.



NOTE:

1. SEE LIFT STATION DETAILS AND DESIGN PARAMETERS ON C7.
2. SEE ELECTRICAL FOR CONDUIT ROUTING TO WETWELL.
3. PIPING IN WETWELL & VAULT TO THE 12" WYE SHALL BE HDPE.

PROPOSED WET WELL/VALVE VAULT LAYOUT
NTS

REV | DATE | REVISIONS DESCRIPTION | BY

STATE OF ALASKA — Chase A. Nelson CE-13857 — 5/25/21 — REGISTERED PROFESSIONAL ENGINEER

CITY AND BOROUGH OF JUNEAU — ALASKA'S CAPITAL CITY

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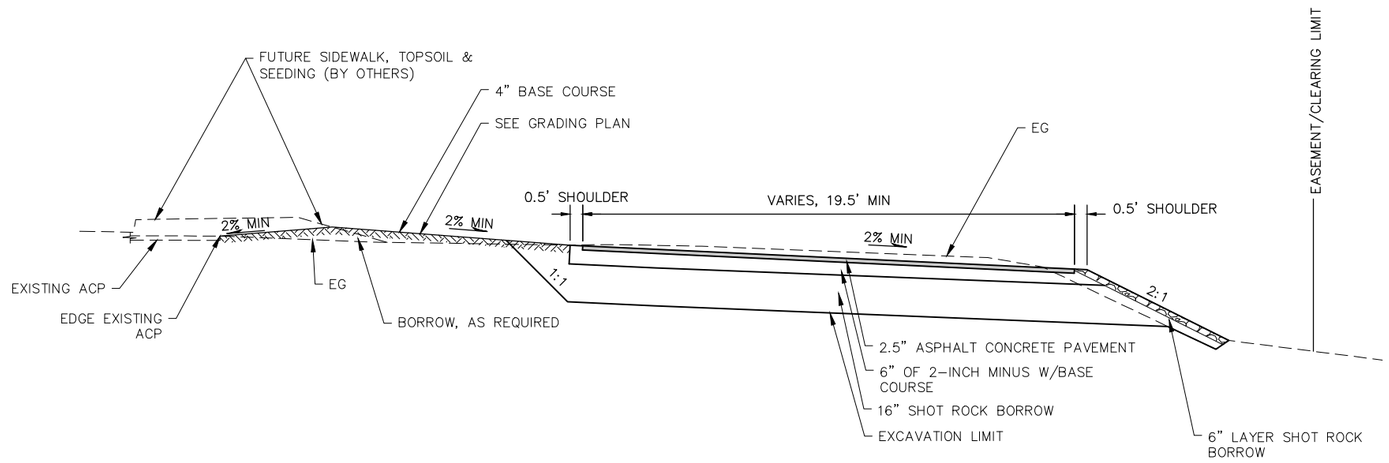
GRUENING PARK LIFT STATION
STAND-ALONE LIFT STATION
BE21-264

UTILITY PLAN

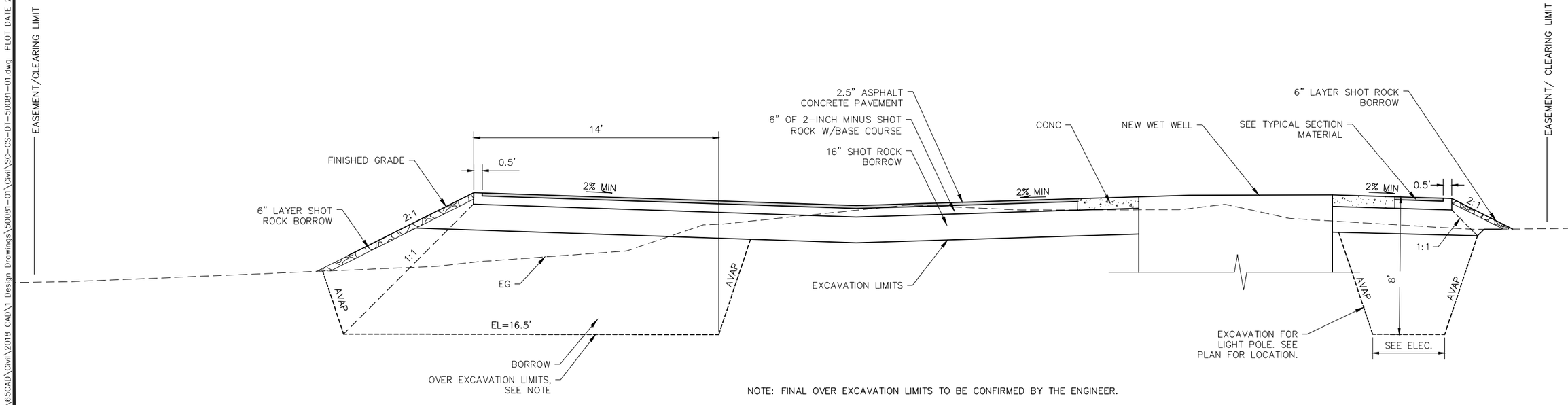
PROJECT 1529.50081.01
DATE 5/25/2021

SHEET 5 OF 20

C3



1/C4 DRIVEWAY TYPICAL SECTION
NTS



NOTE: FINAL OVER EXCAVATION LIMITS TO BE CONFIRMED BY THE ENGINEER.

2/C4 PAD TYPICAL SECTION
NTS

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA — REGISTERED PROFESSIONAL ENGINEER — CE-9982 — 5/25/21

CITY AND BOROUGH OF JUNEAU — ALASKA'S CAPITAL CITY

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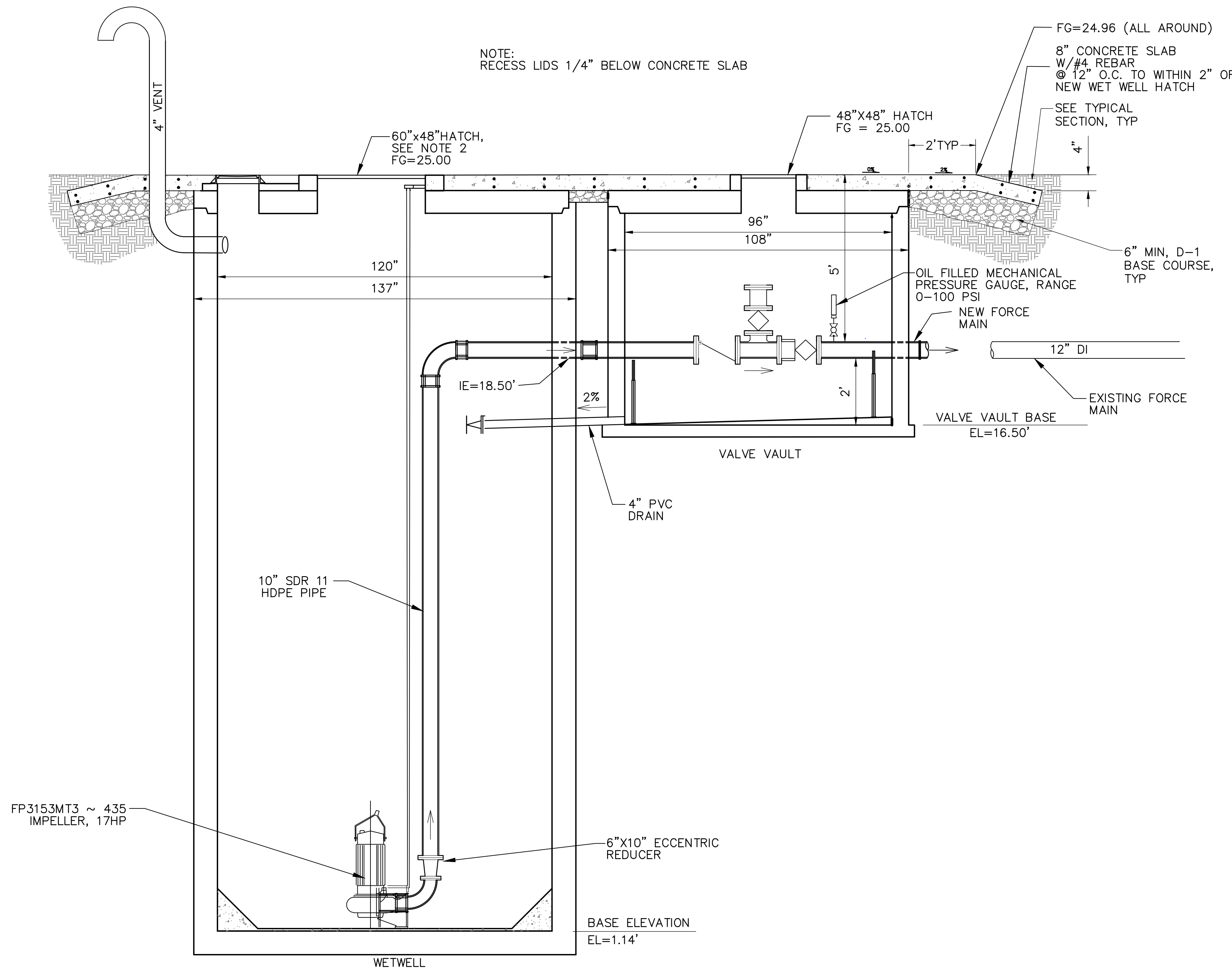
GRUENING PARK LIFT STATION
STAND-ALONE LIFT STATION
BE21-264

TYPICAL SECTIONS

PROJECT 1529.50081.01
DATE 5/25/2021

SHEET 6 OF 20
C4



1 / C7 LIFT STATION SCHEMATIC PROFILE

NTS

LIFT STATION OPERATIONS	
PARAMETERS	
PEAK FLOW (GPM)	521
PUMP DESIGN FLOW-RATE (GPM)	710
BASE ELEVATION OF WET WELL (FT)	1.14
LOW LOW LEVEL ALARM (FT)	2.76
LOW LEVEL PUMPS OFF (FT)	3.59
ELEVATION OF LOWEST PIPE INLET (FT)	8.11
ACTIVE VOLUME (GALLONS)	1945
LEAD PUMP LEVEL ON (FT)	6.08
LAG PUMP LEVEL ON (FT)	6.90
HIGH LEVEL ALARM (FT)	7.75

*THIS IS THE INITIAL OPERATIONAL SCHEME FOR THE LIFT STATION. CONTRACTOR, IN PRESENCE OF ENGINEER, WILL MEASURE ACTUAL PUMP FLOW-RATES FOLLOWING INSTALLATION AND ADJUST THE PARAMETERS AS NECESSARY TO OPTIMIZE OPERATIONS. CONTRACTOR WILL COORDINATE WITH CBJ WASTEWATER WHEN OPTIMIZING OPERATIONS.

NOTE:

1. CONSTRUCT LIFT STATION IN ACCORDANCE WITH CBJ STD DETAIL 220, UNLESS OTHERWISE NOTED ON THE PLANS. THE PLANS SHALL GOVERN ANY DIFFERENCES.
2. CONTRACTOR SHALL COORDINATE WITH PUMP MANUFACTURER TO VERIFY HATCH DIMENSIONS REQUIRED FOR PUMP MODEL PRIOR TO PURCHASING THE HATCH.
3. ALL HDPE TO HDPE CONNECTIONS SHALL BE BUTT FUSED.

REV	DATE	REVISIONS DESCRIPTION	BY

STATE OF ALASKA 49TH Chase A. Nelson CE-13867 5/25/21 REGISTERED PROFESSIONAL ENGINEER

CITY AND BOROUGH OF JUNEAU ALASKA'S CAPITAL CITY

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GRUENING PARK LIFT STATION
STAND-ALONE LIFT STATION
BE21-264

LIFT STATION DETAILS

PROJECT 1529.50081.01
DATE 5/25/2021

SHEET 7 OF 20

C5

ELECTRICAL LEGEND

AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
BLDG	BUILDING
C/B	CIRCUIT BREAKER
CBJ	CITY & BOROUGH OF JUNEAU
CKT	CIRCUIT
COAX	COAXIAL CABLE
C	CONDUIT
EM	EMERGENCY BATTERY UNIT
EXTG	EXISTING
FBO	FURNISHED BY OWNER
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
GRS	GALVANIZED RIGID STEEL
GRC	GALVANIZED RIGID STEEL CONDUIT
HIM	HUMAN INTERFACE MODULE
HOA	HAND OFF AUTO
HP	HORSE POWER
J-BOX	JUNCTION BOX
KA	KILOAMPERES
KVA	KILOVOLTAMPERES
KW	KILOWATT
LTG	LIGHTING
LFMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
MDP	MAIN DISTRIBUTION PANEL
MAX	MAXIMUM
MIN	MINIMUM
NEC	NATIONAL ELECTRICAL CODE
NID	NETWORK INTERFACE DEVICE
PF	POWER FACTOR
PVC	RIGID POLYVINYL CHLORIDE CONDUIT
REC	RECEPTACLE
SS	STAINLESS STEEL
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION DEVICE
TYP-#	TYPICAL OF # (TYP-2 = TYPICAL OF 2)
WP	WEATHERPROOF
W/	WITH
2 NO. 8	2 CONDUCTOR NUMBER 8 AWG
3ϕ, 4W	3 PHASE, 4 WIRE
VFD	VARIABLE FREQUENCY DRIVE

