City of West Linn	**INVITATION FOR BID** CONSTRUCTION PROJECT	**Public Works Department** 22500 Salamo Road West Linn, Oregon 97068 Telephone: (503) 722-5500 Fax: (503) 656-4106

City of West Linn

Plans and Bid Documents

Project Number: **PW-10-14**

Project Description: **Bland Intertie Pump Station**

Prospective Bidders' Conference: April 23, 2014 2:00 p.m., local time

Due Date: April 30, 2014 2:00 p.m., local time

Plans and Specifications are available for download at no charge from the City's website at http://bids.westlinnoregon.gov/

Alternately, copies may be reviewed or picked-up for a $25.00 fee per set at:

Public Works Department
Engineering Division
22500 Salamo Road
West Linn, Oregon 97068

PROSPECTIVE BIDDERS' CONFERENCE ATTENDANCE IS REQUIRED

It is highly encouraged that Contractors and Subcontractors visit the site.

EXPIRES: 12/31/2014

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City of West Linn, Oregon

Notice of Invitation for Bid

Project Number:	**PW-10-14**	Bid Due Date:	**April 30, 2014**
Project Name:	**Bland Intertie Pump Station**	Bid Due Time:	**2:00 p.m**.
		Contact:	Erich Lais, P.E.
Bid Opening Location:	City of West Linn – City Hall Council Chambers	Title:	Asst. City Engineer
Address:	22500 Salamo Road, West Linn, OR 97068	Phone:	(503) 722-5514
Project Description:	Project generally consists of construction for a 1200 gpm (firm capacity) booster pump station, including a 16' x 22' building, electrical, plumbing, instrumentation and telemetry systems.		

Sealed bids for the project identified and described above will be received by the City of West Linn at the specified location above until the date and time cited above. Bids received by the correct date and time shall be publicly opened and the bid price read. Bids shall be in the actual possession of the identified bidding department on or prior to the exact date and time indicated above. Late bids will not be considered, except as provided in the City of West Linn Procurement Policy. ***Bids shall be submitted in a sealed envelope with the Invitation for Bid Project Number, Project Description, and the bidder's name and address clearly indicated on the front of the envelope***. All bids shall be completed in ink or typewritten. This Bid is for a public works project subject to ORS 279C.800 to 279C.870. Bidders are strongly encouraged to carefully read the ***entire*** Invitation for Bid Package.

BIDDER

To the City of West Linn:

The undersigned hereby Bids and agrees to furnish materials and/or services in compliance with all terms, conditions, specifications and addenda in the Notice of Invitation for Bid except for any written exceptions in the Bid. The signature below also certifies his or her understanding and compliance with The City of West Linn Standard Terms and Conditions.

Is the Bidder a "Resident" Bidder per ORS 279A.120? _____
Construction Contractors Board Yes/No

Registration Number: _____

Federal Employer
Identification Number: _____

For clarification of this Bid contact:

Name: _____

Telephone: _____

_____
Company Name

_____
Address

_____
City State Zip Code

_____
Authorized Signature for Bidder

_____
Printed Name

_____
Title

ACCEPTANCE OF BID AND CONTRACT AWARD (For City of West Linn Use Only)

Your bid is hereby accepted. The Contractor is now bound to sell the materials and/or services listed by the attached award notice based upon the solicitation, including all terms, conditions, specifications, plans, addendum, amendments, etc., and the Contractor's Bid as accepted by the City.

Approved as to form:

_____
Megan Thornton
Assistant City Attorney

City of West Linn, Oregon.

Awarded on _____, _____.

_____
Chris Jordan, City Manager

Public Works Department
22500 Salamo Road
West Linn, Oregon 97068
Telephone: (503) 722-5500
Fax: (503) 656-4106

1. **PREPARATION OF BID:**

   a. All bids shall be submitted on the forms provided in this *Invitation to Bid* package. It is permissible to copy these forms if required. Telegraphic (facsimile), electronic or mailgram bids will not be considered.

   b. The Bid and Contract Award document shall be submitted with an original ink signature by a person authorized to sign the Bid.

   c. Erasures, interlineations, or other modifications in the bid shall be initialed in original ink by the authorized person signing the Bid.

   d. If price is a consideration and in case of error in the extension of prices in the bid, the unit price shall govern. No bid shall be altered, amended, or withdrawn after the specified bid due date and time.

   e. Periods of time, stated as a number of days, shall be calendar days.

   f. Bid due date and time is stated as local Oregon time.

   g. The following items must be completed as part of the Bid submittal; Notice of Invitation for Bid (indicating Oregon Construction Contractors Board License Number), Bid Form, Bid Guaranty (Bond), Non-Collusion Affidavit, Three-Year Experience, and Addenda. Within two (2) hours of the Bid submittal, or with the Bid submittal, the First Tier Subcontractor Disclosure Form must be submitted if the bid is greater than $100,000.

   h. It is the responsibility of all Bidders to examine the entire *Invitation For Bid* package and seek clarification of any item or requirement that may not be clear and to check all responses for accuracy before submitting a bid. Negligence in preparing a Bid confers no right of withdrawal after bid due date and time.

2. **INQUIRIES:** Any question related to the *Invitation For Bid* (*IFB*) shall be directed to the Buyer whose name appears as the Contact on the *IFB*. The Bidder shall not contact or ask questions of the department for which the requirement is being procured. Questions should be submitted in writing when time permits. The Buyer may require any and all questions be submitted in writing at the Buyer's sole discretion. Any correspondence related to an *Invitation For Bid* should refer to the appropriate *IFB* number, page, and paragraph number. All requests for additional information or interpretation of the *IFB* shall be submitted to the Buyer no later than five (5) calendar days before the deadline for submission of bids. If, in the opinion of the City, additional information or clarification is required, an addendum will be issued to all plan holders on record. Any addenda issued by the City seventy-two (72) hours or more before the scheduled closing time for filing bids shall be binding upon the Bidder. Addenda may be downloaded from the City's website. Bidders shall frequently check the City's website until closing including at least daily the week of the closing. Failure of the Bidder to receive or obtain such addenda shall not excuse them from compliance therewith if they are awarded the contract. Oral instructions or information given by City Officers, employees or agents to Bidders concerning this *IFB* or the work in general shall not bind the City.

3. **PROSPECTIVE BIDDERS CONFERENCE (REQUIRED):** A prospective Bidders conference will be held. If scheduled, the date and time of this conference will be indicated on the cover page of this document. The purpose of this conference will be to clarify the contents of this *Invitation For Bid* in order to prevent any misunderstanding of the City's position. Any doubt as to the requirements of this *Invitation For Bid* or any apparent omission or discrepancy should be presented to the City at this conference. The City will then determine if any action is necessary and may issue a written addendum to the *IFB*.

4. **LATE BIDS:** Late Bids received after the scheduled bid due date and time will be returned to the Bidder unopened.

5. **WITHDRAWAL OF BID:** At any time prior to the specified bid due date and time, a Bidder (or designated representative) may withdraw the bid.

6. **ADDENDUM OF BID:** Receipt of Addendum shall be acknowledged by signing and returning the document with the Bid at the specified bid due date and time.

7. **CONSTRUCTION CONTRACTORS REGISTRATION:** A person shall not submit a bid or proposal to work as a construction contractor unless that person is first registered with the Construction Contractors Board as required by ORS 701.021 or licensed by the State Landscape Contractor's Board as required by ORS 671.530. Bids from persons who fail to comply with this requirement shall be deemed non-responsive and be rejected.

8. **AWARD OF CONTRACT:**

   a. Notwithstanding any other provision of this *Invitation For Bid*, The City expressly reserves the right to: waive any immaterial defect or informality, reject any bids that do not comply with the prescribed public contracting procedures (including the requirement to demonstrate the bidder's responsibility under ORS 279C.375 (3)(b)), reject all bids for good cause if in the public interest, or reissue an *Invitation For Bid*.

   b. A response to an *Invitation For Bid* is a Bid to contract with the City based upon the terms, conditions and specifications contained in the City's *Invitation For Bid* and the written addenda thereto, if any. Bids do not become contracts unless and until they are accepted and executed by the **City Local Contract Review Board, City Manager or Department Director** in accordance with the City of West Linn Procurement Policy. A contract is formed when written notice of award(s) is provided to the successful Bidder(s). The contract has its inception in the award document, eliminating a formal signing of a separate contract. For that reason, all of the terms and conditions of the procurement contract are contained in the *Invitation For Bid*; unless modified by an Addendum.

STANDARD TERMS AND CONDITIONS

Public Works Department
22500 Salamo Road
West Linn, Oregon 97068
Telephone: (503) 722-5500
Fax: (503) 656-4106

THE FOLLOWING TERMS AND CONDITIONS ARE AN EXPLICIT PART OF THE SOLICITATION AND ANY RESULTANT CONTRACT.

1. **APPLICABLE LAW:** In the performance of this agreement, contractors shall abide by and conform to any and all laws of the United States, State of Oregon and City of West Linn including but not limited to federal and state executive orders providing for equal employment and procurement opportunities, the Federal Occupational Safety and Health Act and any other federal or state laws applicable to this agreement.

   Attention is called to the requirements of Oregon Revised Statutes (O.R.S.) Chapter 279A, 279B, and 279C. This contract shall be governed by the laws of the State of Oregon. Any action or suits pertaining to this contract may be brought only in courts in the Circuit Court of Clackamas County or the U.S. District Court in Portland. Each and every provision of law and any clause required by law to be in the contract will be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party, the contract will forthwith be physically amended to make such insertion or correction.

   The City may cancel this contract without penalty or further obligations by the City or any of its departments or agencies if any person significantly involved in initiating, negotiating, securing, drafting or creating the contract on behalf of the City or any of its departments or agencies, is at any time while the contract or any extension of the contract is in effect, an employee of any other party to the contract in any capacity or a consultant to any other party of the contract with respect to the subject matter of the contract.

2. **AMERICANS WITH DISABILITIES ACT, DISCRIMINATION & AFFIRMATIVE ACTION:** Bidders agree that if awarded a contract, the successful Bidder will comply with all applicable provisions of the Americans with Disabilities Act of 1990, 42 UFC Section 12101 et seq. If any Bidder requires special assistance or auxiliary aids during the bidding process, please notify the City of West Linn, 503-657-0331 or TDD 503-657-7845 at least two (2) business days prior to the required assistance. To the extent applicable, the Contractor represents that it will comply with Executive Order 11246 as amended, Executive Order 11141, Section 503 of the Vocational Rehabilitation Act of 1973 as amended and the Age Discrimination Act of 1975, and all rules and regulations issued pursuant to the Acts. It is the policy of the City of West Linn that suppliers of goods or services to the City adhere to a policy of equal employment opportunity and demonstrate an affirmative effort to recruit, hire, and promote regardless of race, color, religion, gender, national origin, age or disability. By submitting the first tier subcontractor disclosure form, Bidder certifies that it has complied with ORS 279A.110(1), which states that a bidder may not discriminate against a subcontractor in awarding a subcontract because the subcontractor is a minority, women or emerging business enterprise certified under ORS 200.055 or a business enterprise that is owned or controlled by, or that employs a disabled veteran.

3. **BUSINESS LICENSE:** A current business license is required before doing business with the City. Information related to complying with the business license requirements is available by contacting the City Finance Department at 503-657-0331 or online at https://westlinnoregon.gov/finance/online-business-license-registration.

4. **CONSTRUCTION AND LANDSCAPE CONTRACTORS BOARDS:** Construction contractors must be licensed with the State of Oregon Construction Contractors Board in accordance with O.R.S. 701.005 and any other specialty licensing as required in the bid specification prior to submitting a bid to the City. For information contact:

   CONSTRUCTION CONTRACTORS BOARD
   700 Summer St. NE, Suite #300, Salem, OR 97310
   (503) 378-4621 (website) http://www.ccb.state.or.us

   A Landscape Contractors Board license is required in accordance with O.R.S. 671.510 if the bid specification includes landscape work as defined by O.R.S. 671.510. For information contact:

   LANDSCAPE CONTRACTORS BOARD
   2111 Front St. NE, Suite #2-101, Salem, OR 97310
   (503) 378-5909 (website) http://www.oregon.gov/LCB/

5. **LEGAL REMEDIES:** All claims and controversies shall be subject to resolution according to the terms of the City of West Linn Procurement Policy.

6. **BID GUARANTY:** All construction contracts shall be accompanied by a bid guaranty. No bid for construction will be considered unless accompanied by a certified check, cashier's check, or a bid bond for an amount not less than ten percent (10%) of the aggregate amount of the bid by a surety company authorized to issue such bonds in the State of Oregon. It shall be payable to the City of West Linn as a guaranty that the bid shall be irrevocable for a period of sixty (60) calendar days, unless otherwise specified, after the bid opening date and time and as liquidated damages should the Bidder fail or neglect to furnish the required performance bond and insurance and execute a contract within ten (10) calendar days after receiving said contract from the City for execution. The City will hold all bid security during the evaluation process. As soon as is practical after the completion of the evaluation, the City will issue a contract award notice for those Bids accepted by the City and return all checks to those who have not been issued a contract award notice.

   All bid security from contractors who have been issued an award notice shall be held until the successful execution of all required contractual documents and bonds (performance bond, insurance, etc.). If the contractor fails to execute the required contractual documents and bonds within the time specified, or ten (10) days after notice of award if no period is specified, the contractor may be found to be in default and the contract terminated by the City. In case of default, the City reserves all rights inclusive of, but not limited to, the right to purchase material and/or to complete the required work in accordance with the City of West Linn Procurement Policy and to recover any actual excess costs from the contractor. Collection against the bid security shall be one of the measures available toward the recovery of any excess costs.

7. **CONFLICT OF INTEREST:** A Bidder submitting a bid hereby certifies that no officer, agent or employee of the City who has a pecuniary interest in this bid has participated in the contract negotiations on the part of the City, that the bid is made in good faith without fraud, collusion, or connection of any kind with any other Bidder of the same Invitation for Bids, and that the Bidder is competing solely in its own behalf without connection with, or obligation to, any undisclosed person or firm. No bid will be considered unless accompanied by the notarized Non-Collusion Affidavit form included in the Invitation for Bid.

8. **PRE-BID REQUIREMENTS:** Before submitting a bid, each Bidder shall carefully examine the Drawings, read the Specifications and all Addenda and visit the work site, if applicable. Each Bidder shall fully inform themselves prior to submitting a bid as to all existing conditions and limitations under which the Work is to be performed, and shall include in the bid a sum to cover all costs of all items necessary to perform the Work as set forth in the Bid Documents. No allowance will be made to any Bidder because of lack of such examination or knowledge. Submission of a bid will be construed as conclusive evidence that the Bidder has made such examination.

9. **LOCAL BUSINESS PREFERENCE:** ORS 279A.120 requires that, in all public contracts, the public contracting agency shall prefer good or services that have been manufactured or produced in this State if price, fitness, availability and quality are otherwise equal. As such the City desires to employ local businesses in the purchase, lease, or sale of any personal property, public improvements or services that have been manufactured or produced by a local business if price, fitness, availability and quality are otherwise equal. When a public contract is awarded to a nonresident bidder and the contract price exceeds $10,000, the bidder shall promptly report to the Department of Revenue on forms provided by the department all information as required by ORS 279A.120(3).