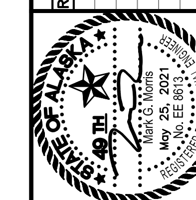
	CAPACITOR
20/3	CIRCUIT BREAKER (AMPS/POLES)
	CIRCUITING HATCHES SHOW NUMBER OF CONDUCTORS WHERE MORE THAN 2. EACH LARGE TIC INDICATES A NEUTRAL CONDUCTOR AND EACH SMALL TIC INDICATES A PHASE CONDUCTOR. EQUIPMENT GROUND NOT SHOWN BUT IS REQUIRED ON ALL CIRCUITS. ALL CONDUIT SHALL BE 1/2" MIN. PROVIDE THE CORRECT CONDUIT SIZE, CONDUCTOR SIZE, CONDUCTOR QUANTITY AS REQUIRED AND PER NEC. INCREASE CONDUCTOR SIZE AS REQUIRED PER CODE FOR MORE THAN 3 CONDUCTORS IN CONDUIT.
	CONTACTOR
	DUPLEX RECEPTACLE
	ELECTRIC MOTOR
	FLEXIBLE CONDUIT
	FLUORESCENT LUMINAIRE
	FUSE
	FUSED DISCONNECT
	GROUND
	GENERATOR
X-#	HOME RUN (PANEL-CKT)
H O A	HAND OFF AUTO SWITCH
	30AMP, 3 POLE HEAVY DUTY DISCONNECT
1	INDUSTRIAL CONTROL RELAY. NUMBER OR LETTER INDICATES RELAY NUMBER
	JUNCTION BOX
	MAIN LUG
M	METER/MAIN
1	NORMALLY CLOSED CONTACT. NUMBER INDICATES RELAY NUMBER
1	NORMALLY OPEN CONTACT. NUMBER INDICATES RELAY NUMBER
PE	PHOTO CELL
R	PUSH TO TEST INDICATING LIGHT. LETTER INDICATES COLOR
	PUSHBUTTON
	SPECIAL USE RECEPTACLE
ST	SHUNT TRIP COIL
S	SINGLE POLE SWITCH
▼	TELEPHONE JACK
	THERMOSTAT
	TRANSFORMER
	WALLMOUNT LUMINAIRE

INDEX

GENERAL NOTES:

1. PERFORM ALL WORK PER THE 2020 NATIONAL ELECTRICAL CODE (NEC).
2. ALL WORK IS NEW UNLESS OTHERWISE NOTED.
3. PROVIDE GALVANIZED RIGID STEEL CONDUIT ABOVE GRADE.

REV	DATE	REVISIONS DESCRIPTION	BY



CITY AND BOROUGH OF JUNEAU
ALASKA'S CAPITAL CITY

MORRIS ENGINEERING GROUP INC
AECL1010
2375 Jordan Ave #7
Juneau, AK 99801
907-789-3350

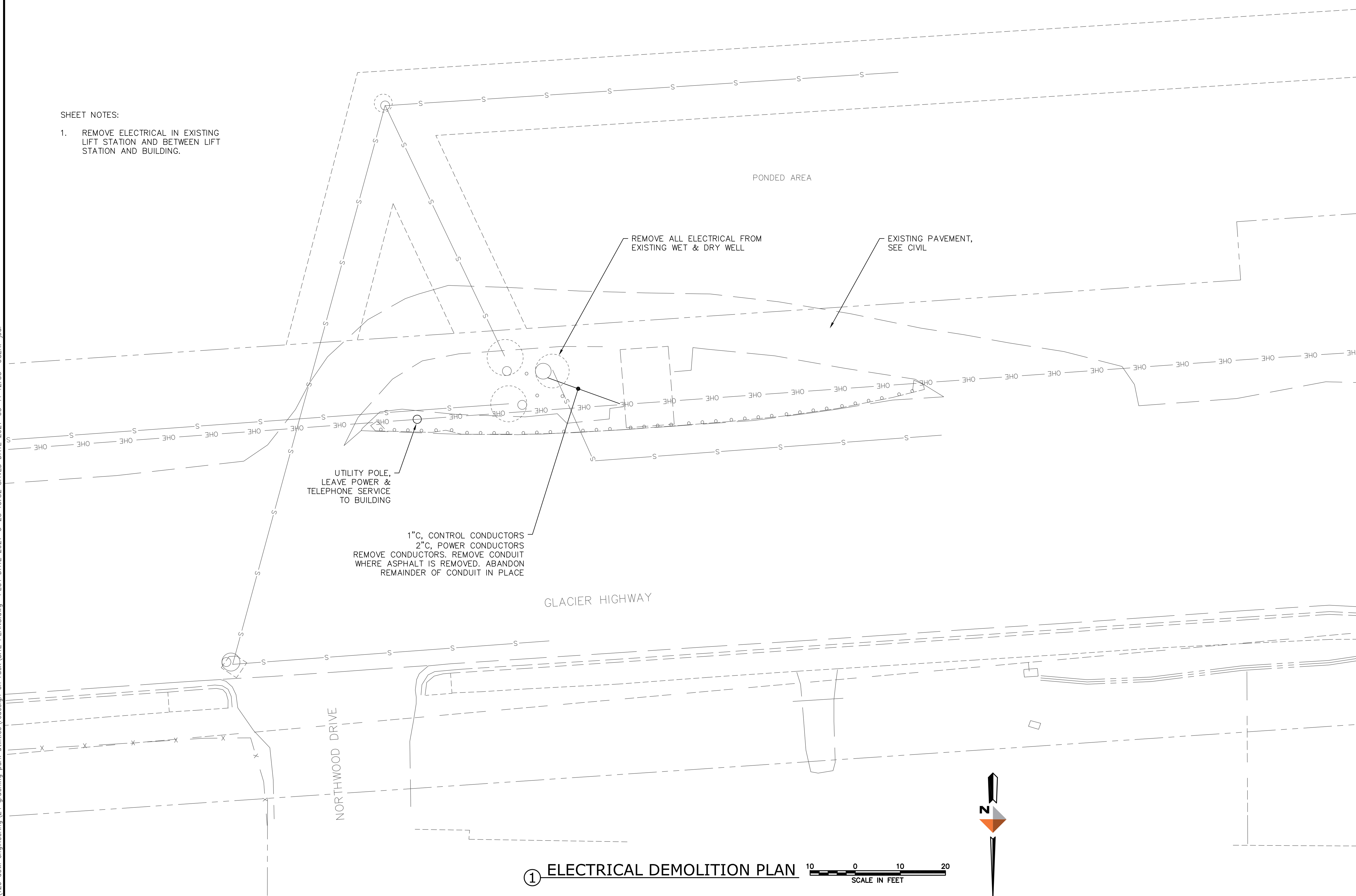
GRUENING PARK LIFT STATION
STAND-ALONE LIFT STATION
BE21-264

TITLE, LEGEND, & GENERAL NOTES

PROJECT 1529.50081.01
DATE 5/24/2021

SHEET NOTES:

1. REMOVE ELECTRICAL IN EXISTING LIFT STATION AND BETWEEN LIFT STATION AND BUILDING.



① ELECTRICAL DEMOLITION PLAN

10 0 10 20
SCALE IN FEET

REV	DATE	DESCRIPTION	BY

REVISIONS

STATE OF ALASKA 49TH — Mark G. Morris, No. EE 8613, May 25, 2021, REGISTERED PROFESSIONAL ENGINEER

CITY AND BOROUGH OF JUNEAU — ALASKA'S CAPITAL CITY

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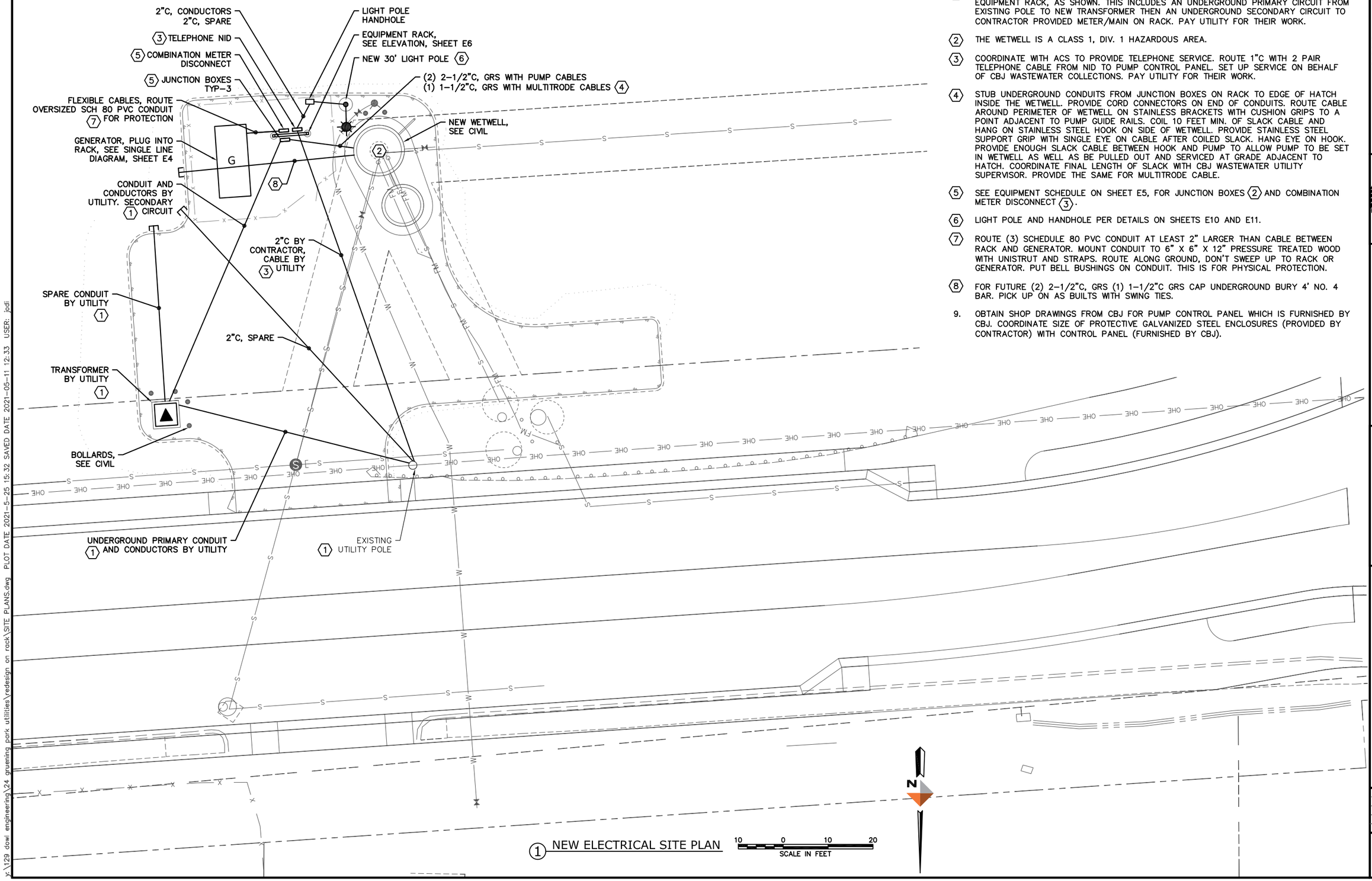
GRUENING PARK LIFT STATION
STAND-ALONE LIFT STATION
BE21-264
ELECTRICAL DEMOLITION PLAN

PROJECT 1529.50081.01
DATE 5/24/2021

SHEET 9 OF 20

E2



1 NEW ELECTRICAL SITE PLAN

NOTES:

1. COORDINATE WITH AEL&P TO PROVIDE A 277/480V, 3ϕ, 4W, 200 AMP SERVICE TO EQUIPMENT RACK, AS SHOWN. THIS INCLUDES AN UNDERGROUND PRIMARY CIRCUIT FROM EXISTING POLE TO NEW TRANSFORMER THEN AN UNDERGROUND SECONDARY CIRCUIT TO CONTRACTOR PROVIDED METER/MAIN ON RACK. PAY UTILITY FOR THEIR WORK.
2. THE WETWELL IS A CLASS 1, DIV. 1 HAZARDOUS AREA.
3. COORDINATE WITH ACS TO PROVIDE TELEPHONE SERVICE. ROUTE 1"C WITH 2 PAIR TELEPHONE CABLE FROM NID TO PUMP CONTROL PANEL. SET UP SERVICE ON BEHALF OF CBJ WASTEWATER COLLECTIONS. PAY UTILITY FOR THEIR WORK.
4. STUB UNDERGROUND CONDUITS FROM JUNCTION BOXES ON RACK TO EDGE OF HATCH INSIDE THE WETWELL. PROVIDE CORD CONNECTORS ON END OF CONDUITS. ROUTE CABLE AROUND PERIMETER OF WETWELL ON STAINLESS BRACKETS WITH CUSHION GRIPS TO A POINT ADJACENT TO PUMP GUIDE RAILS. COIL 10 FEET MIN. OF SLACK CABLE AND HANG ON STAINLESS STEEL HOOK ON SIDE OF WETWELL. PROVIDE STAINLESS STEEL SUPPORT GRIP WITH SINGLE EYE ON CABLE AFTER COILED SLACK. HANG EYE ON HOOK. PROVIDE ENOUGH SLACK CABLE BETWEEN HOOK AND PUMP TO ALLOW PUMP TO BE SET IN WETWELL AS WELL AS BE PULLED OUT AND SERVICED AT GRADE ADJACENT TO HATCH. COORDINATE FINAL LENGTH OF SLACK WITH CBJ WASTEWATER UTILITY SUPERVISOR. PROVIDE THE SAME FOR MULTITRODE CABLE.
5. SEE EQUIPMENT SCHEDULE ON SHEET E5, FOR JUNCTION BOXES 2 AND COMBINATION METER DISCONNECT 3.
6. LIGHT POLE AND HANDHOLE PER DETAILS ON SHEETS E10 AND E11.
7. ROUTE (3) SCHEDULE 80 PVC CONDUIT AT LEAST 2" LARGER THAN CABLE BETWEEN RACK AND GENERATOR. MOUNT CONDUIT TO 6" X 6" X 12" PRESSURE TREATED WOOD WITH UNISTRUT AND STRAPS. ROUTE ALONG GROUND, DON'T SWEEP UP TO RACK OR GENERATOR. PUT BELL BUSHINGS ON CONDUIT. THIS IS FOR PHYSICAL PROTECTION.
8. FOR FUTURE (2) 2-1/2"C, GRS (1) 1-1/2"C GRS CAP UNDERGROUND BURY 4' NO. 4 BAR. PICK UP ON AS BUILTS WITH SWING TIES.
9. OBTAIN SHOP DRAWINGS FROM CBJ FOR PUMP CONTROL PANEL WHICH IS FURNISHED BY CBJ. COORDINATE SIZE OF PROTECTIVE GALVANIZED STEEL ENCLOSURES (PROVIDED BY CONTRACTOR) WITH CONTROL PANEL (FURNISHED BY CBJ).