10. **COST OF BID/PROPOSAL PREPARATION:** The City shall not reimburse the cost of developing, presenting, or providing any response to this solicitation. Bids submitted for consideration should be prepared simply and economically, providing adequate information in a straightforward and concise manner. The Invitation For Bid does not commit the City to pay any costs incurred by a Bidder in the submission of their bid, or in making any necessary studies or designs for the preparation thereof.

11. **CONTRACT:** The contract between the City and the Contractor shall consist of (1) the Invitation for Bid, including instructions, all terms and conditions, specifications, scopes of work, attachments, price sheet(s) and any amendments thereto, and (2) the Bid submitted by the Contractor in response to the Invitation for Bid (IFB). In the event of a conflict in

language between the IFB and the Bid, the provisions and requirements in the IFB shall govern. However, the City reserves the right to clarify, in writing, any contractual terms with the concurrence of the Contractor, and such written contract shall govern in case of conflict with the applicable requirements stated in the IFB or the Vendor's Bid. The IFB shall govern in all other matters not affected by the written contract. The contract, if awarded, will be made to the lowest, responsive and responsible Bidder offering the lowest unit price base bid. Determination of the lowest responsive, responsible bid is subject to review by the City. Adversely affected or aggrieved bidders shall have seven calendar days after notice of award to submit to the City a written protest of the notice of award. Any written protest must be submitted in accordance with the adopted City Local Contract Review Board Rules.

12. **CONTRACT AMENDMENTS:** This contract may be modified only by a written Contract Amendment signed by persons duly authorized to enter into contracts on behalf of the City and the Contractor.

13. **CONTRACT APPLICABILITY:** The Bidder shall substantially conform to the terms, conditions, specifications and other requirements found within the text of this IFB. All previous agreements, contracts, or other documents, which have been executed between the Bidder and the City are not applicable to this IFB or any resultant contract.

14. **DRUG TESTING PROGRAM:** Pursuant to O.R.S. 279.505 (2) (1), the Contractor awarded the contract shall demonstrate that an employee drug-testing program is in place. The Contractor demonstrates that a drug-testing program is in place by signing of the contact. The drug testing program will apply to all employees and will be maintained for the duration of the Contract awarded. Failure to maintain a program shall constitute a material breach of contract.

15. **RELATIONSHIP TO PARTIES:** It is clearly understood that each party will act in its individual capacity and not as an agent, employee, partner, joint venturer, or associate of the other. An employee or agent of one party shall not be deemed or construed to be the employee or agent of the other for any purpose whatsoever. The Contractor is advised that taxes or Social Security payments will not be withheld from any City payments issued hereunder and that the Contractor should make arrangements to directly pay such expenses, if any.

16. **INTERPRETATION-PAROL EVIDENCE:** This contract represents the entire agreement of the Parties with respect to its subject matter, and all previous agreements, whether oral or written, entered into prior to this contract are hereby revoked and superseded by this contract. No representations, warranties, inducements or oral agreements have been made by any of the Parties except as expressly set forth herein, or in any other contemporaneous written agreement executed for the purposes of carrying out the provisions of this contact. This contract may not be changed, modified or rescinded except as provided for herein, absent a written agreement signed by both Parties. Any attempt at oral modification of this contract shall be void and of no effect.

17. **SUBCONTRACTS – ASSIGNMENT & DELEGATION:** Contractor shall submit a list of Subcontractors for approval by the City, and Contractor shall be fully responsible for the acts or omissions of any Subcontractors and of all persons employed by them, and neither the approval by City of any Subcontractor nor anything contained herein shall be deemed to create any contractual relation between the Subcontractor and City.

    This agreement, and all of the covenants and conditions hereof, shall inure to the benefit of and be binding upon the City and the Contractor respectively and their legal representatives. Contractor shall not assign any rights nor delegate any duties incurred by this contract, or any part hereof without the written consent of City, and any assignment or delegation in violation hereof shall be void.

18. **APPROVAL OF SUBSTITIONS:** The materials, products, and equipment described in the Documents and Addenda establish a standard or required function, dimension, appearance, and quality to be met by any proposed substitution. No substitute will be considered unless written request for approval has been received by the City or its representative at least five (5) days prior to the scheduled closing time for receipt of bids. Each such request shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitute including any drawings, cuts, performance, and test data and any other information necessary for evaluation of the substitute. If a substitute is approved, the approval shall be acknowledged in writing. Bidder shall not consider approvals made in any other manner.

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19. **RIGHTS AND REMEDIES:** No provision in this document or in the vendor's Bid shall be construed, expressly or by implication, as waiver by the City of any existing or future right and/or remedy available by law in the event of any claim of default or breach of contract. The failure of the City to insist upon the strict performance of any term or condition of the contract or to exercise or delay the exercise of any right or remedy provided in the contract, or by law, or the City's acceptance of and payment for materials or services, shall not release the Contractor from any responsibilities or obligations imposed by this contract or by law, and shall not be deemed a waiver of any right of the City to insist upon the strict performance of the Contract.

20. **INDEMNIFICATION:** Contractor warrants that all its work will be performed in accordance with generally accepted professional practices and standards as well as the requirements of applicable federal, state and local laws, it being understood that acceptance of a contractor's work by City shall not operate as a waiver or release.

    Contractor agrees to indemnify and defend the City, its officers, agents and employees and hold them harmless from any and all liability, causes of action, claims, losses, damages, judgments or other costs or expenses including attorney's fees and witness costs and (at both trial and appeal level, whether or not a trial or appeal ever takes place) that may be asserted by any person or entity which in any way arise from, during or in connection with the performance of the work described in this contract, except liability arising out of the sole negligence of the City and its employees. If any aspect of this indemnity shall be found to be illegal or invalid for any reason whatsoever, such illegality or invalidity shall not affect the validity of the remainder of this indemnification. The amount and type of insurance coverage requirements set forth herein will in no way be construed as limiting the scope of the indemnity in this paragraph.

21. **EARLY TERMINATION:** This agreement may be terminated without cause prior to the expiration of the agreed upon term by mutual written consent of the parties and for the following reasons:

    a. If work under the Contract is suspended by an order of a public agency for any reason considered to be in the public interest other than by a labor dispute or by reason of any third party judicial proceeding relating to the work other than a suit or action filed in regard to a labor dispute; or

    b. If the circumstances or conditions are such that it is impracticable within a reasonable time to proceed with a substantial portion of the Contract.

    Payment of Contractor shall be as provided by ORS 279C.660 and shall be prorated to and include the day of termination and shall be in full satisfaction of all claims by Contractor against City under this Contract. Termination under any provision of this paragraph shall not affect any right, obligation, or liability of Contractor or City which accrued prior to such termination.

22. **CANCELLATION WITH CAUSE:** City may terminate this Contract effective upon delivery of written notice to Contractor, or at such later date as may be established by City, under any of the following conditions:

    a. If City funding from federal, state, local, or other sources is not obtained and continued at levels sufficient to allow for the purchase of the indicated quantity of services. This Contract may be modified to accommodate a reduction in funds,

    b. If Federal or State regulations or guidelines are modified, changed, or interpreted in such a way that the services are no longer allowable or appropriate for purchase under this Contract,

    c. If any license or certificate required by law or regulation to be held by Contractor, its subcontractors, agents, and employees to provide the services required by this Contract is for any reason denied, revoked, or not renewed,

    d. If Contractor becomes insolvent, if voluntary or involuntary petition in bankruptcy is filed by or against Contractor, if a receiver or trustee is appointed for Contractor, or if there is an assignment for the benefit of creditors of Contractor, or

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e. If Contractor fails to maintain reasonable relations with the public. Verbal abuse, threats, or other inappropriate behavior towards members of the public constitutes grounds for termination.

Any such termination of this agreement under this section shall be without prejudice to any obligations or liabilities of either party already accrued prior to such termination.

City, by written notice of default (including breach of contract) to Contractor, may terminate the whole or any part of this Contract:

f. If Contractor fails to provide services called for by this Contract within the time specified herein or any extension thereof, or

g. If Contractor fails to perform any of the other provisions of this Contract, or so fails to pursue the work as to endanger performance of this Contract in accordance with its terms, and after receipt of written notice from City, fails to correct such failures within ten (10) days or such other period as City may authorize.

The rights and remedies of City provided in the above clause related to defaults (including breach of contract) by Contractor shall not be exclusive and are in addition to any other rights and remedies provided by law or under this Contract.

If City terminates this Contract per clause f or g above, Contractor shall be entitled to receive as full payment for all services satisfactorily rendered and expenses incurred, an amount which bears the same ratio to the total fees specified in this Contract as the services satisfactorily rendered by Contractor bear to the total services otherwise required to be performed for such total fee; provided, that there shall be deducted from such amount the amount of damages, if any, sustained by City due to breach of contract by Contractor. Damages for breach of contract shall be those allowed by Oregon law, reasonable and necessary attorney fees, and other costs of litigation at trial and upon appeal.

23. **SEVERABILITY:** In the event any provision or portion of this Contract is held to be unenforceable or invalid by any court of competent jurisdiction, the remainder of this Contract shall remain in full force and effect and shall in no way be affected or invalidated thereby.

24. **FORCE MAJEURE:** Neither City nor Contractor shall be considered in default because of any delays in completion of responsibilities hereunder due to causes beyond the control and without fault or negligence on the part of the party so disenabled, including, but not restricted to, an act of God or of a public enemy, volcano, earthquake, fire, flood, epidemic, quarantine, restriction, area-wide strike, freight embargo, unusually severe weather or delay of Subcontractor or suppliers due to such cause; provided that the party so disenabled shall within ten (10) days from the beginning of such delay, notify the other party in writing of the causes of delay and its probable extent. Such notification shall not be the basis for a claim for additional compensation. Each party shall, however, make all reasonable efforts to remove or eliminate such a cause of delay or default and shall, upon cessation of the cause, diligently pursue performance of its obligation under Contract.

25. **RIGHT TO ASSURANCE:** Whenever one party to this contract in good faith has reason to question the other party's intent to perform he may demand that the other party give a written assurance of this intent to perform. In the event that a demand is made and no written assurance is given within five (5) days, the demanding party may treat this failure as an anticipatory repudiation of the Contract.

26. **RIGHT TO ACCESS RECORDS:** City shall have access to such books, documents, papers and records of Contractor and Subcontractors as are directly pertinent to this Contract for the purpose of making audit, examination, excerpts, and transcripts.

27. **WARRANTIES:** All work shall be guaranteed by the Contractor for a period of 18 months after the date of final acceptance of the work by the Owner. Contractor warrants that all practices and procedures, workmanship, and materials shall be the best available unless otherwise specified in the profession. Neither acceptance of the work nor payment

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therefore shall relieve Contractor from liability under warranties contained in or implied by this contract. Additional warranty requirements may be set forth in the solicitation.

28. **TITLE AND RISK OF LOSS:** The title and risk of loss of material and/or service shall not pass to the City until the City actually receives the material or service at the point of delivery, unless otherwise provided within this Contract.

29. **CONFLICT BETWEEN TERMS:** It is expressly agreed by and between the parties hereto that should there be any conflict between the terms of this instrument and the bid of the Contractor, this instrument shall control and nothing herein shall be considered as an acceptance of the said terms of said bid conflicting herewith.

30. **NONWAIVER:** The failure of the City to insist upon or enforce strict performance by Contractor of any of the terms of this contract or to exercise any rights hereunder shall not be construed as a waiver or relinquishment to any extent of its right to assert or rely upon such terms or rights on any future occasion.

31. **LIENS:** All materials, service or construction shall be free of all liens, and if the City requests, a formal release of all liens shall be delivered to the City.

32. **LICENSES:** Contractor shall have at the time of bid submittal, and shall maintain in current status, all Federal, State and Local licenses and permits required for the operation of the business conducted by the Contractor as applicable to this Contract. The conclusion of the issuing authority in each case is to be deemed conclusive for the purposes of complying with this provision. By submitting a bid for this public contract, you agree that, with respect to the contract, substantial compliance does not meet the minimum requirements of this or any provision hereof, or of any applicable law or other authority, and that strict compliance alone is adequate to meet those requirements, unless the City consents to such substantial compliance in writing at the time of bid submittal. The determination shall be made by the City.

33. **ATTORNEY'S FEES:** In case suit or action is instituted to enforce the provisions of this contract, the parties agree that the losing party shall pay such sum as the Court may adjudge reasonable attorney's fees and court costs including attorney's fees and court costs on appeal.

34. **PUBLIC RECORD:** All Bids submitted in response to this solicitation shall become the property of the City and shall become a matter of public record available for review, subsequent to the award notification, in accordance with the City's Procurement Policy.

35. **WORK IS PROPERTY OF THE CITY:** All work performed by Contractor under this Contract shall be the property of the City.

36. **ADVERTISING:** Contractor shall not advertise or publish information concerning this Contract, without prior written consent of the City.

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1. **DEFINITIONS**: The terms, as used in or pertaining to the contract, are defined as follows:

   CITY: The word *"City"* shall refer to the City of West Linn, Oregon.

   CONTRACTOR: The word *"Contractor"* is defined as the person, firm or corporation with whom the contract is made by the City.

   CONTRACT: The word *"Contract"* will include; the Invitation to Bid Notice, Instructions to Bidders, Bid Form, Bid Guaranty, Performance Bond, Payment Bond, Notice of Award, Notice to Proceed, Change Order, Certificate of Insurance, Certificate of Completion, Contractor's Affidavit Regarding Settlement of Claims, Contractor's Affidavit Certifying Non-Collusion in Bidding, Standard Terms & Conditions, General Terms & Conditions, Special Terms & Conditions, Technical Provisions, Plans and Addenda thereto.

   ENGINEER: The word *"Engineer"* is defined as the person, firm or corporation duly authorized by the City to act as agent in providing professional services including studies, planning, engineering design and construction administration services, inspecting materials and construction, and interpreting plans and specifications.

   MATERIALS: The word *"Materials"* will include, in addition to materials incorporated in the project, equipment and other material used and/or consumed in the performance of the work.

   SUBCONTRACTOR: The word *"Subcontractor"* is defined as those persons or groups of persons having a direct contract with the contractor and those who furnish material worked to a special design according to the plans and/or specifications for this work, and includes those who merely furnish materials not so worked.

   WORK: The word *"Work"* shall include all labor necessary to accomplish the construction required by the Contract and all materials and equipment incorporated or to be incorporated in said construction.

2. **REFERENCE STANDARDS**:

   a. The "2010 City of West Linn Public Works Standards" which are sponsored and distributed by the City of West Linn Engineering Division, and which are hereinafter referred to as the *"COWL Specifications,"* are hereby adopted as part of these contract documents.

   b. If any contradiction exists between "COWL Specifications" and this solicitation document, the solicitation language shall prevail.

3. **LAWS AND REGULATIONS**: The Contractor shall keep himself fully informed of all existing and future City and County ordinances and regulations and state and federal laws and Occupational Safety and Health Standards (OSHA) in any manner affecting the work herein specified. He shall at all times observe and protect and indemnify the City of West Linn, Oregon, and its officers and agents against any claim or liability arising from or based on the violation of any such ordinances, regulations or laws. It is the responsibility of the Contractor to obtain any and all information regarding the laws and regulations which may be referenced in the Specifications.

4. **RIGHTS OF WAY:** The Contractor shall not enter or occupy with workers, tools, equipment or materials any private ground outside the property or easement right of the City of West Linn, without the consent of the owner.

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The Contractor, at his own expense, is responsible for the acquisition of any additional easements or rights-of-way that he may desire to complete the work of this contract.

5. **PROPOSAL QUANTITIES**: It is expressly understood and agreed by the parties hereto that the quantities of the various classes of work to be done and the material to be furnished under this Contract, which have been estimated as stated in the Bids, are only approximate and are to be used solely for the purpose of comparing, on a consistent basis, the bids for the work under this Contract. The Contractor further agrees that the City of West Linn will not be held responsible if any of the quantities shall be found incorrect; and the Contractor will not make any claim for damages or for loss of profits because of a difference between the quantities of the various classes of work as estimated and the work actually done. If any error, omission, or misstatement is found to occur in the estimated quantities, the same shall not invalidate this Contract or the whole or any part of the work in accordance with the Specifications and Plans herein mentioned, and for the prices herein agreed upon and fixed therefore, or excuse him from any of the obligations or liabilities hereunder, or entitle him to any damage or compensation except as may be provided in this contract.

6. **PREVAILING WAGE RATE DETERMINATION**: The Contractor shall pay the applicable prevailing wage rates that are in effect at the time the Contract is bid. If the contract price exceeds $50,000 and is not otherwise exempt, workers shall be paid not less than the specified minimum hourly rate of wage in accordance with ORS 279C.838 and ORS 279C.840. Hard copies of the prevailing wage rates publication may be obtained by contacting the Oregon Bureau of Labor and Industries via telephone at: (971) 673-0839. The applicable prevailing wage rates may be accessed via the internet at: http://www.oregon.gov/BOLI/WHD/PWR/pwr_book.shtml. If the Project is subject to the Davis-Bacon Act and the state prevailing rate of wage is higher than the federal prevailing rate of wage, the contractor and every subcontractor on the Project shall pay at least the state prevailing rate of wage as determined under ORS 279C.815.

   The Contractor and all subcontractors must have a public works bond filed with the Oregon Construction Contractors Board before starting work on the Project, unless exempt under ORS 279C.836(4), (7), (8) or (9). If the contractor fails to pay for labor or services, the City can pay and withhold these amounts from payments due the contractor in accordance with ORS 279C.515. Daily, weekly, weekend, and holiday overtime will be paid as required in ORS 279C.540. The Contractor shall provide workers with a written schedule showing the number of hours per day and days per week the employee may be required to work in accordance with ORS 279C.520. Contractor must promptly pay for any medical services they have agreed to pay per ORS 279C.530.

   The City will not receive or consider a bid unless the bid contains a statement by the bidder that the bidder will comply with ORS 279C.838, ORS 279C.840, or 40 U.S.C. 3141. By signing and submitting the Bid, the Contractor agrees to comply with ORS 279C.838 or 279C.840 and/or 40 U.S.C. 3141 et seq. for a public works project subject to the state prevailing wage rates under ORS 279C.800 to 279C.870, the federal prevailing wage rates under the Davis-Bacon Act (40 U.S.C. 3141 et seq.) or both.

   For contracts $50,000 or greater, the City shall pay a fee to the Bureau of Labor and Industries and shall be mailed or otherwise delivered to the Bureau in accordance with Form WH-81 & WH-39.

7. **PAYMENTS TO CONTRACTOR**: City agrees to pay Contractor for performance of those services provided hereunder, which payment shall be based upon the following applicable terms:

   a. Payment: Payment shall be based upon the unit prices bid by the Contractor, as listed in attached bid. Contractor shall prepare and submit each month to the Buyer identified in the Invitation for Bid at the address listed, a statement of services rendered, (indicating the description of each service used in the bid and the dollar amount of each service completed through the stated date), together with a request for payment duly verified by the Contractor's Representative.

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Payment by the City shall release the City from any further obligation for payment to Contractor for services performed or expenses incurred as of the date of the statement of services. Payment of installments shall not be considered acceptance or approval of any work or waiver of any defects therein. City certifies that sufficient funds are available and authorized for expenditure to finance costs of this contract. Contractor shall include proof of payment to any and all subcontractors and suppliers with each statement submitted to the City. The City shall retain the right to withhold payments if required proof of payment to subcontractor and suppliers is not included with a statement.

b. Timing of Payments: Progress payments, less a five percent retainage as authorized by ORS 279C.555, shall be made to the Contractor within twenty (20) days of the City's receipt of the statement of services.

c. Final Payment: The Contractor shall notify the City in writing when the Contractor considers the project complete, and the City shall, within 15 days after receiving the written notice, either accept the work or notify the Contractor of work yet to be performed on the contract. If accepted by the City, the remaining balance due to the Contractor, including the retained percentage, shall be paid to the Contractor by the City within 30 days after the date of said acceptance.

The City shall pay to the Contractor interest at the rate of one and one-half percent per month on the final payment due the Contractor, to commence 30 days after the work under the Contract has been completed and accepted and to run until the date when final payment is tendered to the Contractor. If the City does not, within 15 days after receiving written notice of completion, notify the Contractor of work yet to be performed to fulfill contractual obligations, the interest provided by this subsection shall commence to run 30 days after the end of the 15-day period.

As a further condition of final acceptance, the City may require the Contractor to submit evidence, satisfactory to the City's Representative, that all payrolls, material bills, and other indebtedness connected with the project have been paid. If any indebtedness or liens are in dispute, the Contractor may submit a surety bond satisfactory to the City guaranteeing payment of all such disputed amounts if such payment has not already been guaranteed by surety bond.

All notices, bills and payments shall be made in writing and may be given by personal delivery or by mail. Notices, bills and payments sent by mail should be addressed to the attention of the Buyer and/or Authorized Bidder at the addresses identified in the Invitation for Bid and shall be deemed given upon deposit in the United States mail, postage paid. In all other instances, notices, bills and payments shall be deemed given at the time of actual delivery. Changes may be made in the names and addresses of the person to whom notices, bills, and payments are to be given by giving written notice pursuant to this paragraph.

8. **LIQUIDATED DAMAGES:** The Contractor agrees that the "Time of Completion" is defined in the Bid and agrees to complete the work by said date. The Contractor and City agree that the City will suffer damages each day the work remains uncompleted after the Time of Completion and that the amounts of those damages are difficult to calculate. Contractor and City agree that a reasonable amount of damages for late completion is **$500 per calendar day** and Contractor agrees to pay such amounts as liquidated damages if the work is not completed by the Time of Completion. Contractor agrees that the liquidated damages specified herein are a fair way of ascertaining damages to the City and are not a penalty for late completion.

9. **STATUS OF CONTRACTOR AS INDEPENDENT CONTRACTOR:** Contractor certifies that:

a. Contractor acknowledges that for all purposes related to this Agreement, Contractor is and shall be deemed to be an Independent Contractor as defined by ORS 670.600 and not an employee of City, shall not be entitled to benefits of any kind to which an employee of City is entitled and shall be solely responsible for all payments and taxes required by law. Furthermore, in the event that Contractor is found by a court of law or any administrative agency to be an employee of City for any purpose, City shall be entitled to offset compensation due, or to demand repayment of any amounts paid to Contractor under the terms of this Agreement, to the full extent of any benefits or other remuneration Contractor

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receives (from City or third party) as a result of said finding and to the full extent of any payments that City is required to make (to Contractor or to a third party) as a result of said finding.

b. The Contractor hereby represents that no employee of the City, or any partnership or corporation in which a City employee has an interest, has or will receive any remuneration of any description from Contractor, either directly or indirectly, in connection with the letting or performance of this Agreement, except as specifically declared in writing.

c. If payment is to be charged against Federal funds, Contractor certifies that he or she is not currently employed by the Federal Government and the amount charged does not exceed his or her normal charge for the type of service provided.

d. Contractor and its employees, if any, are not active members of the Oregon Public Employees Retirement System and are not employed for a total of 600 hours or more in the calendar year by any public employer participating in the Retirement System.

e. Contractor certifies that it currently has a City business license or will obtain one prior to delivering services under this Agreement.

f. Contractor is not an officer, employee, or agent of the City as those terms are used in ORS 30.265.

10. **CERTIFIED PAYROLL:** The Contractor shall make payment promptly, as due, to all persons supplying to such Contractor labor or material for the performance of the work provided for in this contract. The Contractor will pay all contributions or amounts due the Industrial Accident Fund under the Worker's Compensation Law from such Contractor or Subcontractor incurred in the performance of this contract. The Contractor will pay to the Department of Revenue all sums withheld from employees pursuant to ORS 316.167. The Contractor shall not permit any lien or claim to be filed or prosecuted against the City of West Linn on account of any labor or material furnished.

    The Contractor or the Contractor's Surety and every Subcontractor or the Subcontractor's Surety shall file certified statements with the City in writing on a form prescribed by the Commissioner of the Bureau of Labor and Industries, certifying the hourly rate of wage paid each worker which the Contractor or the Subcontractor has employed upon such public work, and further certifying that no worker employed upon such public work has been paid less than the prevailing rate of wage or less that the minimum hourly rate of wage specified in the contract, which certificate and statement shall be verified by the oath of the Contractor or the Contractor's Surety or Subcontractor or the Subcontractor's Surety that the Contractor or Subcontractor has read such statement and certificate and knows the contents thereof and that the same is true to the Contractor's or Subcontractor's knowledge.

    a. The certified statements shall set out accurately and completely the payroll records, including the name and address of each worker, the worker's correct classification, rate of pay, daily and weekly number of hours worked, and the gross wages the worker earned during each week identified in the certified statement.

    b. Each certified statement required herein shall be delivered or mailed by the Contractor or Subcontractor to the City. A true copy of the certified statements shall also be filed at the same time with the Commissioner of the Bureau of Labor and Industries. Certified statements shall be submitted as set forth in ORS 279C.845.

    c. The City shall retain 25 percent of any amount earned by Contractor until the certified statements as required by this section have been filed. City shall pay Contractor the amount retained under this subsection within 14 days after Contractor files the certified statements as required by this section, regardless of whether a subcontractor has failed to file certified statements as required by this section. City is not required to verify the truth of the contents of certified statements filed by Contractor.

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The Contractor agrees that if the Contractor fails, neglects or refuses to make prompt payment of any claim for labor or services furnished to the Contractor or a Subcontractor by any person in connection with this contract as such claim becomes due, the proper office of the City of West Linn may pay such claim to the person furnishing the labor or services and charge the amount of the payment against funds due or to become due to the Contractor by reason of such contract. Payment of a claim in this manner shall not relieve the Contractor or the Contractor's Surety from obligation with respect to any unpaid claims.

Contractor agrees that no person shall be employed for more than ten (10) hours in any one day, or forty (40) hours in any one week, except in cases of necessity, emergency or when public policy absolutely requires it, and in such cases the laborer shall be paid at least time and a half pay for all overtime in excess of eight (8) hours in any one day or forty (40) hours in any one week when the workweek is five consecutive days, Monday through Friday, or ten (10) hours in any one day and or forty (40) hours in any one week when the workweek is four consecutive days, Monday through Friday and for all work performed on Saturday and on any legal holiday as specified in ORS 279C.540.

Contractor agrees to pay promptly as due, to any person, co partnership, association or corporation furnishing medical, surgical, and hospital care or other needed care and attention incident to sickness or injury to the Contractor's employees, of all sums which the Contractor agreed to pay for such services and all money and sums which the Contractor collected or deducted from employee wages pursuant to any law, contract or agreement for the purpose of providing or paying for such service.

11. **PRE-CONSTRUCTION CONFERENCE:** Within 30 days of the issuance of the Notice of Award, the Contractor is required to attend a Pre-construction Conference. The City will contact the Contractor to schedule a specific date, time and location for the Pre-construction conference. The purpose of the meeting is to outline specific construction items and procedures and to address items which require special attention on the part of the Contractor. The Contractor may also present proposed variations in procedures which the Contractor believes may improve constructability of the project, reduce cost, or will reduce inconvenience to the public. Any necessary coordination and procedures for Construction inspection and staking will be addressed during the Pre-construction Conference. The Contractor will be required to provide the following information at the Pre-construction Conference:

    a. Names and emergency telephone numbers of key personnel involved in the project.

    b. Names and telephone numbers of all subcontractors proposed for use on the project.

    c. A construction progress schedule showing the estimated time for start and completion of the major items of work.

    d. A written proposal outlining the intended plans for maintaining continuous access to residences and businesses along the construction site, and traffic control.

    e. An itemized list of all required shop drawings, material and equipment submittals and a schedule indicating the dates each of these items will be transmitted to the City for review.

    Each of the above items is subject to the review and approval by the City.

12. **INSURANCE REQUIREMENTS:** The Contractor, at Contractor's own expense, shall purchase and maintain the herein stipulated minimum insurance with companies licensed to do business in the State of Oregon with policies and forms satisfactory to the City. The City reserves the right to reject all or any insurance carrier(s) with an unacceptable financial rating. All insurance required herein shall be maintained in full force and effect until all work required to be performed under the terms of the Contract is satisfactorily completed and formally accepted; failure to do so may, at the sole direction

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of the City, constitute a material breach of this Contract. The Contractor's insurance shall be primary insurance, and any insurance or self insurance maintained by the City shall not contribute to it.

Any failure to comply with the claim reporting provisions of the policies or any breach of an insurance policy warranty shall not affect coverage afforded under the policy to protect the City. The insurance policies shall contain a waiver of transfer rights of recovery (subrogation) against the City, its agents, representatives, directors, officers, and employees for any claims arising out of the Contractor's work or service.

The City reserves the right to request and to receive, within 10 working days, certified copies of any or all of the herein required insurance policies and/or endorsements. The City shall not be obligated, however, to review same or to advise Contractor of any deficiencies in such policies and endorsements, and such receipt shall not relieve Contractor from, or be deemed a waiver of the City's right to insist on, strict fulfillment of Contractor's obligations under this Contract.

The insurance policies required by this Contract shall name the City, its agents, representatives, officers, directors, officials and employees as Additional Insured with respect to this contract. All Liability Insurance policies will be endorsed to show this additional coverage. A cross-liability clause or separation of insured clause will be included in general liability policy.