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA 49TH — REGISTERED PROFESSIONAL ENGINEER — Mark G. Morris — 2021 — No. EE-9811

CITY AND BOROUGH OF JUNEAU — ALASKA'S CAPITAL CITY

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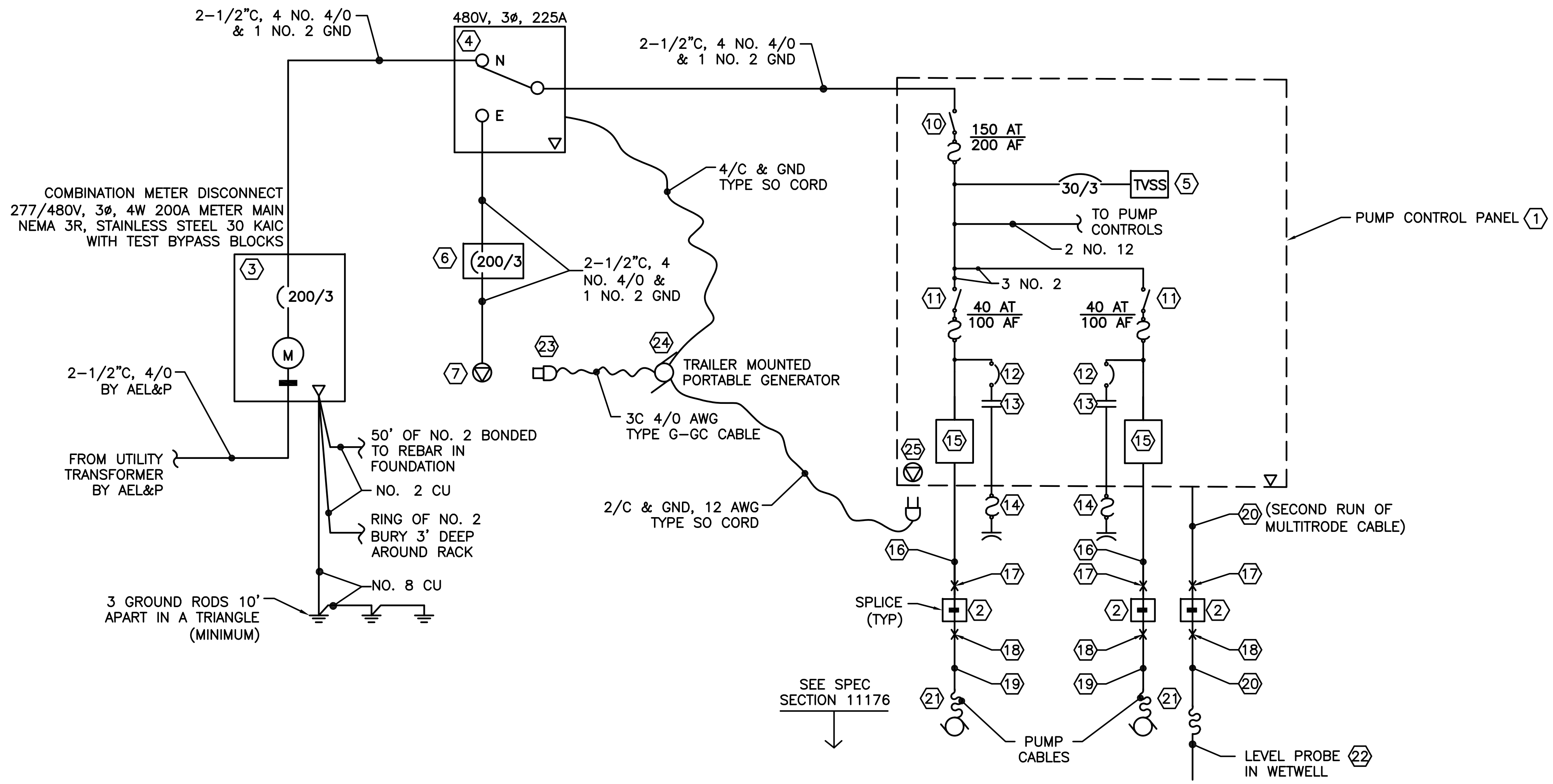
907-789-3350

GRUENING PARK LIFT STATION
STAND-ALONE LIFT STATION
BE21-264

NEW ELECTRICAL SITE PLAN

PROJECT 1529.50081.01
DATE 5/24/2021

SHEET 10 OF 20
E3



1 SINGLE LINE DIAGRAM
NO SCALE

NOTES:

1. BOND NEUTRAL TO GROUND BUS AT METER/DISCONNECT. DO NOT BOND NEUTRAL TO GROUND AT ANY OTHER POINT. DO NOT BOND THE NEUTRAL TO GROUND AT GENSET.

2. SEE EQUIPMENT SCHEDULE ON SHEET E5 FOR EQUIPMENT NUMBERS.

GRUENING PARK LIFT STATION
STAND-ALONE LIFT STATION
BE21-264

SINGLE LINE DIAGRAM

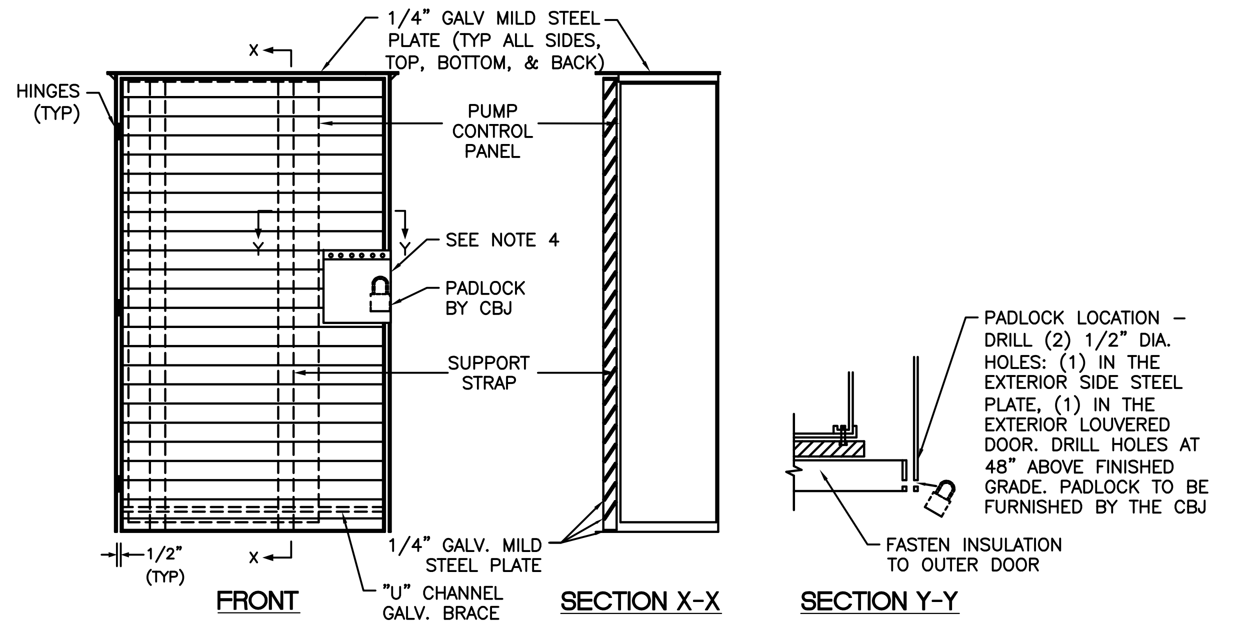
PROJECT	1529.50081.01
DATE	5/24/2021

SHEET 11 OF 20

E4

EQUIPMENT SCHEDULE (APPLICABLE TO SHEETS E4, E5 & E6)