The policy or policies of insurance maintained by the Contractor and its subcontractors shall provide at least the following limits and coverage:

a. Commercial General Liability Insurance: Includes all liability including all major divisions of coverage, but not limited to, Premises/Operations, Completed Operations, Independent Contractors' Protective, Products-Completed Operations, Contractual Liability (including coverage for the Contractor's indemnity obligations and other contractual indemnity obligations assumed by the Contractor), Personal Injury, and Broad Form Property Damage (including coverage for Explosion, Collapse, and Underground Hazards). The following insurance will be carried:

   Employer's Liability Insurance
   $ 2,000,000.00 Each Occurrence
   $ 2,000,000.00 Disease Each Employee
   $ 2,000,000.00 Disease – Policy

   Commercial General Liability insurance
   $ 2,000,000.00 Each Occurrence Limit
   $ 3,000,000.00 General Aggregate
   $ 3,000,000.00 Products/Completed Operations Aggregate
   $ 3,000,000.00 Personal and Advertising Injury
   $ 2,000,000.00 Limited Job Site Pollution Occurrence Sub-Limit

   Comprehensive Automobile Liability Insurance including coverage for all owned, hired and non-owned vehicles
   $ 2,000,000.00 Each Occurrence Combined Single Limit
   $ 3,000,000.00 Aggregate Bodily Injury & Property Damage
   or
   $ 2,000,000.00 Each Person Bodily Injury
   $ 2,000,000.00 Each Occurrence Bodily Injury
   $ 2,000,000.00 Each Occurrence Property Damage
   $ 2,000,000.00 Each Occurrence Pollution Occurrence Sub-Limit

b. "All risk" Builder's Risk Insurance (including earthquake and flood) covering the real and personal property of others in the care, custody, and control of the contractor, if applicable. Coverage shall include theft and damage to building

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interiors, exterior, in transit and offsite storage. The minimum amount of coverage to be carried shall be equal to the full amount of the contract.

The policy shall be endorsed to have the General Aggregate apply to this Project Only.

The insurance policies may provide coverage which contains deductibles or self-insured retentions. Such deductible and/or self insured retentions shall not be applicable with respect to the coverage provided to the City under such policies. The Contractor shall be solely responsible for deductible and/or self insured retention and the City, at its option, may require the Contractor to secure the payment of such deductible or self-insured retentions by a surety bond or an irrevocable and unconditional letter of credit.

Certificates of Insurance: Prior to commencing Services under this Contract, Contractor shall furnish the City with Certificates of Insurance, or formal endorsements as required by the Contract, issued by Contractor's insurer(s), as evidence that policies providing the required coverage, conditions and limits required by this Contract are in full force and effect. Certificates of Insurance should read "Insurance certificate pertaining to (this contract). The City of West Linn, its officers, directors and employees shall be added as additional insured with respects to this contract. Insured coverage is primary" in the description portion of the certificate.

If a policy does expire during the life of the contract, a renewal certificate must be sent to the City ten (10) days prior to the expiration date. Insurance required herein shall not expire, be canceled, or materially changed without thirty (30) days prior written notice to the City. The procuring of such required insurance shall not be construed to limit contractor's liability hereunder. Notwithstanding said insurance, Contractor shall be obligated for the total amount of any damage, injury, or loss caused by negligence or neglect connected with this Contract.

13. **PERFORMANCE BOND:** The contractor shall be required to furnish non-revocable security binding the contractor to provide faithful performance of the contract in the amount of 100% of the total contract price payable to the City of West Linn.

    Performance security shall be in the form of a performance bond, certified check or cashier's check. This security must be in the possession of the City within the time specified or ten (10) days after notice of award if no period is specified. If the contractor fails to execute the security document as required, the contractor may be found in default and the contract terminated by the City. In case of default the City reserves all rights.

    All performance bonds shall be executed on the Performance Bond form included in the Bid Document, duly executed by the Bidder as Principal and having as Surety thereon a Surety company approved by the owner and holding a Certificate of Authority to transact surety business in the State of Oregon, by the Oregon Department of Insurance. Individual sureties are unacceptable. All Insurers and Sureties shall have at the time of submission of the proposal an A.M. Best's Key Rating Guide of "A-" or better as currently listed in the most recent Best Key Guide, published by the A.M. Best Company, payable without condition to the Owner.

14. **PAYMENT BOND:** The contractor shall be required to furnish non-revocable security for the protection of all persons supplying labor and material to the contractor or any subcontractor for the performance of any work related to the contract. Payment security shall be in the amount of 100% of the total contract price and be payable to the City of West Linn. Payment security shall be in the form of a payment bond, certified check or cashier's check.

    All payment bonds shall be executed on the Payment Bond form included in the Bid Document, duly executed by the Bidder as Principal and having as Surety thereon a Surety company approved by the owner and holding a Certificate of Authority to transact surety business in the State of Oregon, by the Oregon Department of Insurance. Individual sureties are unacceptable. All Insurers and Sureties shall have at the time of submission of the proposal and A.M. Best's Key Rating

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Guide of "A-" or better as currently listed in the most recent Best Key Guide, published by the A.M. Best Company, payable without condition to the Owner.

15. **NOTICE TO PROCEED**: Within 45 days of the issuance of the Notice of Award the City may issue a written Notice to Proceed. The Notice to Proceed shall stipulate the actual contract start date, the contract duration and the contract completion date. The time required for the Contractor to obtain permits, licenses and easements shall be included in the contract duration and shall not be justification for a delay claim by the Contractor. The time required for the Contractor to prepare, transmit and obtain approval of applicable submittals shall be included in the contract duration and shall not be justification for a delay claim by the Contractor.

    No work shall be started until after all required permits, licenses, and easements have been obtained.

    No work shall be started until all applicable submittals have been submitted and returned approved by the City's Representative.

16. **PROTECTION OF FINISHED OR PARTIALLY FINISHED WORK**: The Contractor shall properly guard and protect all finished or partially finished work, and shall be responsible for the same until the entire contract is completed and accepted by the City Engineer. The Contractor shall turn over the entire work in full accordance with these Specifications before final settlement shall be made.

17. **CHANGE ORDERS**: The City may at any time, and without notice, issue a written Change Order requiring additional work within the general scope of this Contract, or any amendment thereto, or directing the omission of or variation in work. If such Change Order results in a material change in the amount or character of the work, an equitable adjustment in the Contract price and other provisions of this Contract as may be affected may be made. Any claim by Contractor for an adjustment under this section shall be asserted in writing within thirty (30) days from the date of receipt by Contractor of the notification of change or the claim will not be allowed. Whether made pursuant to this section or by mutual agreement, no change shall be binding upon City until a Change Order is executed by the Authorized Representative of City, which expressly states that it constitutes a Change Order to this Contract. The issuance of information, advice, approvals, or instructions by City's Representative or other City personnel shall not constitute an authorized change pursuant to this section. Nothing contained in this section shall excuse the Contractor from proceeding with the prosecution of the work in accordance with the Contract, as changed.

18. **STOCKPILE OF MATERIALS**: The Contractor may, if approved by the City Engineer, place or stockpile materials in the public right-of-way provided they **do not** prevent access to adjacent properties or prevent compliance with traffic regulations. Traffic shall not be required to travel over stockpiled materials, and proper dust control shall be maintained.

19. **EXCESS MATERIALS**: When excavations are made, resultant loose earth shall be utilized for filling by compacting in place or disposed of off the site. Excess or unsuitable material, broken asphaltic concrete and broken portland cement concrete excavated from the right-of-way shall be removed from the project and disposed of by the Contractor.

    Waste material shall not be placed on private property without express permission of the property owner.

    The Contractor shall at all times keep the premises free from accumulation of waste materials or rubbish caused by his operations. At the completion of the work, he shall remove all equipment, tools and surplus materials, and shall completely clean the premises, removing and disposing of all debris and rubbish, and cleaning all stains, spots, marks, dirt, smears, etc. When work premises are turned over to the City, they shall be thoroughly clean and ready for immediate use.

    Clean-up shall include removal of all excess pointing mortar materials within pipes and removal of oversized rocks and boulders left after finish grading. The Contractor shall provide for the legal disposal of all waste products debris, etc., and shall make necessary arrangements for such disposal.

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20. **ENVIRONMENTAL POLLUTION**: As provided by ORS 279C.525, all applicable provisions of federal, state or local statutes, ordinances and regulations dealing with the prevention of environmental pollution and the preservation of natural resources that affect the work under this contract are by reference incorporated herein to the same force and affect as if set forth herein in full. If the Contractor must undertake additional work due to the enactment of new or the amendment of existing statutes, ordinances or regulations occurring after the submission of the successful bid, the City shall issue a Change Order setting forth the additional work that must be undertaken. The Change Order shall not invalidate the Contract and there shall be, in addition to a reasonable extension, if necessary, of the contract time, a reasonable adjustment in the contract price, if necessary, to compensate the Contractor for all costs and expenses incurred, including overhead and profits, as a result of the delay or additional work.

21. **SALVAGE, COMPOSTING OR MULCHING**: If this is a contract for demolition work, the Contractor shall salvage or recycle construction and demolition debris, if feasible and cost-effective. If this is a contract for lawn and landscape maintenance, Contractor shall compost or mulch yard waste material at an approved site, if feasible and cost-effective.

22. **LOSSES AND DAMAGES**: All loss or damage arising out of the nature of the work to be done or from the action of the elements or from any unforeseen circumstances in the prosecution of the same, or from any unusual obstructions or difficulties which may be encountered in and/or during the prosecution of the work, or from any casualty whatsoever of every description, shall be sustained and borne by the Contractor at his own cost and expense.

23. **CHARACTER AND STATUS OF WORKMEN**: Only skilled foremen and workmen shall be employed on work requiring special qualifications. When required by the City, the Contractor shall discharge any person who is, in the opinion of the City Engineer, disorderly, dangerous, insubordinate, incompetent, or otherwise objectionable. The Contractor shall keep the City harmless from damages or claims for compensation that may occur in the enforcement of this section.

24. **WORK METHODS:** The methods, equipment and appliances used on the work shall be such as will produce a satisfactory quality of work, and shall be adequate to complete the contract within the time limit specified.

    Except as is otherwise specified, the Contractor's procedure and methods of construction may, in general, be of his own choosing, provided they follow best general practice and are calculated to secure results which will satisfy the requirements of the specifications and the supervision of the work.

    The work covered by this Contract shall be carefully laid out in advance and performed in a manner to minimize interference with normal operation and utilization of the roads. The Contractor shall exercise caution during the course of this construction work to avoid damage to all known existing or possible unknown existing underground utilities. He shall conduct his construction operations in such a manner as to avoid injury to his personnel and to avoid damage to all utilities. Any damage done will be repaired without delay and at the expense of the Contractor.

25. **INSPECTION:** All material and/or services are subject to inspection and acceptance by the City. Materials and/or services failing to conform to the specifications of this Contract will be held at Contractor's risk and may be returned to the Contractor. If so returned, all costs are the responsibility of the Contractor. The City may elect to do any or all of the following per written determination:

    a. Waive the non-conformance.

    b. Stop the work immediately.

    c. Bring material into compliance.

Public Works Department
22500 Salamo Road
West Linn, Oregon 97068
Telephone: (503) 722-5500
Fax: (503) 656-4106

26. **TRAFFIC REGULATIONS**: All traffic affected by this construction shall be regulated in accordance with the *Oregon Temporary Traffic Control Handbook*, latest edition, as prepared by the Oregon Department of Transportation and any questions shall be referred to the City of West Linn City Engineer for interpretation.

    At the time of the pre-construction conference, the Contractor shall designate an employee who is well qualified and experienced in construction traffic control and safety to be responsible for implementing, monitoring and altering traffic control measure, as necessary. At the same time the City will designate a representative who will be responsible to see that all traffic control and any alterations are implemented and monitored to the extent that traffic is carried through the work area in an effective manner and that motorists, pedestrians, bicyclists and workers are protected from hazard and accidents.

    a. All traffic control devices required for this project shall be the responsibility of the Contractor. The Contractor shall place advance warnings signs in accordance with the Traffic Control Handbook.

    b. The Contractor shall provide, erect and maintain all necessary flashing arrow boards, barricades, suitable and sufficient warning lights, signals and signs, and shall take all necessary precautions for the protection of the work and safety of the public. The Contractor shall provide, erect and maintain acceptable and adequate detour signs at all closures and along detour routes.

    c. All barricades and obstructions shall be illuminated at night, and all safety lights shall be kept burning from sunset until sunrise. All barricades and signs used by the Contractor shall conform to the standard design, generally accepted for such purposes, and payment for all such services and materials shall be considered as included in the other pay items of the Contract unless specifically listed and identified.

    d. The Contractor shall insure that all existing traffic signs are erect, clean and in full view of the intended traffic at all times. Street name signs at major street intersections shall be maintained erect at all times. If these signs should interfere with construction, the Contractor shall notify the Inspector at least forty eight (48) hours in advance for City personnel to temporarily relocate said signs. The City will re-set all traffic and street name signs to permanent locations when notified by the Contractor that construction is complete unless otherwise stated in the specifications.

    e. When construction activities or traffic hazards at the construction site require the use of flagmen, it shall be the Contractor's responsibility to provide adequate personnel including flagmen to direct traffic safely.

    f. Equipment used and/or directed by the Contractor shall travel with traffic at all times. Supply trucks shall travel with traffic except when being spotted. Provide a flagman to assist with this operation.

    g. During construction, it may be necessary to alter traffic control. Alterations shall be in accordance with the Traffic Control Handbook.

    h. **NO STREET WITHIN THIS PROJECT MAY BE CLOSED TO THROUGH TRAFFIC OR TO LOCAL EMERGENCY TRAFFIC WITHOUT THE PRIOR WRITTEN APPROVAL OF THE CITY ENGINEER PER DIRECTION OF THE CITY MANAGER OF THE CITY OF WEST LINN.** Written approval may be given if sufficient time exists to allow for notification of the public at least two (2) days in advance of such closing. Partial closure of streets within the project shall be done in strict conformity with written directions to be obtained from the City Engineer.

    i. The Contractor shall address how local access to adjacent properties will be handled in accordance with the specification herein.

Public Works Department
22500 Salamo Road
West Linn, Oregon 97068
Telephone: (503) 722-5500
Fax: (503) 656-4106

j. Where crossings of existing pavements occur, no open trenches shall be permitted overnight, but plating may be permitted if conditions allow as determined by the City Engineer or his authorized representative. If plates cannot be used, crossings shall be appropriately back-filled to provide a safe smooth travelling surface.

27. **OUTDOOR CONSTRUCTION RESTRICTIONS:** Outdoor construction is restricted to the times listed below in the following table:

	Weekdays (Mon.-Fri.)	Weekends (Sat.-Sun.), Holidays
All Outdoor Construction Work	7:00 a.m. to 7:00 p.m.	9:00 a.m. to 5:00 p.m.

Holidays include: New Year's Day, Martin Luther King Jr. Birthday, Washington's Birthday/President's Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving Day, and Christmas Day.

28. **FIRST TIER SUBCONTRACTOR DISCLOSURE:** If a Bid for the Project is greater than $100,000, within two working hours of the date and time the Bids are due, the Bidder must submit a written disclosure for all First Tier Subcontractors furnishing labor or labor and materials whose subcontracts are equal to or greater in value than 5% of the total Project Bid or $15,000, whichever is greater, or $350,000 regardless of the percentage of the total project bid in accordance with ORS 279C.370. The Bidder must disclose the following information about their first-tier subcontracts either in its Bid submission or within two (2) working hours after the date and time of the deadline when bids are due:

a. The subcontractor's name, address, Construction Contractor's Board Number (as applicable), and

b. The dollar value of the subcontract, and

c. The category of work that the subcontractor will be performing.

If the bidder will not be using any subcontractors that are subject to the above disclosure requirements, the bidder is required to indicate "NONE" on the accompanying form. Failure to submit this form by the disclosure deadline will result in a non-responsive bid. A non-responsive bid will not be considered for award. It is the Bidder's responsibility to determine all the documents are must be submitted to the City.

29. **USE OF EQUALS:** When the specifications for materials, articles, products, and equipment state "or equal", Contractor may bid upon, and use materials, articles, products, and equipment which will perform equally the duties imposed by the general design. The Engineer will have the final approval of all materials, articles, products, and equipment proposed to be used as an "equal." It shall not be purchased or installed without prior written approval from the City or its representative.

30. **HAZARDOUS MATERIALS**: The Contractor shall supply the City with a list of any and all hazardous substances used in performance of this Contract. That list shall identify the location of storage and use of all such hazardous substances and identify the amounts stored and used at each location. Contractor shall provide City with material safety data sheets for all hazardous substances brought onto City property, created on City property or delivered to City pursuant to this Contract. For the purpose of this section, "hazardous substance" means hazardous substance as defined by ORS 453.307(5). Contractor shall complete the State Fire Marshall's hazardous substance survey as required by ORS 453.317 and shall assist City to complete any such survey that it may be required to complete because of substances used in the performance of this Contract.

31. **HAZARDOUS WASTE**: If, as a result of performance of this Contract, Contractor generates any hazardous wastes, Contractor shall be responsible for disposal of any such hazardous wastes in compliance with all applicable federal and state requirements. Contractors shall provide City with documentation, including all required manifests, demonstrating proper transportation and disposal of any such hazardous wastes. Contractor shall defend, indemnify, and hold harmless City for

Public Works Department
22500 Salamo Road
West Linn, Oregon 97068
Telephone: (503) 722-5500
Fax: (503) 656-4106

any disposal or storage of hazardous wastes generated pursuant to this Contract and any releases or discharges of hazardous materials.

32. **TEMPORARY SANITARY FACILITIES**: The Contractor shall provide facilities for the use of workmen employed on the work site in accordance with the requirements of ORS 654.150, (Sanitary facilities at construction projects; standards, exemptions) and the rules adopted pursuant thereto. Whether or not ORS 654.150 is applicable to the project is the sole responsibility of the Contractor. Contractor shall be responsible for all costs that may be incurred in complying with or in securing exemption or partial exemption from the requirements as incidental to this contract.

33. **ELECTRIC POWER, WATER AND TELEPHONE**: Unless otherwise specified, the Contractor shall make his own arrangements for electric power, water and telephone. Subject to the convenience of the utility, he may be permitted to connect to existing facilities where available, but he shall meter and bear the cost of such power or water, and installation and disconnect of such power, water and telephone services.

34. **UTILITIES AND ELECTRICAL POWER LINES**: The electric utility company may maintain energized aerial electrical power lines in the immediate vicinity of this project. Do not consider these lines to be insulated. Construction personnel working in proximity to these lines are exposed to an extreme hazard from electrical shock. Contractors, their employees and all other construction personnel working on this project must be warned of the danger and instructed to take adequate protective measure, including maintaining a minimum ten (10) feet clearance between the lines and all construction equipment and personnel. (see: OSHA Std. 1926.550 (a) 15).

    Electrical utility companies may maintain energized underground electrical power lines in the immediate vicinity of this project. These power lines represent an extreme hazard of electrical shock to any construction personnel or equipment coming in contact with them. Contractors, their employees, and all other personnel working near any underground power lines must be warned to take adequate protective measure. (see: OSHA Std. 1926-651 (A)).

    Oregon law requires all parties planning excavations in public rights-of-way to contact utilities for locations of their underground facilities in accordance with the rules adopted by the Oregon Utility Notification Center. Those rules are set forth in OAR 952-001-0010 through OAR 952-001-0090. You may obtain copies of the rules by calling the center at (503) 232-1987.

35. **COOPERATIVE PURCHASING**: Any publicly funded city, county, district, agency or similar entity shall have the authority to purchase specified goods/services directly from the contractor under the terms and conditions of this contract as indicated below:

    a. The bidder agrees to extend identical pricing to local public agencies for the same terms. Quantities listed in this document reflect the City of West Linn's estimated usage only.

    b. Each contracting agency will execute a separate contract with the successful bidder for its requirements.

    c. Any bidder, by written notification at the time of the bid due date and time, may decline to extend the prices and terms of this bid to any, and/or all other public agencies.

    d. Additional costs may be incurred by the successful bidder in contracting with another public agency. All demonstrable costs (shipping, etc.) may be passed on to that public agency.

    Contractor shall provide information regarding total usage of contract upon request of the City of West Linn.

Public Works Department
22500 Salamo Road
West Linn, Oregon 97068
Telephone: (503) 722-5500
Fax: (503) 656-4106

Purpose: The City of West Linn intends to establish a contract for the **Bland Intertie Pump Station**. For the Technical Provisions of this contract see Appendix D.

1. **Prospective Bidders Conference:** Prospective bidders are required to attend a conference to be held at the City of West Linn City Hall:

   ADDRESS: 22500 Salamo Road
   West Linn, Oregon 97068
   Bolton Conference Room

   DATE/TIME: AS INDICATED ON INVITATION FOR BID

   The purpose of this conference will be to clarify the contents of this Invitation For Bid in order to prevent any misunderstanding of the City's position. Any doubt as to the requirements of this Invitation For Bid or any apparent omission or discrepancy should be presented to the City at this conference. The City will then determine the appropriate action necessary, if any, and issue a written addendum to the Invitation For Bid. Oral statements or instructions shall not constitute an amendment to the Invitation For Bid.

2. **Bid Acceptance Period:** In order to allow for an adequate evaluation, the City requires a Bid in response to this Solicitation to be valid and irrevocable for sixty (60) days after the opening time and date.

3. **Time of Completion:** The Contractor shall commence work for this project on or before the fifth (5) day following the project start date indicated on the "Notice to Proceed" issued by the City of West Linn and shall fully complete all work under the project within **120 calendar days**. The Contractor shall, at all times, during the continuance of the Contract, prosecute the work with such force and equipment as is sufficient to complete all work within the time specified.

4. **Plans and Specifications to Successful Bidder:** The successful Bidder may obtain five (5) sets of Plans and Specifications for this project from the City at no cost.

5. **City of West Linn Permit:** As a City project, the Contractor is not required to obtain a City Public Works Construction, Improvement, Blasting, or Erosion Control permit. The Contractor will be responsible for any other required agency permits.

6. **Key Personnel:** It is essential that the Contractor provide adequate experienced personnel, capable of and devoted to the successful accomplishment of work to be performed under this contract. The Contractor must agree to assign specific individuals to the key positions.

   b. The Contractor agrees that, once assigned to work under this contract, key personnel shall not be removed or replaced without written notice to the City.

   c. If key personnel are not available for work under this contract for a continuous period exceeding 30 calendar days, or are expected to devote substantially less effort to the work than initially anticipated, the Contractor shall immediately notify the City, and shall, subject to the concurrence of the City, replace such personnel with personnel of substantially equal ability and qualifications.

Appendix A

FORMS

BID FORM

Solicitation Number: PW-10-14

Public Works Department
22500 Salamo Road
West Linn, Oregon 97068
Telephone: (503) 722-5500
Fax: (503) 656-4106

Item		Description of material and/or services	Quantity	Unit	Unit Price	Total Amount
1		MOBILIZATION/DEMOBILIZATION	1	LS		
2		SITE WORK	1	LS		
3		FENCING	1	LS		
4		EXISTING WELL ABANDONMENT	1	LS		
5		TREES/LANDSCAPE	1	LS		
6		UNDERGROUND ELECTRICAL SERVICE	1	LS		
7		CONCRETE SLAB FORMS AND REBAR	1	LS		
8		CONCRETE SLAB AND PIPE ENCASEMENT	1	LS		
9		PUMP AND MOTOR INSTALLATIONS	1	LS		
10		MECHANICAL WORK	1	LS		
11		BUILDING:CMU/ROOF/ETC	1	LS		
12		FINISH WORK	1	LS		
13		ELECTRICAL WORK	1	LS		
14		MOTOR CONTROL CENTER/SCADA CONTROLS	1	LS		
		Total Bid:				$_____

BID BOND

Solicitation Number: PW-10-14

Public Works Department
22500 Salamo Road
West Linn, Oregon 97068
Telephone: (503) 722-5500
Fax: (503) 656-4106

KNOW ALL PERSONS BY THESE PRESENTS:

That we, _____, as "Principal,"
(Name of Principal)

and _____, an _____ Corporation,
(Name of Surety)
authorized to transact Surety business in Oregon, as "Surety," hereby jointly and severally bind ourselves, our respective heirs, executors, administrators, successors and assigns to pay unto the City of West Linn ("Obligee") the sum of ($_____) _____ dollars.

WHEREAS, the condition of the obligation of this bond is that Principal has submitted its proposal or bid to an agency of the Obligee in response to Obligee's procurement document for the project identified in the Solicitation Number indicated above which proposal or bid is made a part of this bond by reference, and Principal is required to furnish bid security in an amount equal to ten (10%) percent of the total amount of the bid pursuant to the procurement document and ORS 279C.365(4) for competitive bidding or 279C.400(5) for competitive proposals.

NOW, THEREFORE, if the proposal or bid submitted by Principal is accepted, and if a contract pursuant to the proposal or bid is awarded to Principal, and if Principal enters into and executes such contract within the time specified in the procurement document and executes and delivers to Obligee its good and sufficient performance and payment bonds required by Obligee, as well as any required proof of insurance, within the time fixed by Obligee, then this obligation shall be void; otherwise, it shall remain in full force and effect.

IN WITNESS WHEREOF, we have caused this instrument to be executed and sealed by our duly authorized legal representatives this _____day of _____, 20__.

PRINCIPAL: _____

By_____
Signature

_____
Official Capacity

Attest: _____
Corporation Secretary

SURETY: _____

BY ATTORNEY-IN-FACT:

_____
Name

_____
Signature

_____
Address

_____
City State Zip

_____ _____
Phone Fax

	FORMS	**Public Works Department** 22500 Salamo Road West Linn, Oregon 97068 Telephone: (503) 722-5500 Fax: (503) 656-4106
	Solicitation Number: PW-10-14	

NONCOLLUSION AFFIDAVIT

I, (Type/Print Name)_____**,** state that I am **(Position Title)** _____of **(Name of Firm)**_____ and that I am authorized to make this affidavit on behalf of my firm, and its owners, directors, and, officers. I am the person responsible in my firm for the price(s) and the amount of this bid.

I state that:

1. The price(s) and the amount of this bid have been arrived at independently and without consultation, communication or agreement with any other contractor, bidder or potential bidder.

2. Neither the price(s) nor the amount of this bid, and neither the approximate price(s) nor approximate amount of this bid, have been disclosed to any other firm or person who is a bidder or potential bidder, and they will not be disclosed before bid opening.

3. No attempt has been made or will be made to induce any firm or person to refrain from bidding on this contract, or to submit a bid higher than this bid, or to submit any intentionally high or noncompetitive bid or other form of complementary bid.

4. The bid of my firm is made in good faith and not pursuant to any agreement or discussion with, or inducement from, any firm or person to submit a complementary or other noncompetitive bid.

5. **(Name of Firm)**_____**,** its affiliates, subsidiaries, officers, directors, and employees are not currently under investigation by any governmental agency and have not in the last four (4) years been convicted or found liable for any act prohibited by state or federal law in any jurisdiction, involving conspiracy or collusion with respect to bidding on any public contract, except as follows:

I state that **(Name of Firm)**_____ understands and acknowledges that the above representations are material and important, and will be relied on by **THE CITY OF WEST LINN, OREGON** in awarding the contract(s) for which this bid is submitted. I understand and my firm understands that any misstatement in this affidavit is and shall be treated as fraudulent concealment from **THE CITY OF WEST LINN, OREGON** of the true facts relating to the submission of bids for this contract.

_____
(Signature) (Signatory's Name)

_____
(Signatory's Title)

STATE OF _____)
)§
COUNTY OF _____)

SWORN TO AND SUBSCRIBED BEFORE ME THIS _____DAY OF _____**, 20**____

_____
Notary Public

My Commission Expires _____

THREE YEAR EXPERIENCE RECORD

Recent projects first

#1 (Project Name, Location, Contract Cost)

_____

Project description: _____

_____

_____

Project completion date: (contract) _____ (actual) _____

Contact name: _____

Telephone: _____

#2 (Project Name, Location, Contract Cost)

_____

Project description: _____

_____

_____

Project completion date: (contract) _____ (actual) _____

Contact name: _____

Telephone: _____

#3 (Project Name, Location, Contract Cost)

_____

Project description: _____

_____

_____

Project completion date: (contract) _____ (actual) _____

Contact name: _____

Telephone: _____

#4 (Project Name, Location, Contract Cost)

_____

Project description: _____

_____

_____

Project completion date: (contract) _____ (actual) _____

Contact name: _____

Telephone: _____

#5 (Project Name, Location, Contract Cost)

_____

Project description: _____

_____

_____

Project completion date: (contract) _____ (actual) _____

Contact name: _____

Telephone: _____

Attach additional sheets if needed.

FIRST-TIER SUBCONTRACTOR DISCLOSURE

PROJECT NAME: _____

BID #: _____

BID CLOSING: Date: _____Time:_____

This form must be submitted at the location specified in the Invitation to Bid on the advertised bid closing date and within two working hours after the advertised bid closing time.

List below the name of each subcontractor that will be furnishing labor or will be furnishing labor and materials and that is required to be disclosed, the category of work that the subcontractor will be performing and the dollar value of the subcontract. Enter "NONE" if there are no subcontractors that need to be disclosed. (ATTACH ADDITIONAL SHEETS IF NEEDED.)

NAME	DOLLAR VALUE	CATEGORY OF WORK
(1) _____	$ _____	_____
(2) _____	$ _____	_____
(3) _____	$ _____	_____
(4) _____	$ _____	_____
(5) _____	$ _____	_____
(6) _____	$ _____	_____
(7) _____	$ _____	_____
(8) _____	$ _____	_____
(9) _____	$ _____	_____

Failure to submit this form by the disclosure deadline will result in a non-responsive bid. A non-responsive bid will not be considered for award.

Form submitted by (bidder name):_____

Contact name: _____ Phone no.: ( )_____

ORS 279C.370 First-tier subcontractor disclosure. (1)(a) Within two working hours after the date and time of the deadline when bids are due to a contracting agency for a public improvement contract, a bidder shall submit to the contracting agency a disclosure of the first-tier subcontractors that:

(A) Will be furnishing labor or will be furnishing labor and materials in connection with the public improvement contract; and

(B) Will have a contract value that is equal to or greater than five percent of the total project bid or $15,000, whichever is greater, or $350,000 regardless of the percentage of the total project bid.

(b) For each contract to which this subsection applies, the contracting agency shall designate a deadline for submission of bids that has a date on a Tuesday, Wednesday or Thursday and a time between 2 p.m. and 5 p.m., except that this paragraph does not apply to public contracts for maintenance or construction of highways, bridges or other transportation facilities.