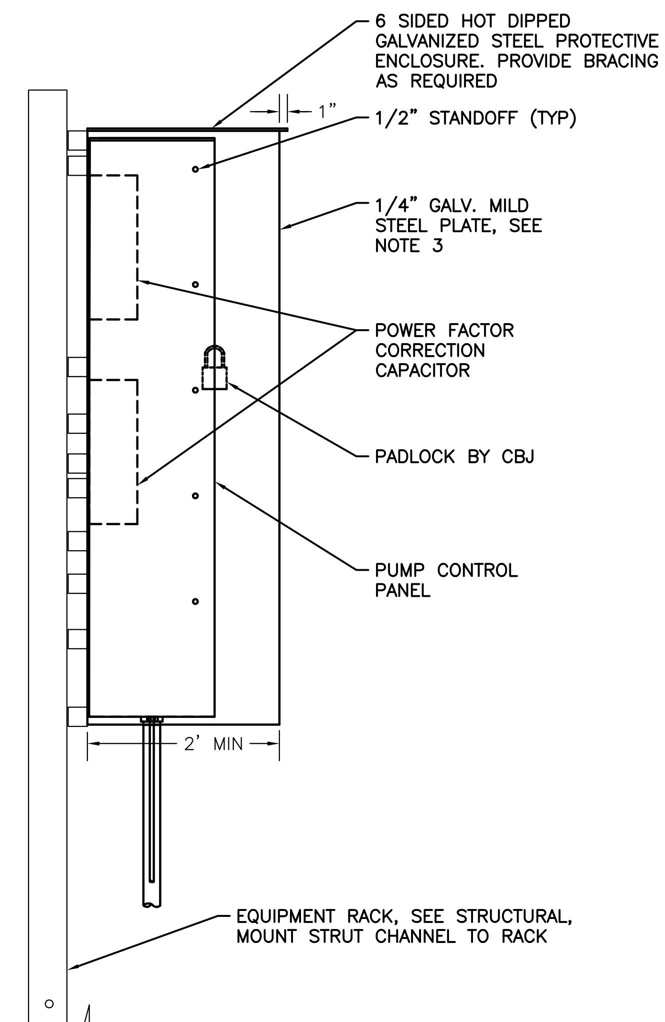
1. PUMP CONTROL PANEL. MOUNT TOP AT 82" AFG. PROVIDE WIRING AND EQUIPMENT TO ALLOW (2) 30 HP PUMPS TO BE POWERED AT A FUTURE DATE. CURRENTLY, (2) 17 HP PUMPS WILL BE POWERED. PROVIDE NO. 2 AWG ON PUMP CIRCUITS AS SHOWN. THE CBJ WILL FURNISH THE PANEL. CONTRACTOR TO INSTALL.
2. STAINLESS STEEL NEMA 4X JUNCTION BOX. 12" X 12" X 6" MIN. SIZE AS REQUIRED. SPLICE CABLES ON POWER DISTRIBUTION BLOCKS IN JUNCTION BOX SQUARE D CLASS 9080 TYPE LB, WITH CLEAR COVERS. LABEL COVERS FOR EACH PUMP AND MULTITRODE CABLES WITH PREPRINTED LABELS.
3. COMBINATION METER DISCONNECT, MOUNT TOP AT 82" AFG, NEMA 3R STAINLESS STEEL.
4. AUTOMATIC TRANSFER SWITCH, MOUNT TOP AT 82" AFG, 225 AMP ONAN OTPC SERIES. OPEN/PROGRAMMED TRANSITION, 20 SECONDS, 3 POLE, 277/480V, 3ϕ, 4 WIRE. PROVIDE WITH NEUTRAL AND GROUND BUS. NEMA 4X STAINLESS STEEL ENCLOSURE.
5. TRANSIENT VOLTAGE SURGE SUPPRESSION DEVICE (TVSS). 80KA SURGE CURRENT (8x20ms) PER PHASE, PROTECTION MODES: L–N, L–L, N–G, L–G. LIEBERT ACVII277Y111RKE. PROVIDE LED INDICATORS AND ALARM CONTROLS.
6. PORTABLE GENERATOR CIRCUIT BREAKER. MOUNT TOP 4" BELOW GENERATOR SELECTOR SWITCH. MOLDED CASE CIRCUIT BREAKER IN STAINLESS STEEL ENCLOSURE, 200 AMPS, 3 POLE AT 480V 30 KAIC. SQUARE D JGL36200 CIRCUIT BREAKER IN J250DS 304 STAINLESS STEEL ENCLOSURE OR EQUAL.
7. STYLE 2, PORTABLE GENERATOR RECEPTACLE 200A, 3 WIRE, 4 POLE. CROUSE HINDS AREA204227S22 WITH BACK BOX, ANGLE ADAPTER, AND REVERSE SERVICE INSULATORS. MOUNT WHERE SHOWN.
8. 2 LINE TELEPHONE N.I.D. BY UTILITY (ACS) MOUNT TOP 60" AFG. STAINLESS STEEL NEMA 4X JUNCTION BOX. 12" X 12" X 6" MIN. SIZE AS REQUIRED. BELOW N.I.D FOR WIRING. ROUTE BOTH LINES TO THE DIGITAL COMMUNICATOR IN THE PUMP CONTROL PANEL IN 1" CONDUIT.
9. PUMP PANEL ALARM STROBE LIGHT (120V, RED LED, EXTERIOR GRADE). MOUNT AT 7' AFG. SEAL TO PREVENT MOISTURE FROM ENTERING LIGHT AND CONDUIT.
10. DISCONNECT: 200 AMP NEMA STYLE DOOR MOUNTED FUSE DISCONNECT SWITCH (6" HANDLE). SQUARE D D10 SERIES OR EQUAL. PROVIDE WITH CLASS RK1 DUAL ELEMENT/TIME DELAY FUSE. BUSSMANN LOWPEAK OR EQUAL.
11. DISCONNECT: 100 AMP NEMA STYLE DOOR MOUNTED FUSE DISCONNECT SWITCH (6" HANDLE). SQUARE D D10 SERIES OR EQUAL. PROVIDE WITH CLASS RK1 DUAL ELEMENT/TIME DELAY FUSE. BUSSMANN LOWPEAK OR EQUAL. PROVIDE 100 AMP FRAME FUSE HOLDER WITH FUSE CLIPS TO ALLOW THE 40 AMP FUSE TO BE INSTALLED.
12. 20 AMP, 3 POLE CIRCUIT BREAKER.
13. CAPACITOR CONTACTOR. NEMA SIZE 3, 3 POLE, WITH 120V COIL. SQUARE D CLASS 8502 OR EQUAL.
14. POWER FACTOR CORRECTION CAPACITOR W/ FUSES AND FAILED FUSE INDICATORS. 480V, 3ϕ, 10 KVAR, 12 AMP, EATON 1043PMURF OR EQUAL. MOUNT NEXT TO PUMP CONTROL PANEL WITH PUMP PANEL CONTROL TRANSFORMER.
15. REDUCED VOLTAGE MOTOR STARTER WITH LINE TRANSIENT VOLTAGE PROTECTION MODULE, ISOLATION CONTACTS, AND PUMP CONTROL WITH NEMA 1 ENCLOSURE. PROVIDE WITH DOOR MOUNTED HUMAN INTERFACE MODULE (HIM) IN PUMP PANEL ENCLOSURE DOOR. ALLEN BRADLEY SMC–FLEX SERIES 150B–F60NBDB. THIS UNIT IS RATED FOR A FUTURE 30 HP MOTOR. SET OVERLOADS FOR 17 HP MOTOR. PROVIDE WITH 150–F84 LINE AND LOAD PROTECTIVE MODULES. PROVIDE WITH 20–HIM–C35 HIM MODULE. PROVIDE WITH 3 METER HIM MODULE CORD, 20–HIM–H30.
16. CONDUIT WITH CABLES (MOTOR FEEDERS). 2"C, 3 NO. 2, AND 1 NO. 8 GND.
17. CROUSE HINDS EYS CONDUIT SEAL. THE WETWELL IS A CLASS 1, DIV 1 AREA.
18. SPLIT CASE STYLE SEAL OFF. CROUSE HINDS EYSR SERIES. THE WETWELL IS A CLASS 1, DIV 1 AREA. DO NOT FILL THESE SEAL OFFS. THE CBJ WILL FILL THE SEAL OFFS UPON COMPLETION OF THE PROJECT.
19. 2–1/2"C, WITH PUMP CABLE.
20. 1–1/2"C, WITH MULTITRODE CABLE. PROVIDE A SECOND LENGTH OF MULTITRODE CABLE TO ROUTE BETWEEN THE TWO 12" STAINLESS STEEL JUNCTION BOXES AND BACK TO PUMP CONTROL PANEL.
21. SEWAGE LIFT PUMP, 17 HP, 480V, 3ϕ.
22. MULTITRODE 2.5 METER PROBE, 10 SENSOR, 30 METER CORD. PART NO. 2.5/10–30. PROVIDE SECOND CORD TO RUN BETWEEN PUMP PANEL INSIDE BUILDING TO THE JUNCTION BOX ON RACK OR USE CONDUCTORS WITH XHHW INSULATION. SIZE AND QUANTITY AS REQUIRED. COORDINATE WITH MANUFACTURER.
23. MATCH PLUG FOR PORTABLE GENERATOR RECEPTACLE. CROUSE HINDS AP 204612S22, 200A, 3 POLE, 4 WIRE WITH REVERSE SERVICE INSULATORS. CONNECT CABLE TO GENSET WITH CAMLOCK CONNECTORS THAT ARE COMPATIBLE WITH THE GENSET CAMLOCK CONNECTORS.
24. TRAILER MOUNTED GENERATOR, 100KW, SELECTABLE, 277/480V, 3ϕ, 120/208V, 3ϕ OR 120/240V 3ϕ, TIER 4 EMISSIONS WITH 24 HOUR FUEL TANK & 110% CONTAINMENT, SHORE POWER, DOT APPROVED ELECTRIC BRAKE TRAILER, PROVIDED WITH PLUG AND PORTABLE CORD. SEE SPECIFICATIONS FOR FURTHER INFORMATION. CUMMINS C100D2RE WITH UCI274E ALTERNATOR.
25. 120V, 20A TWIST LOCK RECEPTACLE.



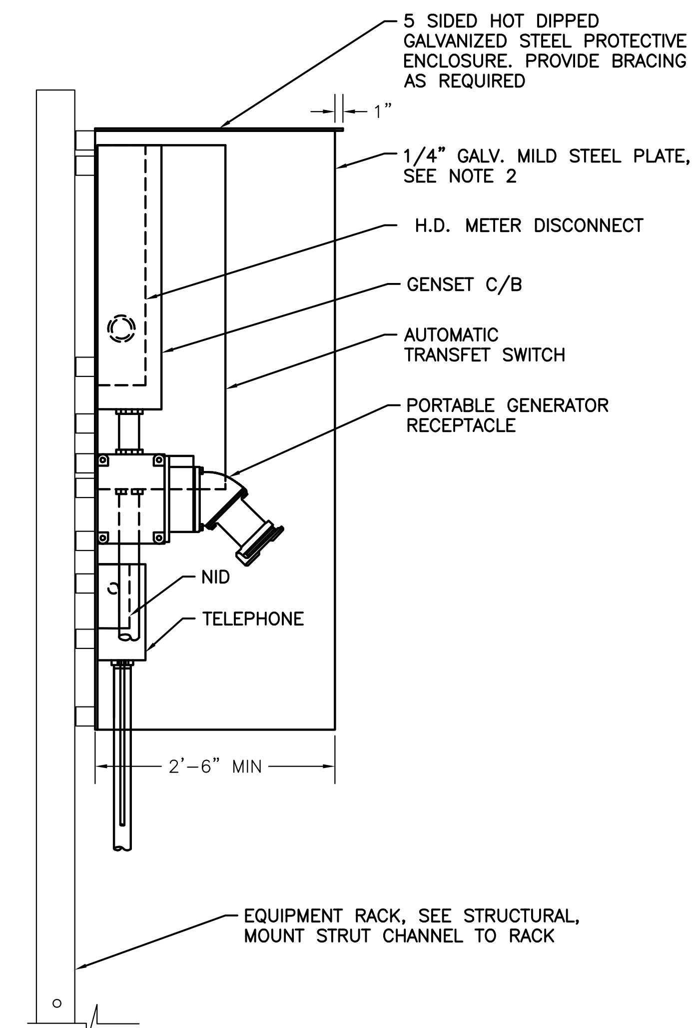
1 PUMP CONTROL PANEL PROTECTION ELEVATIONS
NO SCALE

NOTES (APPLICABLE TO DETAILS 1–3):

1. LABEL ALL EQUIPMENT ON RACK WITH ENGRAVED PHENOLIC LABELS WITH 1" TALL CAPITAL LETTERS. WHITE LETTERS ON A BLACK BACKGROUND. LABEL AS SHOWN OR WITH EQUIVALENT DESCRIPTIONS.
2. PROVIDE 1/4" GALVANIZED MILD STEEL ON BOTH SIDES, THE BACK, THE BOTTOM, AND THE TOP OF THE METER DISCONNECT, TRANSFER SWITCH, GENSET RECEPTACLE, AND GENSET CIRCUIT BREAKER AS SHOWN. EXTEND THE SIDES AND TOP SO THAT THEY EXTEND A MINIMUM OF 6" BEYOND THE END OF THE GENSET RECEPTACLE.
3. PROVIDE 1/4" GALVANIZED MILD STEEL PROTECTIVE ENCLOSURE AROUND THE PUMP CONTROL PANEL AND CAPACITORS AS SHOWN. (ALL SIDES INCLUDING A DOOR).
4. 6" X 6" X 3/8" RUBBER PAD. SECURE TO EXTERIOR FRONT DOOR WITH GALVANIZED HARDWARE. MOUNT OVER THE PADLOCK.



2 EQUIPMENT RACK SIDE VIEW - FRONT
NO SCALE



3 EQUIPMENT RACK SIDE VIEW - BACK
NO SCALE

REV	DATE	REVISIONS DESCRIPTION	BY

STATE OF ALASKA · 49TH · Mark G. Morris · No. EE 8613 · May 25, 2021 · REGISTERED PROFESSIONAL ENGINEER

CITY AND BOROUGH OF JUNEAU — ALASKA'S CAPITAL CITY

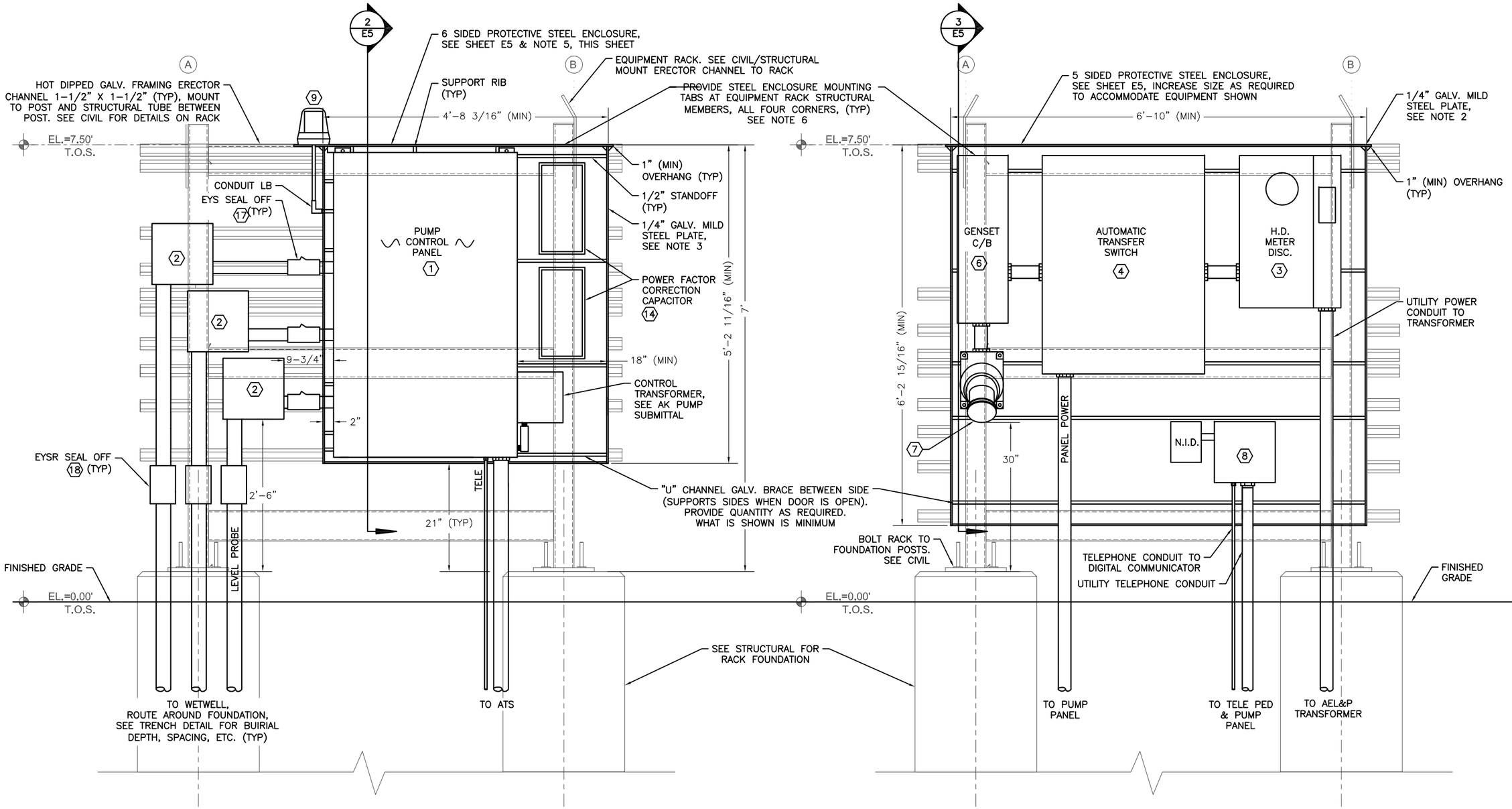
MORRIS ENGINEERING GROUP INC
AECL1010
2375 Jordan Ave #7
Juneau, AK 99801
907-789-3350