(c) This subsection applies only to public improvement contracts (**"projects"**) with a value, estimated by the contracting agency, of more than **$100,000**.

(d) This subsection does not apply to public improvement contracts that have been exempted from competitive bidding requirements under ORS 279C.335 (2).

(2) The disclosure of first-tier subcontractors under subsection (1) of this section must include the name of each subcontractor, the category of work that each subcontractor will perform and the dollar value of each subcontract. The information shall be disclosed in substantially the following [above] form:

(3) A contracting agency shall accept the subcontractor disclosure. The contracting agency shall consider the bid of any contractor that does not submit a subcontractor disclosure to the contracting agency to be a non-responsive bid and may not award the contract to the contractor. A contracting agency is not required to determine the accuracy or the completeness of the subcontractor disclosure.

(4) After the bids are opened, the subcontractor disclosures must be made available for public inspection.

(5) A contractor may substitute a first-tier subcontractor under the provisions of ORS 279C.585.

(6) A subcontractor may file a complaint under ORS 279C.590 based on the disclosure requirements of subsection (1) of this section.

WH-179 (08-10-10)

PERFORMANCE BOND

Solicitation Number: PW-10-14

Public Works Department
22500 Salamo Road
West Linn, Oregon 97068
Telephone: (503) 722-5500
Fax: (503) 656-4106

k**NOW ALL MEN BY THESE PRESENTS**, that we, _____
(Official Name & Form of Organization)

Whose address is: _____
(Street Address) *(City)* *(State)* *(Zip)*

as Principal, and, _____
(Name of Surety) *(Print - Agent / Contact Name)* *(Phone Number)*

_____
(Street Address of Surety) *(City)* *(State)* *(Zip)*

a corporation duly authorized to conduct a general surety business in the State of Oregon, as Surety, are jointly and severally held and bound unto the City of West Linn, Oregon, a municipality of the State of Oregon, hereinafter called Obligee, in the sum of _____ and ____/100 DOLLARS ($_____),*(The Contract Price, Both in Words & Figures)* lawful money of the United State of America, for the payment of which we, as Principal, and as Surety, jointly and severally bind ourselves, our successors and assigns firmly by these presents,

TERMS AND CONDITIONS

On the _____ *(Day)* of _____*(Month)*, _____*(Year)*, _____
(Name of Contractor)

Principal, entered into a contract with the City of West Linn, Oregon, Obligee, to construct certain public improvements and to provide material, labor and equipment for the construction of those improvements. The public improvements and work to be performed by Principal are more fully described in the contract documents between Principal and Obligee. Those contract documents are incorporated herein by reference.

In the event that Principal fails to complete the work as required under the contract, Surety shall either complete the work or pay Obligee the costs of completion of the work. Work is only complete when it meets the standards required by the Contract and applicable City standards. Surety's obligation shall remain in effect until the work is accepted by Obligee, but shall terminate on acceptance by Obligee. The total amount of the Surety's liability to Obligee under this bond shall in no event exceed the amount stated above.

Surety agrees that no change, extension of time, alternation, or addition to the terms of the contract, or to the work to be performed thereunder or the specifications accompanying the same shall in anywise affect its obligations 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 the specifications.

IN WITNESS WHEREOF, the parties hereto have caused this Bond to be executed in _____, Oregon, this ____ *(Day)* of _____*(Month)*, _____*(Year)*.

_____
Contractor

_____
Principal Signature

Witnesses:

_____ _____
Principal Printed Name

_____ _____
Surety

(A true copy of the Power of Attorney must be attached to the original of this bond)

Countersigned: _____
Surety Attorney of Fact

_____
Resident Agent

PAYMENT BOND

Solicitation Number: PW-10-14

Public Works Department
22500 Salamo Road
West Linn, Oregon 97068
Telephone: (503) 722-5500
Fax: (503) 656-4106

KNOW ALL MEN BY THESE PRESENTS, that we, _____
(Official Name & Form of Organization)

Whose address is: _____
(Street Address) *(City)* *(State)* *(Zip)*

as Principal, and, _____
(Name of Surety) *(Print - Agent / Contact Name)* *(Phone Number)*

_____
(Street Address of Surety) *(City)* *(State)* *(Zip)*

a corporation duly authorized to conduct a general surety business in the State of Oregon, as Surety, are jointly and severally held and bound unto the City of West Linn, Oregon, a municipality of the State of Oregon, hereinafter called Obligee, in the sum of _____ and _____/100 DOLLARS ($_____),*(The Contract Price, Both in Words & Figures)* lawful money of the United State of America, for the payment of which we, as Principal, and as Surety, jointly and severally bind ourselves, our successors and assigns firmly by these presents,

TERMS AND CONDITIONS

On the _____ *(Day)* of _____*(Month)*, _____*(Year)*, _____
(Name of Contractor)

Principal, entered into a contract with the City of West Linn, Oregon, Obligee, for the construction of certain public improvements. As part of the contract, Principal is required to furnish materials, labor, and equipment to construct the improvements. The contract documents between Principal and Obligee are incorporated herein by this reference.

In the event that Principal fails to make payments when due to suppliers of labor, equipment or materials, Surety shall pay the suppliers the amounts they are due. In the event that Obligee pays any amounts to suppliers that Principal was required to pay, Surety shall reimburse Obligee for those payments. In the event that Principal permits any lien or claim to be filed or prosecution against the City on account of any labor or material furnished, Surety shall take such steps as are necessary to clear the lien, claim or prosecution. In the event that Principal fails to (1) promptly pay all contributions or amounts due the State Unemployment Compensation Trust Fund incurred to the performance of the contract, (2) promptly, as due, make payments to the person, co-partnership, association, or corporation entitled thereto of the money and sums mentioned in Section 279C.600 of the Oregon Revised Statutes, or (3) promptly pay to the Oregon State Tax Commission all sums required to be deducted and retained from wages of employees of the Principal and his sub-Contractors, pursuant to the Section 316.711, Oregon Revised Statues, Surety shall make the required payments. Surety's obligations under this bond shall terminate when all payments required of Principal described in this paragraph are made in full.

The total amount of the Surety's liability under this bond both to the Obligee and to the persons furnishing labor or materials, provisions and goods to any person or persons, shall in no event exceed the amount stated above.

Surety agrees that no change, extension of time, alternation, or addition to the terms of the contract, or to the work to be performed there under or the specifications accompanying the same shall in anywise affect its obligations 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 the specifications.

IN WITNESS WHEREOF, the parties hereto have caused this Bond to be executed in _____, Oregon, this ____ *(Day)* of _____*(Month)*, _____*(Year)*.

_____
Contractor

_____
Principal Signature

Witnesses:

_____ _____
Principal Printed Name

_____ _____
Surety

(A true copy of the Power of Attorney must be attached to the original of this bond)

Countersigned:

_____
Surety Attorney of Fact

_____
Resident Agent

CONTRACTOR'S AFFIDAVIT
SETTLEMENT OF CLAIMS

DATE:_____

PROJECT: Bland Intertie Pump Station

TO: City of West Linn

Persons:

This is to certify that all lawful claims for materials, rental of equipment, and labor used in connection with the construction of the above, whether by subcontractor or claimant in person, have been duly discharged.

The undersigned, for the consideration of $_____, as set forth in the final pay estimate, as full and complete payment under the terms of the contract, hereby waives and relinquishes any and all further claims or right of lien under, in connection with, or as a result of this project. The undersigned further agrees to indemnify and hold harmless _____against any and all liens, claims of liens, suits, actions, damages, charges and expenses whatsoever, which _____ may suffer arising out of the failure of the undersigned to pay for all labor performance and materials furnished for the performance of said project.

Signed at _____, this _____ day of _____, 20_____

_____
(CONTRACTOR)

BY:_____

STATE OF _____)
)§
COUNTY OF _____)

The foregoing instrument was subscribed and sworn to before me this _____ day of _____, 20___

_____
Notary Pubic

My Commission Expires:_____

CONTRACT FEE SECTION
PREVAILING WAGE RATE UNIT
BUREAU OF LABOR AND INDUSTRIES
800 N.E. OREGON ST., #1045
PORTLAND, OR 97232-2180
PHONE: (971) 673-0852
FAX: (971) 673-0769

For Office Use Only:

Project DB #:_____

PUBLIC WORKS FEE INFORMATION FORM

For use by public agencies that have contracted with a contractor on a public works project regulated by ORS 279C.800 to 279C.870, in compliance with ORS 279C.825. Also for use by public agencies that are a party to a public works project pursuant to ORS 279C.800(6)(a)(B) or (C).

PUBLIC AGENCIES: Please complete and mail this form to BOLI at the above address, along with the public works fee of one-tenth of one percent of the contract price (contract amount x .001), payable to BOLI. **The minimum fee is $250.00; the maximum fee is $7,500.00.** Without the following completed information, the bureau may be unable to properly credit you for payment received.

PUBLIC AGENCY: _____ **AGENCY #:** _____

AGENCY MAILING ADDRESS: _____

CITY, STATE, ZIP _____

AGENCY CONTACT PERSON: _____ **PHONE: ( )** _____

PROJECT MANAGER NAME: _____ **PHONE: ( )** _____

PROJECT NAME: _____

CONTRACT NAME (if part of larger project): _____

PROJECT LOCATION: _____

PROJECT NO: _____ **DATE CONTRACT FIRST ADVERTISED:** _____

DATE CONTRACT AWARDED: _____ **CONTRACTOR CCB#:** _____

CONTRACTOR BUSINESS NAME (DBA): _____

CONTRACTOR ADDRESS: _____

CITY, STATE ZIP _____

CONTRACT AMOUNT: $ _____ **FEE AMOUNT DUE/PAID: $** _____

If less than $50K is it part of a larger project? ☐**yes** ☐**no**

Contract amount x .001 = fee due

(Please duplicate this form for future use.)

BUREAU OF LABOR AND INDUSTRIES
NOTICE OF PUBLIC WORKS

(For use by public agencies in complying with ORS 279C.835)

For Office Use Only:
Project DB #:

NOTE: ORS 279C.835 requires that public contracting agencies include with this form a copy of the disclosure of first-tier subcontractors submitted pursuant to ORS 279C.370.

PUBLIC AGENCY INFORMATION

Agency Name: _____ Agency Number (if known): _____

Address: _____ Agency Division: _____

City, State, Zip: _____

Agency Representative: _____ Phone: _____

SECTION A: To be completed when a public agency awards a contract to a contractor for a public works project, including CM/GC projects. (See reverse for public works projects in which no public agency awards a contract to a contractor.)

CONTRACT INFORMATION:

Project Name: _____ Project Number: _____

Contract Name (if part of larger project): _____ Contract Number: _____

Project Manager Name: _____ Phone #: _____ Fax #: _____

Project Location (Street(s), City): _____ Project County: _____

Contract Amount: $_____ If under $50,000, is this contract part of a larger project? YES____ NO____

If yes, total project amount: $_____

Will project use federal funds that require compliance with the Davis-Bacon Act? YES____ NO____

Date Contract Specifications First Advertised for Bid (if not advertised, date of RFP or first contact with contractor): _____

If CM/GC Contract, Date Contract Became a Public Works Contract (see OAR 839-025-0020(6)): _____

Date Contract Awarded: _____ Date Work Expected to Begin: _____

Date Work Expected to be Complete: _____

PRIME CONTRACTOR INFORMATION:

Name: _____

Address: _____

City, State Zip: _____ Phone: _____

Construction Contractors Board Registration Number: _____

Name of Bonding Company: _____

Address: _____

Agent Name and Phone Number: _____

Payment Bond Number: _____

☐ Copy of first-tier subcontractors attached (**see NOTE above**).

THIS FORM WILL BE RETURNED TO THE PUBLIC AGENCY FOR CORRECTION AND RESUBMITTAL IF INCOMPLETE.

SECTION B: To be completed when a project is a public works pursuant to ORS 279C.800(6)(a)(B) (a project for the construction, reconstruction, major renovation or painting of a privately owned road, highway, building, structure or improvement of any type that uses funds of a private entity and $750,000 or more of funds of a public agency) and no public agency awards a contract to a contractor.

CONTRACT INFORMATION:

Name of Project Owner:_____ Phone #: _____ Fax #: _____

Project Name: _____ Project Number:_____

Project Location (Street(s), City): _____ Project County:_____

Total Project Amount: $_____ Amount of Public Funds Provided for the project: $_____

Name(s) of Public Agency (ies) Providing Public Funds: _____

Date the public agency or agencies commit to the provision of funds for the project: _____

Will project use federal funds that require compliance with the Davis-Bacon Act? YES____NO____

Date Work Expected to Begin: _____

Date Work Expected to be Complete: _____

SECTION C: To be completed when a project is a public works pursuant to ORS 279C.800(6)(a)(C) (a project for the construction of a privately owned road, highway, building, structure or improvement of any type that uses funds of a private entity and in which 25 percent or more of the square footage of the completed project will be occupied or used by a public agency) and no public agency awards a contract to a contractor.

CONTRACT INFORMATION:

Name of Project Owner: _____ Phone #: _____ Fax #: _____

Project Name: _____ Project Number:_____

Project Location (Street(s), City): _____ Project County: _____

Total Project Amount: $_____ Amount of Public Funds Provided for the project: $_____

Name(s) of Public Agency(ies) Providing Public Funds: _____

Total square footage of privately owned road, highway, building, structure or improvement: _____

Percent of total square footage of the completed project that will be occupied or used by a public agency: _____

Date the public agency or agencies entered into an agreement to occupy or use the completed project: _____

Will project use federal funds that require compliance with the Davis-Bacon Act? YES____NO____

Date Work Expected to Begin: _____

Date Work Expected to be Complete: _____

THIS FORM WILL BE RETURNED TO THE PUBLIC AGENCY FOR CORRECTION AND RESUBMITTAL IF INCOMPLETE.