GRUENING PARK LIFT STATION
STAND-ALONE LIFT STATION
BE21-264

EQUIPMENT SCHEDULE & PUMP PANEL DETAILS

PROJECT 1529.50081.01
DATE 5/24/2021

SHEET 12 OF 20
E5



1 EQUIPMENT RACK - FRONT ELEVATION
NO SCALE

2 EQUIPMENT RACK - BACK ELEVATION
NO SCALE

NOTES (APPLICABLE TO DETAILS 1–2):

1. LABEL ALL EQUIPMENT ON RACK WITH ENGRAVED PHENOLIC LABELS WITH 1" TALL CAPITAL LETTERS. WHITE LETTERS ON A BLACK BACKGROUND. LABEL AS SHOWN OR WITH EQUIVALENT DESCRIPTIONS.
2. PROVIDE 1/4" GALVANIZED MILD STEEL ON BOTH SIDES, THE BACK, AND THE TOP OF THE METER DISCONNECT, TRANSFER SWITCH, GENSET RECEPTACLE, AND GENSET CIRCUIT BREAKER AS SHOWN. EXTEND THE SIDES AND TOP SO THAT THEY EXTEND A MINIMUM OF 6" BEYOND THE END OF THE GENSET RECEPTACLE.
3. PROVIDE 1/4" GALVANIZED MILD STEEL AROUND THE PUMP CONTROL PANEL AND CAPACITORS AS SHOWN.
4. SEE EQUIPMENT SCHEDULE ON SHEET E5 FOR EQUIPMENT NUMBERS.
5. OBTAIN SHOP DRAWINGS FROM CBJ FOR PUMP CONTROL PANEL WHICH IS FURNISHED BY CBJ. COORDINATE SIZE OF PROTECTIVE GALVANIZED STEEL ENCLOSURES (PROVIDED BY CONTRACTOR) WITH CONTROL PANEL (FURNISHED BY CBJ).
6. COORDINATE TAB LOCATION WITH THE RACK FABRICATION. MOVED TABS AND/OR FIELD DRILLED GALVANIZED STEEL SHALL BE HOT-STICK GALVANIZING IN THE FIELD.

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA 49TH — REGISTERED PROFESSIONAL ENGINEER — Mark G. Morris — No. EE 8611 — 5/24/2021

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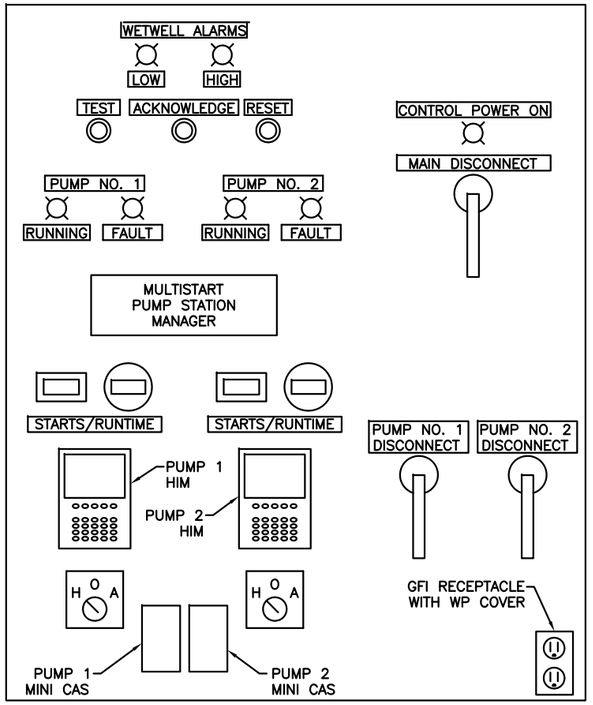
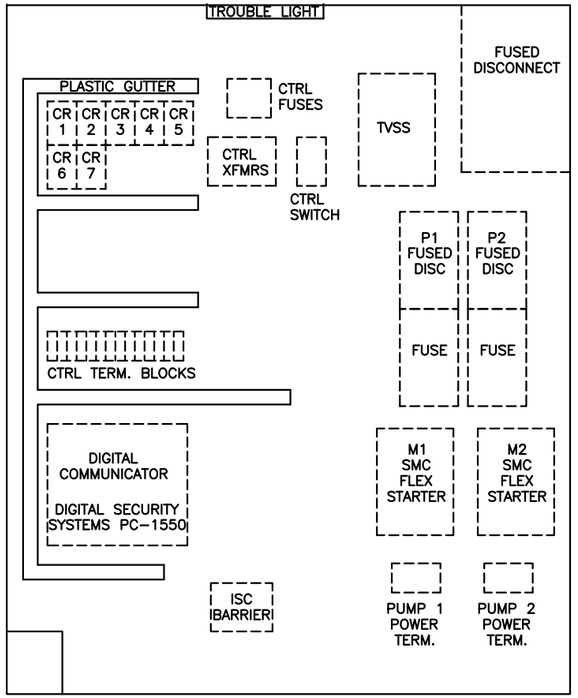
GRUENING PARK LIFT STATION
STAND-ALONE LIFT STATION
BE21-264
EQUIPMENT RACK ELEVATIONS

PROJECT 1529.50081.01
DATE 5/24/2021

SHEET 13 OF 20
E6

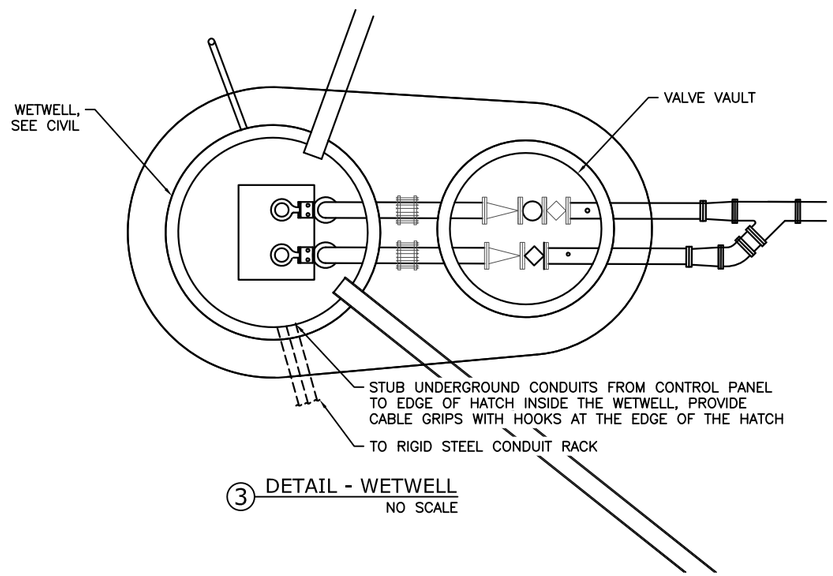


① DOOR ELEVATION - PUMP PANEL
NO SCALE



36"W X 60"H X 16"D (MIN. DIMENSIONS) NEMA 4X STAINLESS STEEL ENCLOSURE. PROVIDE WITH VENTILATION GRILLS AND FAN IF HEAT LOAD CALCULATIONS REQUIRE. INCREASE SIZE AS REQUIRED.

② INTERIOR ELEVATION - PUMP PANEL
NO SCALE



③ DETAIL - WETWELL
NO SCALE

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA 49TH
Mark G. Morris
No. EE-8611
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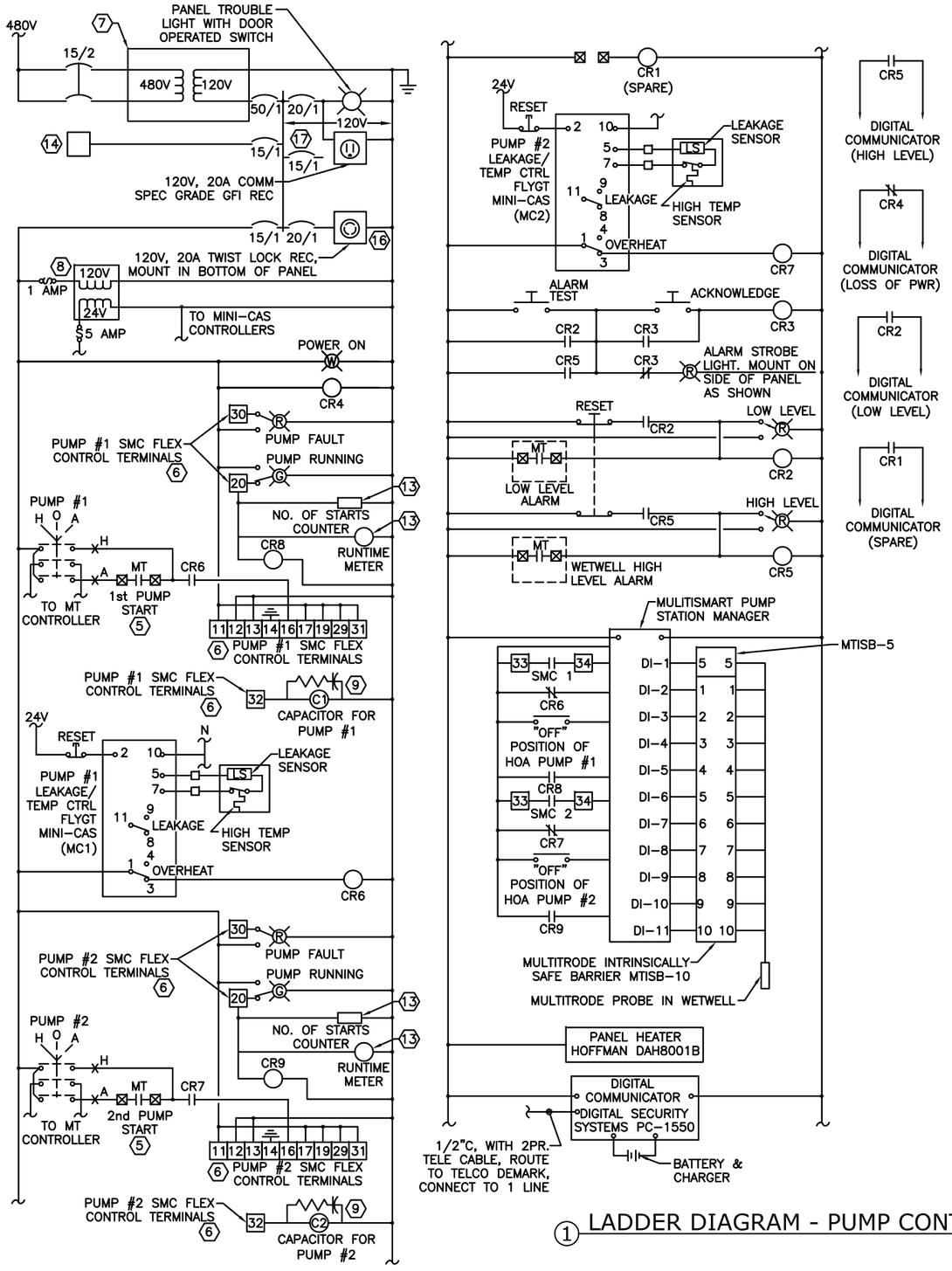
GRUENING PARK LIFT STATION
STAND-ALONE LIFT STATION
BE21-264

PUMP PANEL ELEVATIONS &
WETWELL DETAIL

PROJECT 1529.50081.01
DATE 5/24/2021

SHEET 14 OF 20
E7



1 LADDER DIAGRAM - PUMP CONTROLS
NO SCALE

NOTES:

1. ALL PANEL ALARM INDICATOR LIGHTS SHALL HAVE PUSH-TO-TEST LIGHTS MOUNTED ON THE PANEL DOOR.
2. THE MAIN DISCONNECT AND PUMP DISCONNECTS SHALL CONSIST OF FUSES AND DISCONNECT SWITCHES NOT CIRCUIT BREAKERS. THE MAIN DISCONNECT SHALL DISCONNECT POWER INSIDE PANEL WHEN THE DOOR OPENS.

(3) NOT USED

4. COORDINATE WITH LJ ALARM MONITOR COMPANY (907-789-7940) TO PROVIDE (4) SEPARATE ALARMS TO LJ THROUGH THE DIGITAL COMMUNICATOR:
   (1) LOSS OF POWER
   (2) LOW LEVEL
   (3) HIGH LEVEL
   (4) SPARE

(5) COORDINATE WITH CBJ WASTE WATER COLLECTIONS TO PROGRAM THE MULTITRODE CONTROLLER TO START AND STOP THE PUMPS, ALTERNATE THE PUMPS (LEAD VS. LAG), AND ESTABLISH THE HIGH AND LOW LEVEL ALARM SET POINTS.

(6) PROGRAM SMC FLEX AUXILIARY CONTACT NO. 1 (TERMINALS 19/20) TO CLOSE WHEN STARTER IS "UP TO SPEED".
PROGRAM SMC FLEX AUXILIARY CONTACT NO. 2 (TERMINALS 29/30) TO CLOSE WHEN STARTER IS "IN FAULT".
PROGRAM SMC FLEX AUXILIARY CONTACT NO. 3 (TERMINALS 31/32) TO CLOSE WHEN STARTER IS "UP TO SPEED".
PROGRAM SMC FLEX AUXILIARY CONTACT NO. 4 (TERMINALS 33/34) TO CLOSE WHEN STARTER IS "IN FAULT".

(7) CONTROL TRANSFORMER. 480V:120V, 1ø, 3 KVA, PROVIDE PRIMARY AND SECONDARY PROTECTION WITH CIRCUIT BREAKERS.