Signature of agency representative completing form: _____

Printed Name: _____ Phone #: _____ Date:_____

RETURN THIS COMPLETED FORM TO:
Prevailing Wage Rate Unit • Bureau of Labor and Industries • 800 NE Oregon Street, #1045 • Portland, OR 97232-2180
Telephone (971) 673-0852 • FAX (971) 673-0769 • pwremail@boli.state.or.us

CONTRACT FEE SECTION
PREVAILING WAGE RATE UNIT
BUREAU OF LABOR AND INDUSTRIES
800 N.E. OREGON ST., #1045
PORTLAND, OR 97232-2180
PHONE: (971) 673-0852
FAX: (971) 673-0769

For Office Use Only:

Project DB #:_____

PUBLIC WORKS FEE ADJUSTMENT FORM

THIS FORM TO BE USED FOR RECONCILIATION OF FEES UPON COMPLETION OF PUBLIC WORKS PROJECTS

(As required by ORS 279C.825 and OAR 839-025-0210)

PUBLIC AGENCIES: Complete and mail this form to BOLI at the above address after completion of the public work project and not less than 30 days after the final progress payment is made to the contractor. Public agencies are required to determine the final contract price, including all change orders or other adjustments to the original contract price, and to calculate the adjusted prevailing wage rate fee based on the revised contract price. Documentation must be included to support the final contract price. Documentation of the final contract price may consist of change orders or other contract documents substantiating the amount of the contract. The prevailing wage rate fee of one-tenth of one percent (.001) shall be applied to the final contract price, with credit taken for fees already submitted. The public agency must submit any additional fee payable to BOLI, or submit any request for refund, with this adjustment form. **THE MINIMUM FEE IS $250.00; THE MAXIMUM FEE IS $7,500.00. NO ADDITIONAL FEE IS REQUIRED TO BE PAID, AND REFUNDS WILL NOT BE MADE, IF THE BALANCE DUE OR THE REFUND DUE IS LESS THAN $100.00.**

PUBLIC AGENCY: _____ **AGENCY #:** _____

AGENCY CONTACT PERSON: _____ **PHONE :(___)** _____

MAILING ADDRESS: _____

PROJECT NAME: _____

CONTRACT NAME (if part of larger project): _____

PROJECT NUMBER: _____ **PROJECT LOCATION:** _____

CONTRACTOR/BUSINESS NAME (DBA): _____

CONTRACTOR CCB#: _____ **DATE AWARDED:** _____

FINAL CONTRACT/PROJECT AMOUNT: _____ **FINAL FEE DUE:** _____
(Include all change orders and adjustments to the contract price) **(Final Contract amount X .001)**

ORIGINAL CONTRACT AMOUNT: _____ **INITIAL FEE PAID:** _____
(Original Contract amount X .001)

TOTAL ADJUSTMENT: _____ **BALANCE DUE*:** _____
or
REFUND DUE*: _____
***Final contract fee less initial fee paid**

Sample Calculation:			
Final Contract Amount:	$ 400,000.00	Final Fee Due:	$ 400.00
Original Contract Amount:	- 300,000.00	Initial Fee Paid:	- 300.00
Total Adjustment:	$ 100,000.00	Additional Amount Due:	$ 100.00

(Please duplicate this form for future use)

BUREAU OF LABOR AND INDUSTRIES, PREVAILING WAGE RATE UNIT

INSTRUCTIONS FOR COMPLETING THE PREVAILING WAGE RATE PAYROLL/CERTIFIED STATEMENT FORM (WH-38)

The Payroll/Certified Statement form (WH-38) may be used by contractors for reporting their payroll as required by ORS 279C.845 on public works projects subject to the Prevailing Wage Rate (PWR) Law. Although this form has not been officially approved by the U.S. Department of Labor (US DOL), it is designed to meet the requirements of the federal Davis-Bacon Act. For projects associated with the U.S. Department of Housing and Urban Development (HUD), contact the public agency (owner) associated with the project for assistance with payroll reporting.

Contractors are not required to use the WH-38 form in reporting their payroll; however, the contractor must provide all of the information contained in the form, including the certified statement on page two. The certified statement must be signed by the contractor, certifying the accuracy of the information reported on the payroll, including representations pertaining to the provision of fringe benefits to employees by third parties, and must be submitted with each weekly payroll report. Detailed instructions concerning the preparation of the form follow:

Complete the top third of the form. Be sure to enter the date the contract was first advertised for bid. If you are not sure of this date, contact the public agency (owner) associated with the project. The "Payroll No." is a US DOL requirement and represents the week number for the reporting period.

Column 1 – NAME AND ADDRESS: The employee's full name must be shown on each payroll submitted. The employee's address must also be shown on the first payroll submitted. The address need not be shown on subsequent payrolls submitted unless the address changes. The US DOL requires an employee identification number for each individual employee, on each payroll submitted. This number may be, but does not have to be, the last four digits of the employee's social security number.

Column 2 – CLASSIFICATION: For assistance in determining the correct classification, use the Bureau of Labor and Industries' publication "Definitions of Covered Occupations for Public Works Contracts in Oregon." On the WH-38, list the classification that is most descriptive of the work actually performed by the employee. Give the group number for those classifications that include such information. Indicate which workers are apprentices, if any, and give their current percentage, classification, and group number when applicable. If an employee works in more than one classification, use the highest rate for all hours worked, or use separate line entries to show hours worked and hourly rates for each classification.

Column 3 – DAY AND DATE: Enter the day of the week (M, T, W, Th, F, S, and Sn) in the top row of boxes, and the corresponding date below.

HOURS WORKED EACH DAY: Enter the total number of straight time hours worked in the row marked "ST." Generally, hours worked over 8 in a day or work performed on Saturdays, Sundays, and legal holidays should be entered as overtime ("OT") hours worked. Contractors who have adopted and followed a written work schedule of four consecutive ten-hour days (Monday through Thursday or Tuesday through Friday) may enter hours worked over 10 in a day as overtime hours. For more information on overtime requirements, see the Contractor Responsibilities section of the Bureau of Labor and Industries' publication "Prevailing Wage Rate Laws" handbook.

Column 4 – TOTAL HOURS: Enter separately the total number of straight time and overtime hours worked by the employee (in each classification, if applicable) on the PWR project during the week. The total number of straight time hours worked should be entered in the lower box ("ST"); the total number of overtime hours worked should be entered in the top box ("OT").

Column 5 – HOURLY BASE RATE: Enter the hourly base rate (plus zone pay, if any) and the hourly overtime rate (plus zone pay, if any) paid to the employee in the appropriate straight time and overtime boxes. (Payment of not less than one and one half times the base rate of pay, including zone pay but not

including fringe benefits, is required to be paid for overtime hours pursuant to ORS 279C.540). Generally, use the appropriate prevailing wage rates in effect at the time the contract was first advertised for bid by the public agency. If this date is not known, or if the project was not advertised for bid, contact the public agency (owner) associated with the project for assistance with applicable rates.

Column 6 – HOURLY FRINGE BENEFIT AMOUNT PAID AS WAGES TO THE EMPLOYEE: Enter hourly fringe benefit amounts paid directly to the employee as wages. (For overtime hours worked, it is not necessary to pay time and one half for the fringe benefit portion of the prevailing wage rate.)

Column 7 – GROSS AMOUNT EARNED: Enter the gross amount earned for work on the PWR project during the week. If part of the employee's wages for the pay period were earned on projects other than the project described on the WH-38, or if the employee is paid less often than on a weekly basis, enter in column 7 first the gross amount earned on the PWR project for the week, then the total gross amount earned for the pay period. For example: $567.84 / $1,267.27.

Column 8 – ITEMIZED DEDUCTIONS, FICA, FED, STATE, ETC.: Enter deductions withheld from wages for the pay period. All deductions must be in accordance with the provisions of ORS 652.610 (and as defined in Regulations, Part 3 (29 CFR Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948, 63 Stat. 108, 72 Stat. Stat. 967, 76 Stat. 357; 40 U.S.C 276c) on projects subject to Davis-Bacon Act). For projects subject to the Davis-Bacon Act, itemize the deductions.

Column 9 – NET WAGES PAID: Enter the total amount of net wages actually paid to the employee for the pay period. This figure can be calculated by subtracting the total deductions reported in Column 8 from the gross amount of wages for the pay period reported in the bottom portion of Column 7.

Column 10 – HOURLY FRINGE BENEFITS PAID TO BENEFITS PARTY, PLAN, FUND OR PROGRAM: Enter the hourly amount of fringe benefits paid to each individually approved party, plan, fund, or program, for each employee. List these amounts separately on the lines provided. Any contractor who is making payments to approved parties, plans, funds or programs in amounts less than the required hourly fringe benefit is obligated to pay the difference directly to the employee as wages in lieu of fringe benefits, and to show that amount in Column 6 of this form. For information on how to calculate hourly fringe benefit credits, see Appendix A in the Bureau of Labor and Industries' publication "Prevailing Wage Rate Laws" handbook.

Column 11 – NAME OF BENEFIT PARTY, PLAN, FUND OR PROGRAM: Enter the name of the party, plan, fund, or program that corresponds to the amount paid as an hourly fringe benefit in Column 10.

CALCULATION CHECK

In order to determine whether the wages and fringe benefits paid are sufficient to meet prevailing wage rate requirements, the following check may be performed:

1. For each classification listed in column 2, compute the sum of:
   a) the hourly base rate of pay shown in Column 5,
   b) the hourly fringe benefit amount paid as wages to employee shown in Column 6, and
   c) the hourly fringe benefits paid to benefit party, plan, fund or program shown in Column 10.

2. This sum must equal or exceed the total of the hourly base rate (including zone pay) and the hourly fringe benefit rate for that classification as listed in the appropriate issue of the Bureau of Labor and Industries publications Prevailing Wage Rates for Public Works Contracts in Oregon.

IF YOU HAVE QUESTIONS REGARDING COMPLETION OF THIS FORM, CONTACT THE PREVAILING WAGE RATE UNIT OF THE BUREAU OF LABOR AND INDUSTRIES AT (971) 673-0838.

NOTE: PAYROLL/CERTIFIED STATEMENTS ARE ONLY REQUIRED TO BE SUBMITTED TO THE PUBLIC AGENCY ASSOCIATED WITH THE PROJECT.

CERTIFIED PAYROLL AND OTHER FORMS ARE AVAILABLE ON OUR WEBSITE: WWW.OREGON.GOV/BOLI

BUREAU OF LABOR AND INDUSTRIES
WAGE AND HOUR DIVISION

PAYROLL/CERTIFIED STATEMENT FORM WH-38
FOR USE IN COMPLYING WITH ORS 279C.845*

PRIME CONTRACTOR ☐ SUBCONTRACTOR ☐ PAYROLL NO.

Business Name (DBA): Phone: ( ) CCB Registration Number:

Project Name: Project Number: Type of Work:

Street Address: Project Location:

Mailing Address: Project County:

Date Pay Period Began: Date Pay Period Ended:

THIS SECTION FOR PRIME CONTRACTORS ONLY

Public Contracting Agency Name:
Phone: ( )
Date Contract Specifications First Advertised for Bid:
Contract Amount:

THIS SECTION FOR SUBCONTRACTORS ONLY

Subcontract Amount:
Prime Contractor Business Name (DBA):
Prime Contractor Phone: ( )
Prime Contractor's CCB Registration Number:
Date You Began Work on the Project:

(1)	(2)		(3) DAY AND DATE	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
NAME , ADDRESS AND EMPLOYEE'S IDENTIFICATION NUMBER	CLASSIFICATION (INCLUDE GROUP # AND APPRENTICESHIP STEP IF APPLICABLE)		HOURS WORKED EACH DAY	TOTAL HOURS	HOURLY BASE RATE	HOURLY FRINGE BENEFIT AMOUNTS PAID AS WAGES TO EMPLOYEE	GROSS AMOUNT EARNED (see directions)	ITEMIZED DEDUCTIONS FICA, FED, STATE, ETC.	NET WAGES PAID	HOURLY FRINGE BENEFITS PAID TO BENEFIT PARTY, PLAN, FUND, OR PROGRAM	NAME OF BENEFIT PARTY, PLAN, FUND, OR PROGRAM
		OT									
		ST									
		OT									
		ST									
		OT									
		ST									
		OT									
		ST									
		OT									
		ST									

*Although this form has not been officially approved by the U.S. Department of Labor, it is designed to meet the requirements of both the state PWR law and the federal Davis-Bacon Act.

THIS FORM CONTINUED ON REVERSE

CERTIFIED STATEMENT

Date: _____

I, _____, _____
(NAME OF SIGNATORY PARTY) (TITLE)
do hereby state:
(1) That I pay or supervise the payment of the persons employed by:

_____
(CONTRACTOR, SUBCONTRACTOR OR SURETY)
on the _____; that during the payroll period
(BUILDING OR WORK)
commencing on the _____ day of _____, _____, and ending the _____ day
(MONTH) (YEAR)
of _____, _____, all persons employed on said project have been paid the
(MONTH) (YEAR)
full weekly wages earned, that no rebates have been or will be made either directly or indirectly to or on behalf of said _____
(CONTRACTOR, SUBCONTRACTOR OR SURETY)
from the full weekly wages earned by any person, and that no deductions have been made either directly or indirectly from the full wages earned by any person, other than permissible deductions as specified in ORS 652.610, and as defined in Regulations, Part 3 (29 CFR Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948, 63 Stat. 108, 72 Stat. 967; 76 Stat. 357; 40 U.S.C. 276c), and described below:

_____

(2) That any payrolls otherwise under this contract required to be submitted for the above period are correct and complete; that the wage rates for workers contained therein are not less than the applicable wage rates contained in any wage determination incorporated into the contract; that the classifications set forth therein for each worker conform with work performed.

(3) That any apprentices employed in the above period are duly registered in a bona fide apprenticeship program registered with a state apprenticeship agency recognized by the Bureau of Apprenticeship and Training, United States Department of Labor, or if no such recognized agency exists in a state, are registered with the Bureau of Apprenticeship and Training, United States Department of Labor.

I HAVE READ THIS CERTIFIED STATEMENT, KNOW THE CONTENTS THEREOF AND IT IS TRUE TO MY KNOWLEDGE:

_____
(NAME AND TITLE)

_____
(SIGNATURE AND DATE)

In addition to completing sections (1) - (3), if your project is subject to the federal Davis-Bacon Act requirements, complete the following section as well:

(4) That:
(a) WHERE FRINGE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS OR PROGRAMS

☐ - In addition to the basic hourly wage rates paid to each laborer or mechanic listed in the above referenced payroll, payments of fringe benefits as listed in the contract have been or will be made to appropriate programs for the benefit of such employees, except as noted in Section 4(c) below.

(b) WHERE FRINGE BENEFITS ARE PAID IN CASH

☐ - Each laborer or mechanic listed in the above referenced payroll has been paid, as indicated on the payroll, an amount not less than the sum of the applicable basic hourly wage rate plus the amount of the required fringe benefits as listed in the contract, except as noted in Section 4(c) below.

(c) EXCEPTIONS:

EXCEPTION (CRAFT)	EXPLANATION

REMARKS:

NAME AND TITLE SIGNATURE

THE WILLFUL FALSIFICATION OF ANY OF THE ABOVE STATEMENTS MAY SUBJECT THE CONTRACTOR OR SUBCONTRACTOR TO CIVIL OR CRIMINAL PROSECUTION. SEE SECTION 1001 OF TITLE 18 AND SECTION 231 OF TITLE 31 OF THE UNITED STATES CODE.

FILE THIS FORM WITH THE PUBLIC AGENCY ASSOCIATED WITH THE PROJECT
NOTE TO CONTRACTORS: YOU MUST ATTACH COPIES OF THIS FORM TO EACH OF YOUR PAYROLL SUBMISSIONS ON THIS PROJECT.
INSTRUCTIONS AND ADDITIONAL FORMS ARE AVAILABLE ON OUR WEBSITE: WWW.OREGON.GOV/BOLI.