(8) CONTROL TRANSFORMER. 120V:24V, 1ø, 100 VA, W/ FACTORY INSTALLED PRIMARY AND SECONDARY FUSE PROTECTION. SQUARE D TF100 OR EQUAL.

(9) PROVIDE AN R-C SUPPRESSOR ACROSS ALL SMC FLEX STARTER OUTPUTS THAT POWER A COIL. ALLEN BRADLEY 199-MSMA1 OR EQUAL.

10. ALL RELAYS SHALL BE INDUSTRIAL CONTROL RELAYS. ALLEN BRADLEY BULLETIN "700" SERIES OR EQUAL. PROVIDE WITH NUMBER OF AUX CONTACTS AS REQUIRED (MIN. OF 2).
11. ALL INDICATING LIGHTS SHALL BE 30MM NEMA 4X OIL TIGHT/WATER TIGHT/CORROSION RESISTANT PUSH-TO-TEST LED TYPE. PROVIDE ALLEN BRADLEY BULLETIN "800" SERIES OR EQUAL.
12. ALL SELECTOR SWITCHES SHALL BE 30MM NEMA 4X OIL TIGHT/WATER TIGHT/CORROSION RESISTANT TYPE WITH GLOVED HAND KNOBS. PROVIDE ALLEN BRADLEY BULLETIN "800" SERIES OR EQUAL.

(13) THE NO. OF STARTS COUNTER SHALL BE A REDINGTON RESETABLE TIMER P2-4906 OR EQUAL. THE RUN TIME COUNTER SHALL BE A REDINGTON HOUR METER 710-0001 OR EQUAL.

(14) SECONDARY SURGE ARRESTOR WITH LED SHALL MEET ANSI/IEEE C62.11-1993. SQUARE D SDSA1175 OR EQUAL.

15. SEE SHEET E1 FOR THE ELECTRICAL LEGEND.

(16) PROVIDE A 30' FLEXIBLE CORD WITH TWIST LOCK PLUG TO PLUG INTO CONTROL PANEL. WIRE OTHER END TO SHORE POWER CONNECTION ON GENERATOR. PROVIDE PLUG IF NEEDED ON THIS END.

(17) PROVIDE ACCESS TO FIELD CONNECT, 2 NO. 12 & 1 NO. 12 GND TO POWER AN AREA LIGHT (BY OTHERS).

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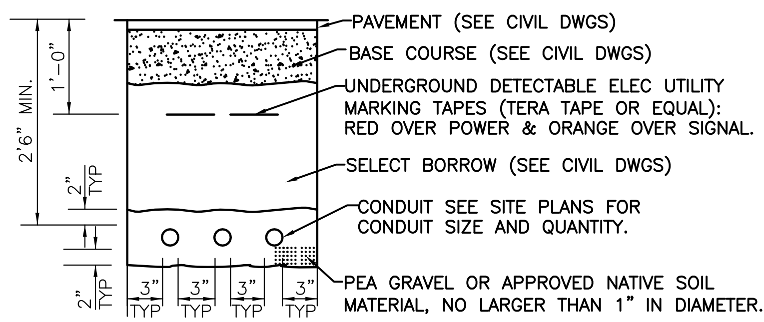
CITY AND BOROUGH OF JUNEAU
ALASKA'S CAPITAL CITY

GRUENING PARK LIFT STATION
STAND-ALONE LIFT STATION
BE21-264
LADDER DIAGRAM

PROJECT 1529.50081.01
DATE 5/24/2021

SHEET 15 OF 20
E8

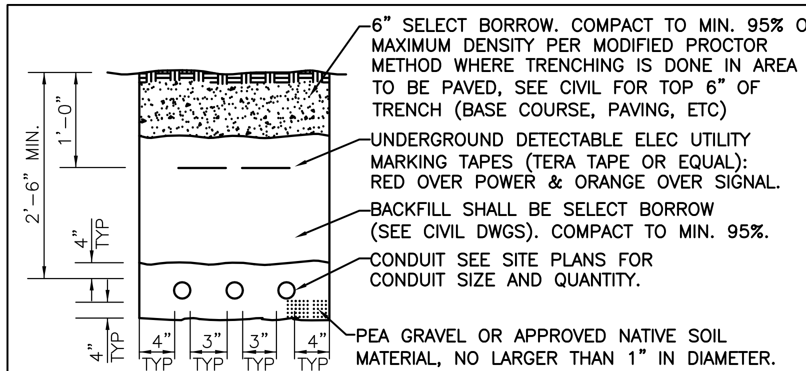


TRENCH DETAIL - PAVED AREAS

NO SCALE

NOTES:

1. ALL DIMENSIONS ARE MINIMUM.
2. SEE CIVIL DRAWINGS FOR TYPICAL SECTIONS UNDER PAVED AREAS. PROVIDE BACKFILL (MATERIAL, COMPACTION, ETC.) PER THE CIVIL DRAWINGS.
3. THE LOCATION OF ALL EXISTING PIPING, CONDUIT, ETC MAY NOT BE WHERE SHOWN AND MAY NOT BE SHOWN. ALL LOCATIONS THAT ARE SHOWN ARE APPROXIMATE AND SHOULD BE FIELD VERIFIED. OBTAIN UTILITY LOCATES PRIOR TO DIGGING. DIG WITH CAUTION. AVOID WATER, SEWER, DRAINAGE PIPES AND OTHER CONFLICTS.
4. MAINTAIN 12 INCHES MINIMUM SEPARATION (ALL DIRECTIONS) BETWEEN POWER AND OTHER EXISTING CONDUITS, PIPES, ETC.
5. CUT & REPLACE EXISTING ASPHALT, CONCRETE, CONCRETE CURB, GUTTER, SIDEWALK, ETC AS NECESSARY.
6. SAWCUT EXISTING ASPHALT AS REQUIRED TO INSTALL CONDUIT AND OTHER ELECTRICAL ITEMS. SAWCUT ASPHALT BACK 18" ON EACH SIDE OF EDGE OF TRENCH OR EXCAVATION AREA (ALL SIDES). THERE SHALL BE 18" OF UNDISTURBED SOIL BETWEEN EDGE OF SAWCUT AND EXCAVATION LIMITS. ALL TRENCHES SHALL BE 18" WIDE MIN. COMPACT BACKFILL TO 95%. COMPACT D-1 TO 100% WHERE COVERED WITH PAVEMENT. RE-PAVE SAWCUT AREAS PER PAVING SPECIFICATIONS.
7. POWER UTILITY CONDUITS SHALL BE BURIED AT A MINIMUM OF 3'-6". BURY CONDUITS DEEPER WHERE REQUIRED TO AVOID OTHER PIPES AND STRUCTURES.
8. MODIFY CONDUIT BURIAL DEPTH WHERE SHOWN ON DRAWINGS AND AS REQUIRED TO AVOID ALL OBSTACLES.
9. THIS DETAIL APPLIES TO DRAIN CONDUITS AS WELL AS POWER & SIGNAL CONDUITS.



TRENCH DETAIL - NON-PAVED AREAS

NO SCALE

NOTES:

1. ALL DIMENSIONS ARE MINIMUM.
2. THE LOCATION OF ALL EXISTING PIPING, CONDUIT, ETC MAY NOT BE WHERE SHOWN AND MAY NOT BE SHOWN. ALL LOCATIONS THAT ARE SHOWN ARE APPROXIMATE AND SHOULD BE FIELD VERIFIED. OBTAIN UTILITY LOCATES PRIOR TO DIGGING. DIG WITH CAUTION. AVOID WATER, SEWER, DRAINAGE PIPES AND OTHER CONFLICTS.
3. MAINTAIN 12 INCHES MINIMUM SEPARATION (ALL DIRECTIONS) BETWEEN POWER AND OTHER EXISTING CONDUITS, PIPES, ETC.
4. CUT & REPLACE EXISTING ASPHALT, CONCRETE, CONCRETE CURB, GUTTER, SIDEWALK, ETC AS NECESSARY.
5. ALL TRENCHES SHALL BE 18" WIDE MIN. COMPACT BACKFILL TO 95%.
6. POWER UTILITY CONDUITS SHALL BE BURIED AT A MINIMUM OF 3'-6". BURY CONDUITS DEEPER WHERE REQUIRED TO AVOID OTHER PIPES AND STRUCTURES.
7. MODIFY CONDUIT BURIAL DEPTH WHERE SHOWN ON DRAWINGS AND AS REQUIRED TO AVOID ALL OBSTACLES.
8. THIS DETAIL APPLIES TO DRAIN CONDUITS AS WELL AS POWER & SIGNAL CONDUITS.

1 TRENCH DETAILS

NO SCALE

REVISIONS

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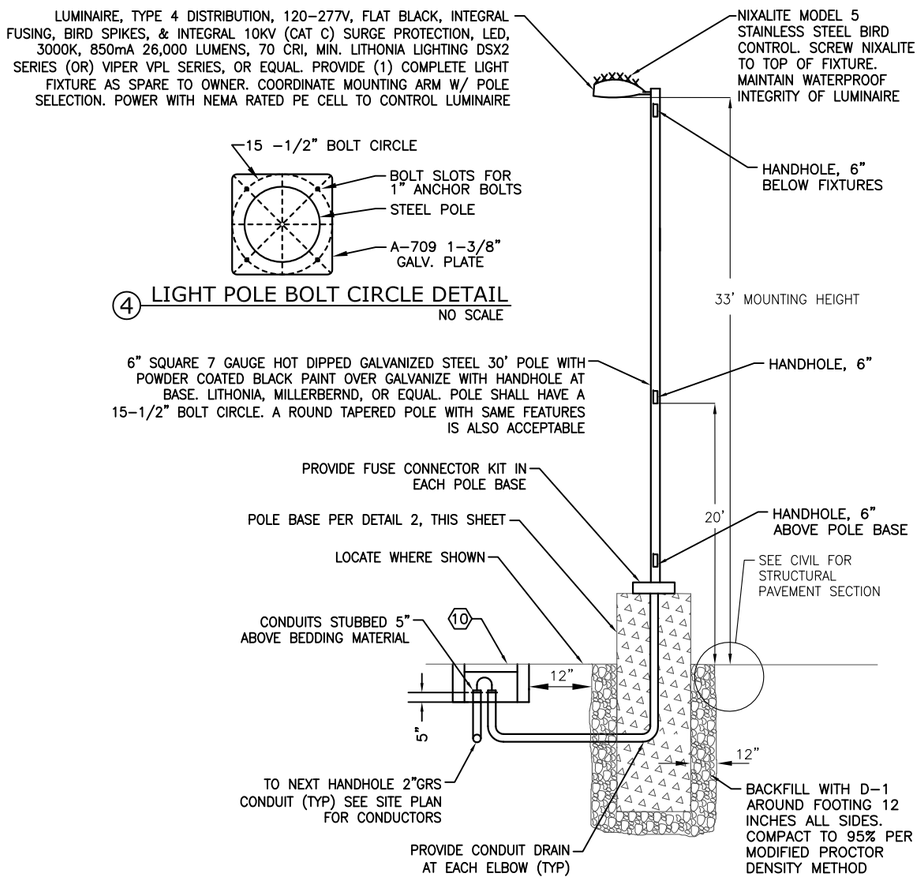
CITY AND BOROUGH OF JUNEAU
ALASKA'S CAPITAL CITY

GRUENING PARK LIFT STATION
STAND-ALONE LIFT STATION
BE21-264

TRENCH DETAILS

PROJECT 1529.50081.01
DATE 5/24/2021

SHEET 16 OF 20
E9



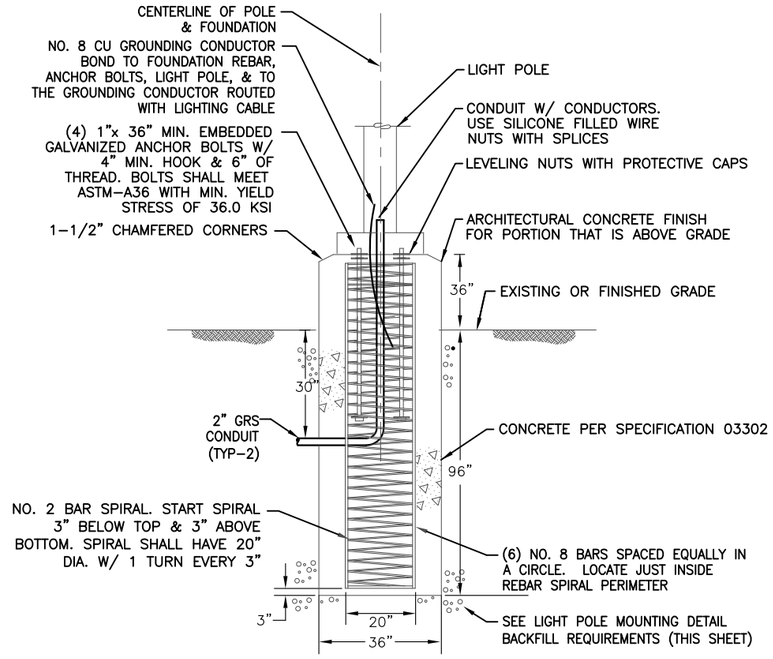
4 LIGHT POLE BOLT CIRCLE DETAIL
NO SCALE

NOTES:

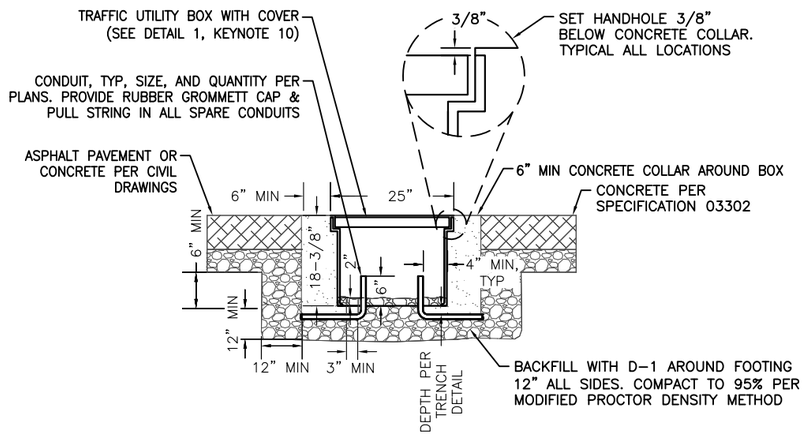
1. ALL SPLICES SHALL BE IN BASE OF POLE. LOOP FEED POWER CONDUCTORS IF REQUIRED. SEE SITE PLAN.
2. PROVIDE GROUNDING BUSHINGS ON CONDUIT.
3. PROVIDE FUSE KITS IN EACH POLE BASE ACCESSIBLE FROM BOTTOM HANDHOLE AND SPD AT TOP OF POLE. SEE SHEET E11 DETAIL 1 FOR SCHEMATIC AND DETAIL 2 FOR WIRING DIAGRAM.
4. SIZE POLE WITH LUMINAIRES FOR 120 MPH SUSTAINED WINDS WITH GUSTS TO 150 MPH. POLE DIMENSIONS SHOWN ARE A MINIMUM. PROVIDE CALCULATIONS SHOWING COMPLIANCE SEALED BY CIVIL ENGINEER REGISTERED IN ALASKA.
5. LOCATE CENTER OF THE LIGHT POLE PER CIVIL DRAWINGS.
6. LOCATE TOP OF BASE 3' ABOVE FINISHED GRADE PER LIGHT POLE BASE DETAIL THIS SHEET.
7. THE PART NUMBERS IN THE LUMINAIRE SCHEDULE MAY NOT BE COMPLETE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL PARTS AND ACCESSORIES NECESSARY TO COMPLY WITH THE FEATURES SHOWN IN THE LUMINAIRE SCHEDULE (INCLUDING THE MOUNTING) AS SHOWN ON THE OTHER PLAN SHEETS AND SPECIFICATIONS.
8. SUBSTITUTE FIXTURES OF EQUAL PERFORMANCE, PHYSICAL FORM, AESTHETIC, AND MOUNTING SHALL BE CONSIDERED FOR APPROVAL DURING THE SUBMITTAL PROCESS.
9. SEE SITE PLAN SHEET E3 FOR POLE LOCATION.

10 TIER 22, OPEN BOTTOM, 13" X 22" X 18" NOMINAL BOX WITH HEX BOLT LID, 'LIGHTING' ON COVER. OLD CASTLE POLYMER SERIES 13241630 OR HUBBELL QUAZITE PG1324BA18 WITH PG1324HH0029 COVER OR EQUAL.

1 LIGHT POLE MOUNTING DETAIL
NO SCALE



2 LIGHT POLE BASE DETAIL
NO SCALE



3 HANDHOLE DETAIL
NO SCALE

REV	DATE	DESCRIPTION	BY
		REVISIONS	

STATE OF ALASKA 49TH — REGISTERED PROFESSIONAL ENGINEER — Mark G. Morris — No. EE-8611 — 2021

CITY AND BOROUGH OF JUNEAU — ALASKA'S CAPITAL CITY

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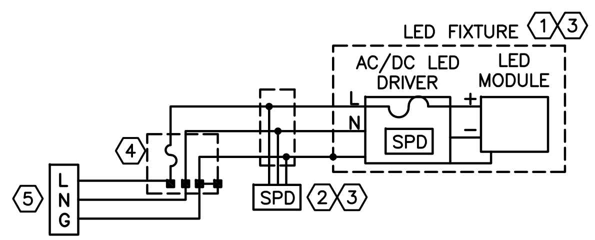
GRUENING PARK LIFT STATION
STAND-ALONE LIFT STATION
BE21-264

LIGHT POLE & HANDHOLE DETAILS

PROJECT 1529.50081.01
DATE 5/24/2021

SHEET 17 OF 20
E10



1 LIGHT POLE FUSE HOLDER AND SPD WIRING DIAGRAM
NOT TO SCALE

NOTES:

1. KEEP WIRES AS STRAIGHT AND SHORT AS POSSILE.
2. ROUND WIRES RATHER THEN BENDING AT A HARD 90 DEGREE ANGLE.
3. DO NOT CROSS OR OVERLAP PROTECTED WIRES (THOSE AFTER THE SPD, EITHER AC OR DC WIRES).
4. ONLY ONE EXTERNAL SPD REQUIRED.
5. SEE DETAIL 3, THIS SHEET FOR SPD AND FUSE HOLDER INSTALLATIONS.

KEYNOTES:

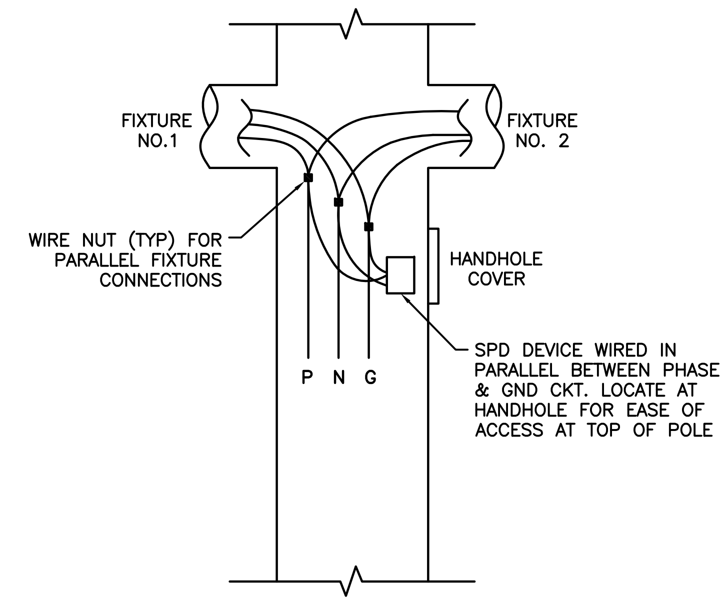
(1) OVERALL LED FIXTURE WITH FUSED DRIVER FURNISHED WITH INTEGRAL AND INTERNAL SPD.

(2) CIRCUIT EXTERNAL LED FIXTURE SPD AS SHOWN. MAKE PARALLEL CONNECTION INTO CIRCUIT. SEE ENLARGED DETAIL, THIS SHEET. SIZE MATCHED TO CIRCUIT CONDUCTORS SIZES. SPD SHALL BE LITTLEFUSE LSP10 OR EATON MTL LS10N OR EQUAL. SPD TO INCLUDE OPTIONAL END OF LIFE INDICATOR LED.

(3) CO-LOCATE EXTERNAL SPD WITHIN LIGHT FIXTURE HOUSING IF ACCEPTABLE TO FIXTURE MANUFACTURER. OTHERWISE INSTALL WITHIN POLE IMMEDIATELY ADJACENT TO FIXTURE MOUNTING LOCATION.

(4) FINGER SAFE FUSE HOLDER AT BASE OF LIGHT POLE ACCESSIBLE FROM BASE HANDHOLE. SEC 1791-SF OR EATON HEZ-AA. PROVIDE WITH CLASS CC FAST ACTING FUSE SIZED PER SELECTED FIXTURE LOAD REQUIREMENT.

(5) SOURCE PANEL PER PLANS.



2 SPD ENLARGED DETAIL
NOT TO SCALE

NOTE:

1. PROVIDE 6" MINIMUM HORIZONTAL CLEARANCE BETWEEN LIGHT POLE BASE AND OTHER BURIED PIPES, STORM DRAINS, ETC. CONSULT WITH ENGINEER BEFORE ADJUSTING THE LOCATION OF ANY LIGHT POLES.

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STAND-ALONE LIFT STATION
BE21-264

LIGHTING SCHEMATIC & WIRING DIAGRAM

PROJECT 1529.50081.01
DATE 5/24/2021

SHEET 18 OF 20
E11

GENERAL STRUCTURAL NOTES

1. APPLICABLE SPECIFICATIONS AND CODES
   a. CONSTRUCTION AND DESIGN SHALL BE IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE (IBC),2018 EDITION, AND WITH THE LATEST EDITION OF THE APPLICABLE SPECIFICATIONS AND THE REQUIREMENTS NOTED AS FOLLOWS.
2. SPECIAL INSPECTION
   a. CONCRETE - TABLE 1705.3 OF THE IBC
      i. PERIODIC INSPECTION OF REINFORCEMENT BEFORE CONCRETE IS PLACED.
      ii. FULL TIME INSPECTION OF ANCHOR RODS AND OTHER EMBEDDED ITEMS AS IDENTIFIED HEREIN.
      iii. FULL TIME INSPECTION DURING PLACEMENT OF CONCRETE INCLUDING THE TAKING OF TEST SPECIMENS, SLUMP AND AIR CONTENT MEASUREMENT. INSPECTION AND TESTING SHALL BE LIMITED TO STRUCTURAL REINFORCED CONCRETE WITH TESTING FREQUENCY IN ACCORDANCE WITH THE PROJECT TECHNICAL SPECIFICATIONS.
   b. STEEL - AISC 360 FOR STRUCTURAL STEEL, IBC SECTION 1705.2 FOR STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL (COLD FORMED STEEL, REBAR, ETC.)
      i. FULL TIME INSPECTION FOR HIGH-STRENGTH BOLTING FOR SLIP CRITICAL CONNECTIONS PER AISC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS.
      ii. PERIODIC INSPECTION FOR HIGH STRENGTH BOLTING FOR BEARING TYPE CONNECTIONS PER AISC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS.
      iii. FULL TIME INSPECTION OF COMPLETE AND PARTIAL PENETRATION GROVE WELDS, MULTI-PASS FILLET WELDS AND SINGLE PASS FILLET WELDS GREATER THAN 5/16" IN ACCORDANCE WITH AWS D1.1.
      iv. PERIODIC INSPECTION OF FRAME JOINT DETAILS FOR COMPLIANCE WITH THE PLANS AND SPECIFICATIONS.
   c. PILING, DRILLED PIERS AND CAISSONS - TABLE 1705.7 AND 1705.8 OF THE IBC
      i. FULL TIME INSPECTION DURING DRIVING AND TESTING OF PILES
      ii. FULL TIME INSPECTION DURING AUGERING OF CAST-IN-PLACE DRILLED PIERS. REBAR AND CONCRETE SPECIAL INSPECTION REQUIREMENTS SHALL COMPLY WITH THE PROVISIONS STATED HEREIN FOR CONCRETE.
      iii. FULL TIME INSPECTION DURING CONSTRUCTION OF CAST-IN-PLACE CAISSONS.
3. DESIGN LOADS
   a. DESIGN LOADS AND LOAD APPLICATIONS SHALL BE IN ACCORDANCE WITH IBC.
   b. WIND LOADS IN ACCORDANCE WITH CHAPTER 26 OF ASCE 7
      i. OCCUPANCY OR RISK CATEGORY - - - - - - - - - - II
      ii. BASINC WIND SPEED (3-SEC GUST) - - - - - - - - - 150 MPH
      iii. EXPOSURE CATEGORY - - - - - - - - - - - - - - - - - - - C
   c. SEISMIC LOADS
      i. IMPORTANCE FACTOR - - - - - - - - - - - - - - - - - - - I = 1.5
      ii. MAPPED SPECTRAL RESPONSE S_s - - - - - - - - - 0.575
      iii. MAPPED SPECTRAL RESPONSE S_1 - - - - - - - - - 0.371
      iv. SITE CLASS - D
      v. SPECTRAL RESPONSE COEFFICIENT S_{DS} - - - 0.514
      vi. SPECTRAL RESPONSE COEFFICIENT S_{D1} - - - 0.371
      vii. SEISMIC DESIGN CATEGORY - - - - - - - - - - - - - D
      viii. BASIC SEISMIC-FORCE-RESISTING SYSTEM - SPECIAL CANTILEVER COLUMN
      ix. DESIGN BASE SHEAR - - - - - - - - - - - - - - - - - - 0.82 KIPS
      x. SEISMIC RESPONSE COEFFICIENT C_s - - - - - - 0.345
      xi. RESPONSE MODIFICATION FACTOR R - - - - - - 2.5
      xii. ANALYSIS PROCEDURE USED - - - - - - - - - - - - EQUIVALENT LATERAL FORCE
   d. SPECIAL LOADS
      i. MECHANICAL AND ELECTRICAL EQUIPMENT LOADS - - ACTUAL OPERATING LOADS
4. CONSTRUCTION LOADS
   a. STRUCTURES HAVE BEEN DESIGNED FOR DEAD LOADS AND THE DESIGN LOADS NOTED ABOVE. PROVIDE TEMPORARY BRACING, SHORING OR OTHER SUPPLEMENTAL SUPPORT DURING CONSTRUCTION AS NECESSARY TO PROTECT THE STRUCTURES FROM EXCESSIVE LOADS DURNG CONSTRUCTION.
5. FOUNDATIONS
   a. FOUNDATION DESIGN CRITERIA
      i. MAXIMUM ALLOWABLE SOIL BEARING PRESSURE - - - 2,500 PSF
      ii. LATERAL SOIL PRESSURE - 60 PCF EQUIVALENT FLUID PRESSURE
      iii. DESIGN FROST DEPTH BELOW EXTERIOR GRADE - - 4 FEET
   b. DRILLED PIER FOUNDATION DESIGN CRITERIA
      i. MAXIMUM END BEARING PRESSURE - - - - - - - - - - - - - 40,000 PSF
      ii. MINIMUM DEAD LOAD END BEARING PRESSURE - - - - 10,000 PSF
      iii. SIDEWALL SHEAR - 4,000 PSF
      iv. MINIMUM PIER LENGTH - 6 FEET
      v. MINIMUM PIER PENETRATION INTO BEDROCK - - - - - - 0.5 FEET
   c. AVOID EXCESSIVE WETTING OR DRYING OF THE FOUNDATION EXCAVATIONS DURING CONSTRUCTION.
   d. BACKFILL ON WALLS WITH FILL ON BOTH SIDES SHALL BE COMPACTED IN EQUAL LIFTS EACH SIDE OF WALL. WALLS BACKFILLED FROM ONE SIDE ONLY SHALL HAVE ALL SUPPORTING SLABS, PERMANENT FRAMING OR TEMPORARY BRACING IN PLACE PRIOR TO PLACEMENT OF BACKFILL.
   e. ALL DRILLED PIER SHAFTS SHALL BE CLEANED AND DEWATERED, AND BOTTOM ELEVATIONS AND BEARING MATERIAL SHALL BE INSPECTED BY SOILS ENGINEER PRIOR TO CONCRETE PLACEMENT.
6. CONCRETE
   a. CONCRETE CONSTRUCTION SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318).
   b. DETAILING, FABRICATION AND PLACEMENT OF REINFORCEMENT SHALL CONFORM TO DETAILS AND DETAILING OF CONCRETE REINFORCEMENT (ACI 315)
   c. MATERIALS
      i. CONCRETE
         (A) STRUCTURAL CAST-IN-PLACE - - - - - - - - f'_c = 4,000 PSI
      ii. REINFORCING MATERIALS
         (A) REINFORCING BARS - - - - - - - - - - - - - - ASTM A615, GRADE 60
   d. ALL BENT REINFORCING BARS SHALL BE SHOP FABRICATED ONLY. REBENDING OR WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS AUTHORIZED BY ENGINEER.
   e. END HOOKS IN REINFORCING BARS, SHOWN ON THE DRAWINGS BUT NOT DIMENSIONED, SHALL CONFORM TO ACI 318.
   f. CONCRETE COVER OVER REINFORCEMENT SHALL BE 2" CLEAR, EXCEPT FOR THE FOLLOWING, UNLESS OTHERWISE NOTED.
      i. CONCRETE PLACED AGAINST AND PERMANENTLY IN CONTACT WITH EARTH - - - - - - - - - - - - - 3" CLEAR
   g. REINFORCING BARS AND ACCESSORIES SHALL NOT BE IN CONTACT WITH ANY PIPE, PIPE FLANGE OR METAL PART EMBEDDED IN CONCRETE. PROVIDE 2" CLEARANCE IN ALL CASES UNLESS OTHERWISE INDICATED. NO EMBEDDED ITEM SHALL BE SUPSPENDED FROM, SUPPORTED BY, OR BRACED IN PLACE FROM THE STRUCTURAL REINFORCEMENT.
   h. CHAMFER ALL EXPOSED CONCRETE EDGES 1", UNLESS OTHERWISE INDICATED.
7. STRUCTURAL STEEL
   a. STRUCTURAL STEEL CONSTRUCTION SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL BUILDINGS.
   b. MATERIAL
      i. STRUCTURAL STEEL PLATES, BARS, ANGLES, AND CHANNELS - - - - - - - - - - - - - - - - - ASTM A36
      ii. HOLLOW STRUCTURAL STEEL - - - - - - - - - - - - - ASTM A1085
      iii. HIGH-STRENGTH BOLTS - - - - - - - - - - - - - - - - - ASTM A325
      iv. ANCHOR RODS - ASTM F1554 GRADE 36
   c. ALL WELDING SHALL CONFORM TO AMERICAL WELDING SOCIETY STRUCTURAL WELDING CODE - STEEL (AWS D1.1) AND SHALL BE PERFORMED BY WELDERS QUALIFIED BY THE APPROPRIATE AWS TEST FOR THE WELDING PERFORMED.
   d. ALL STRUCTURAL STEEL FABRICATIONS ARE TO BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A 123. FASTENERS AND OTHER MISCELLANEOUS STEEL HARDWARE IS TO BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A 153.
   e. DAMAGED GALVANIZED COATING AND ANY FIELD MODIFICATIONS SUCH AS FIELD DRILLED HOLES ARE TO BE REPAIRED USING THE HOT-STICK GALVANIZING METHOD.
8. EQUIPMENT INSTALLATION
   a. SEE CIVIL AND ELECTRICAL DRAWINGS FOR EQUIPMENT, CONDUIT AND YARD PIPING SCHEDULES AND DETAILS.

ABBREVIATIONS

T.O.G. - TOP OF GROUND
T.O.S. - TOP OF STEEL
UNC - UNIFIED NATIONAL COARSE

1/S1 ISOMETRIC
LIFTING STATION WITH DRILLED PIERS

REVISIONS			
REV	DATE	DESCRIPTION	BY

STATE OF ALASKA 49TH
MATTHEW J. METTLER
SE 13920
2021-05-25
PROFESSIONAL ENGINEER

CITY AND BOROUGH OF JUNEAU
ALASKA'S CAPITAL CITY

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GRUENING PARK LIFT STATION
STAND-ALONE LIFT STATION
BE21-264
GENERAL STRUCTURAL
NOTES AND ISOMETRICS

PROJECT 1529.50081.01
DATE 05/25/2021

SHEET 19 OF 20

S1

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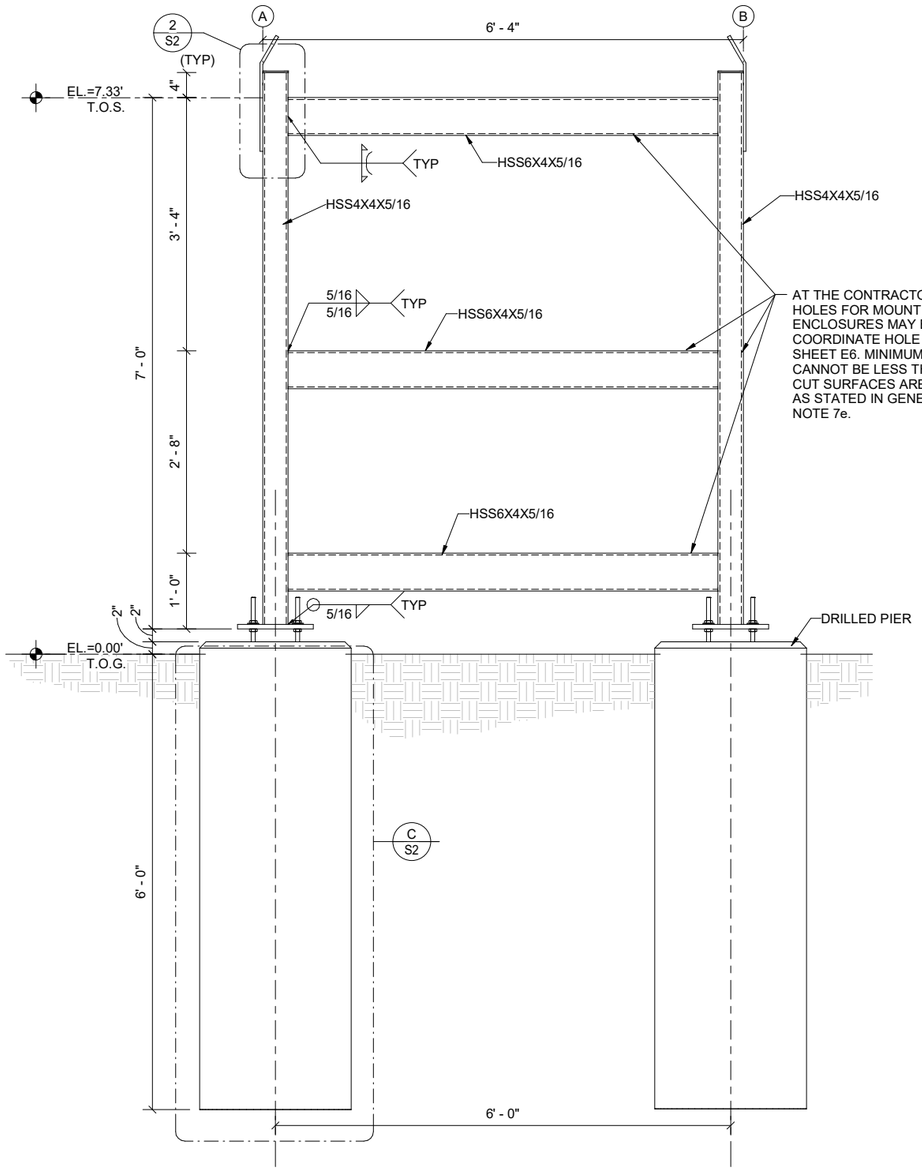
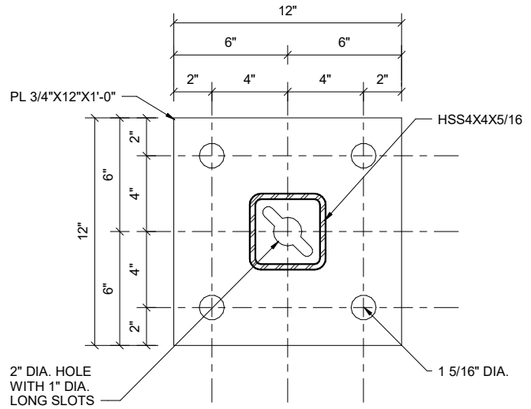
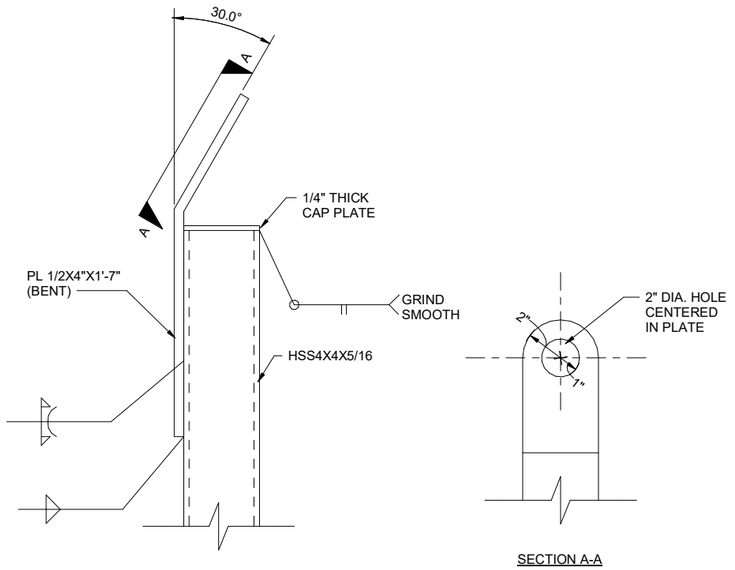


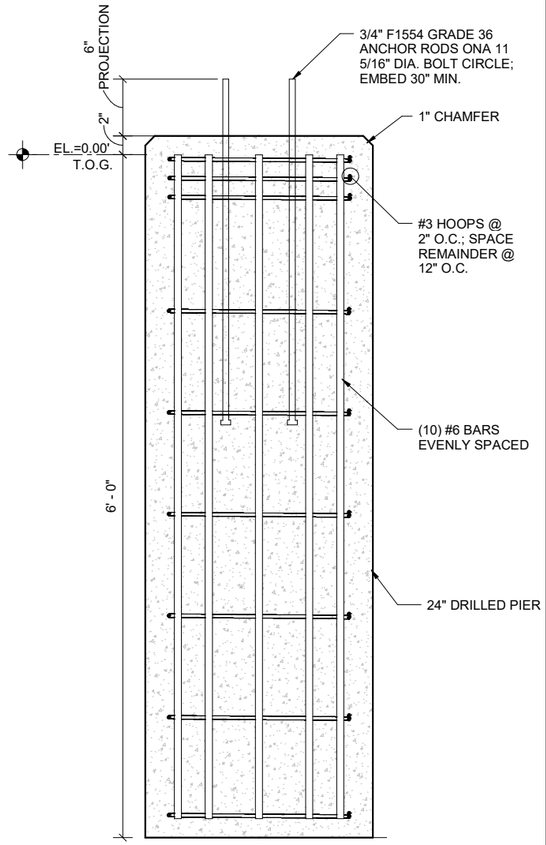
A S2 SECTION
CONTROL PANEL RACK WITH DRILLED PIERS



1 S2 SECTION
BASE PLATE



2 S2 DETAIL
LIFTING EYE DETAIL



C S2 SECTION
DRILLED PIER

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STATE OF ALASKA · 49TH · MATTHEW J. METTLER · SE 13920 · 2021-05-25 · PROFESSIONAL ENGINEER

CITY AND BOROUGH OF JUNEAU · ALASKA'S CAPITAL CITY

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GRUENING PARK LIFT STATION
STAND-ALONE LIFT STATION
BE21-264
STRUCTURAL SECTIONS

PROJECT 1529.50081.01
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SHEET 20 OF 20

S2

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