PREVAILING WAGE RATES

for

Public Works Contracts in Oregon

OREGON BUREAU OF LABOR AND INDUSTRIES

Brad Avakian
Commissioner
Bureau of Labor and Industries

Effective: January 1, 2014

JANUARY 1, 2014 APPENDIX

The Appendix rates are Collectively Bargained Rates to be used ONLY for Regions/Trades specified in pages 6 through 33. Refer to pages 6 through 33 BEFORE using rates in this section. Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

TRADE	BASIC HOURLY RATE	FRINGE RATE
ASBESTOS WORKER/INSULATOR		
	41.27	**19.02**
FIRESTOP/CONTAINMENT WORKERS		
	27.73	**12.29**
BOILERMAKER	**34.40**	**27.94**

BRICKLAYER/STONEMASON

(This trade is tended by "Tenders to Mason Trades")

Area 1	**32.75**	**16.65**

Reference Counties Area 1

Baker	Grant	Marion	Umatilla
Benton (a)	Harney	Morrow	Union
Clackamas	Hood River	Multnomah	Wallowa
Clatsop	Lincoln (a)	Polk	Wasco (a)
Columbia	Linn (a)	Sherman	Washington
Gilliam	Malheur	Tillamook	Yamhill

(a) North Half

(Add $1.00 per hour to Fringe for Refractory repair work.)

Area 2	**31.53**	**16.30**

Reference Counties Area 2

Benton (b)	Deschutes	Jefferson	Lincoln (b)
Coos	Douglas	Klamath	Linn (b)
Crook	Jackson	Lake	Wasco (b)
Curry	Jefferson	Lane	Wheeler

(b) South Half

(Add $1.00 per hour to Fringe for Refractory repair work.)

CARPENTER

Zone 1 (Base Rate)

Group 1	**33.58**	**14.47**
Group 2	**33.73**	**14.47**
Group 3	**34.08**	**14.47**
Group 4	**34.23**	**14.47**
Group 5	**34.08**	**14.47**
Group 6	**34.58**	**14.47**

CARPENTER (continued)

Group 1 (Carpenter Group-I)

Group 2 (Carpenter Group-II)

Group 3 (Millwright Group-I)

Group 4 (Millwright Group-II)

Group 5 (Bridge & Highway Carpenter)

Group 6 (Piledriver)

Zone Differential for Carpenters
(Add to Zone 1 Base Rate)

Zone 2	**.85**
Zone 3	**1.25**
Zone 4	**1.70**
Zone 5	**2.00**
Zone 6	**3.00**
Zone 7	**5.00**

Zone 1: Projects located within 30 miles of the respective city hall of the cities listed below.
Zone 2: More than 30 miles but less than 40 miles.
Zone 3: More than 40 miles but less than 50 miles.
Zone 4: More than 50 miles but less than 60 miles.
Zone 5: More than 60 miles but less than 70 miles.
Zone 6: More than 70 miles but less than 100 miles.
Zone 7: More than 100 miles.

Reference Cities for Group 1 and 2 Carpenters

Albany	Goldendale	Madras	Roseburg
Astoria	Grants Pass	Medford	Salem
Baker City	Hermiston	Newport	The Dalles
Bend	Hood River	Ontario	Tillamook
Brookings	Klamath Falls	Pendleton	Vancouver
Burns	La Grande	Portland	
Coos Bay	Lakeview	Port Orford	
Eugene	Longview	Reedsport	

Zones for Groups 3 and 4 Carpenter are determined by the distance between the project site and **either**

1) The worker's residence; ***or***

2) City Hall of a reference city listed for the appropriate group shown, whichever is closer

Reference Cities for Group 3 and 4 Carpenters

Eugene	Medford	Portland	Vancouver
Longview	North Bend	The Dalles	

TRADE	BASIC HOURLY RATE	FRINGE RATE

CARPENTER (continued)

Zones for Groups 5 and 6 Carpenter are determined by the distance between the project site and **either**

1) The worker's residence; ***or***

2) City Hall of a reference city listed for the appropriate group shown, whichever is closer

Reference Cities for Group 5 and 6 Carpenters

Bend	Longview	North Bend
Eugene	Medford	Portland

Note: All job or project locations shall be computed (determined) on the basis of road miles and in the following manner. A mileage measurement will start at the entrance to the respective city hall, facing the project (if possible), and shall proceed by the normal route (shortest time-best road) to the geographical center on the highway, railroad, and street construction projects (end of measurement). On all project contracts, the geographical center where the major portion of the construction is located, shall be considered the center of the project (end measurement).

Welders receive $.75/hour above their group's rate.

When working with creosote and other toxic, treated wood and steel material, workers shall receive $.25/hour premium pay for minimum of eight (8) hours.

When working in sheet pile coffer dams or cells up to the external water level, Group 6 workers shall receive $.15/hour premium pay for minimum of eight (8) hours.

CEMENT MASON

(This trade is tended by "Concrete Laborer")

Zone 1 (Base Rate)

Group 1	**29.98**	**17.79**
Group 2	**30.58**	**17.79**
Group 3	**30.58**	**17.79**
Group 4	**31.18**	**17.79**

Zone Differential for Cement Mason
(Add to Zone 1 Base Rate)

Zone 2	**.65**
Zone 3	**1.15**
Zone 4	**1.70**
Zone 5	**3.00**

CEMENT MASON (continued)

Zone 1: Projects located within 30 miles of the respective city hall of the reference cities listed.
Zone 2: More than 30 miles, but less than 40 miles.
Zone 3: More than 40 miles, but less than 50 miles.
Zone 4: More than 50 miles, but less than 80 miles.
Zone 5: More than 80 miles.

Reference Cities for Cement Mason

Bend	Eugene	Portland	The Dalles
Corvallis	Medford	Salem	Vancouver

Note: All job or project locations shall be computed (determined) on the basis of road miles and in the following manner. A mileage measurement will start at the entrance to the respective city hall, facing the project (if possible), and shall proceed by the normal route (shortest time-best road) to the geographical center on the highway, railroad, and street construction projects (end of measurement). On all other project contracts, the geographical center where the major portion of the construction is located, shall be considered the center of the project (end measurement).

DIVER & DIVER TENDER

Zone 1 (Base Rate)

DIVER	**80.70**	**14.47**
DIVER TENDER	**38.04**	**14.47**

1) For those workers who reside within a reference city below, their zone pay shall be computed from the city hall of the city wherein they reside.

2) For those workers who reside nearer to a project than is the city hall of any reference city below, the mileage from their residence may be used in computing their zone pay differential.

3) The zone pay for all other projects shall be computed from the city hall of Portland.

Zone Differential for Diver/Diver Tender
(Add to Zone 1 Base Rate)

Zone 2	**.85**
Zone 3	**1.25**
Zone 4	**1.70**
Zone 5	**2.00**
Zone 6	**3.00**
Zone 7	**5.00**

TRADE	BASIC HOURLY RATE	FRINGE RATE

DIVER & DIVER TENDER (continued)

Zone 1: Projects located within 30 miles of city hall of the reference cities listed.
Zone 2: More than 30 miles, but less than 40 miles.
Zone 3: More than 40 miles, but less than 50 miles.
Zone 4: More than 50 miles, but less than 60 miles.
Zone 5: More than 60 miles, but less than 70 miles.
Zone 6: More than 70 miles, but less than 100 miles.
Zone 7: More than 100 miles from the city hall of employee's home local.

Reference Cities for Diver/Diver Tender

Astoria	Klamath Falls	Newport	Roseburg
Bend	Longview	North Bend	Salem
Eugene	Medford	Portland	The Dalles

Note: All job or project locations shall be computed (determined) on the basis of road miles and in the following manner. A mileage measurement will start at the entrance to the respective city hall, facing the project (if possible), and shall proceed by the normal route (shortest time-best road) to the geographical center on the highway, railroad, and street construction projects (end of measurement). On all project contracts, the geographical center where the major portion of the construction is located, shall be considered the center of the project (end measurement).

Depth Pay and Enclosure Pay are added to the Divers' Basic Hourly Rate to obtain the Total Hourly Rate for the Diver.

Basic Hourly Rate Pay	+	Hourly Depth Pay	+	Hourly Enclosure Pay	=	Diver Total Hourly Rate

Diver Depth Pay:

Depth of Dive	Hourly Depth Pay
50-100 ft.	$1.00 per foot over 50 feet
101-150 ft.	$1.50 per foot over 100 feet
151-200 ft.	$2.00 per foot over 150 feet

Depth shall be figured from the surface to the actual depth where the diving work is being performed.

DIVER & DIVER TENDER (continued)

Diver Enclosure Pay (working without vertical escape):

Distance Traveled In the Enclosure	Hourly Enclosure Pay
5-50ft.	$.50/hr. up to $4.00 maximum per day
50-100ft.	$1.13/hr. up to $9.00 maximum per day
100-150ft.	$2.13/hr. up to $17.00 maximum per day
150-200ft.	$4.63/hr. up to $37.00 maximum per day
200-300ft.	$4.63/hr. up to $37.00 maximum per day, plus $.40 per foot traveled in enclosure.
300-450ft.	$4.63/hr. up to $37.00 maximum per day, plus $.80 per foot traveled in enclosure.
450-600ft.	$4.63/hr. up to $37.00 maximum per day, plus $1.60 per foot traveled in enclosure.

DREDGER

Zone A (Base Rate)

Leverman (Hydraulic & Clamshell)	**44.64**	**13.85**
Assistant Engineer (Watch Engineer, Mechanic Machinist)	**41.73**	**13.85**
Tenderman (Boatman Attending Dredge Plant) Fireman	**40.38**	**13.85**
Fill Equipment Operator	**39.30**	**13.85**
Assistant Mate	**36.78**	**13.85**

Zone Differential for Dredgers
(Add to Zone A Base Rate)

Zone B	**3.00**
Zone C	**6.00**

Zone mileage based on road miles:

Zone A: Center of jobsite to no more than 30 miles from the city hall of Portland.
Zone B: More than 30 miles but not more than 60 miles.
Zone C: Over 60 miles.

DRYWALL, LATHER, ACOUSTICAL CARPENTER & CEILING INSTALLER

Zone 1 (Base Rate)

1. DRYWALL INSTALLER	**33.87**	**14.18**

TRADE	BASIC HOURLY RATE	FRINGE RATE

DRYWALL, LATHER, ACOUSTICAL CARPENTER & CEILING INSTALLER (continued)

2. LATHER, ACOUSTICAL CARPENTER & CEILING INSTALLER	**33.87**	**14.18**

Zone Differential for Drywall, Lather, Acoustical Carpenter & Ceiling Installer
(Add to Zone 1 Base Rate)

Zone mileage based on road miles:

Zone 2	31-40 miles	**.85**
Zone 3	41-50 miles	**1.25**
Zone 4	51-60 miles	**1.70**
Zone 5	61-70 miles	**2.00**
Zone 6	71-100 miles	**3.00**
Zone 7	101 or more	**5.00**

The correct transportation allowance shall be based on road mileage from the City Hall of the local union having jurisdiction of the job or other transportation reference cities herein listed.

Reference Cities for Drywall, Lather, Acoustical Carpenter & Ceiling Installer

Albany	Coquille	Medford	Roseburg
Astoria	Eugene	Newport	Salem
Baker	Grants Pass	North Bend	Seaside
Bandon	Hermiston	Pendleton	The Dalles
Bend	Klamath Falls	Portland	Tillamook
Brookings	Kelso-Longview	Reedsport	Vancouver

ELECTRICIAN

Area 1

Electrician	**27.70**	**12.14**
Cable Splicer	**30.47**	**12.28**

Reference Counties Area 1

Malheur

Area 2

Electrician	**37.05**	**17.29**
Cable Splicer	**38.90**	**17.35**

Reference Counties Area 2

Baker	Grant	Umatilla	Wallowa
Gilliam	Morrow	Union	Wheeler

ELECTRICIAN (continued)

Area 3

Electrician	**34.00**	**14.77**

Reference Counties Area 3

Coos	Douglas (a)	Lincoln
Curry	Lane (a)	

(a) Those portions of Lane and Douglas lying **west** of a line running North and South from the NE corner of Coos County to the SE corner of Lincoln County.

Area 4

Electrician	**37.16**	**16.69**
Cable Splicer	**40.88**	**16.81**
Lighting Maintenance/ Material Handlers	**17.64**	**8.43**

Reference Counties Area 4

Benton	Jefferson	Marion
Crook	Lane (b)	Polk
Deschutes	Linn	Yamhill (c)

(b) That portion of Lane County lying **east** of a line running North and South from the NE corner of Coos County to the SE corner of Lincoln County.

(c) South half

Area 5

Electrician	**38.05**	**19.54**
Material Handler/ Lighting Maintenance	**21.69**	**12.59**
Electrical Welder	**41.85**	**19.66**

Reference Counties Area 5

Clackamas	Hood River	Tillamook	Yamhill (d)
Clatsop	Multnomah	Wasco	
Columbia	Sherman	Washington	

(d) North Half

TRADE	BASIC HOURLY RATE	FRINGE RATE

ELECTRICIAN (continued)

Zone Pay for Area 5 **Electrician and Electrical Welder**
(Add to Basic Hourly Rate)

Zone mileage based on air miles:

Zone 1	31-50 miles	**1.50**
Zone 2	51-70 miles	**3.50**
Zone 3	71-90 miles	**5.50**
Zone 4	91 or more	**9.00**

There shall be a 30-mile free zone from downtown Portland City Hall and a similar 15-mile free zone around the following cities:

Astoria	Seaside	Tillamook
Hood River	The Dalles	

Further, the free zone at the Oregon coast shall extend along Hwy 101 west to the ocean Hwy 101 east 10 miles if not already covered by the above 15-mile free zone.

Area 6

Electrician	**30.02**	**14.80**
Cable Splicer	**30.02**	**14.80**
Lighting Maintenance and Material Handlers	**16.22**	**7.99**

Reference Counties Area 6

Douglas (e)	Jackson	Klamath
Harney	Josephine	Lake

(e) That portion of Douglas County lying **east** of a line running North and South from the NE corner of Coos County to the SE corner of Lincoln County.

Zone Pay for Area **6**
Lighting Maintenance and Material Handlers
(Add to Basic Hourly Rate)

Zone mileage based on road miles:

Zone 1	0-20 miles	**0.00**
Zone 2	21-30 miles	**1.00**
Zone 3	31-40 miles	**2.80**
Zone 4	41-50 miles	**4.50**
Zone 5	51-60 miles	**6.30**
Zone 6	60 or more	**9.00**

There shall be a 20-mile free zone from the downtown Post Office in Grants Pass, Klamath Falls, Medford, and Roseburg.

ELEVATOR CONSTRUCTOR, INSTALLER AND MECHANIC

Area 1

Mechanic	**47.76**	**26.79**

Reference Counties Area 1

Baker	Umatilla	Union	Wallowa

Area 2

Mechanic	**47.95**	**32.44**

Reference Counties Area 2

All remaining Counties

GLAZIER	**33.27**	**16.42**

Add $1.00 to base rate if safety belt is required by State safety regulations.
Add $4.00 to base rate for work done from a non-motorized single-man bosun chair.

HAZARDOUS MATERIALS HANDLER

	21.50	**10.06**

HIGHWAY/PARKING STRIPER

	33.41	**10.36**

IRONWORKER

Zone 1 (Base Rate):	**34.12**	**21.35**

Zone Differential for Ironworker
(Add to Basic Hourly Rate)

Zone 2	**3.75** hr. or $30.00 maximum per day
Zone 3	**6.88** hr. or $55.00 maximum per day
Zone 4	**9.38** hr. or $75.00 maximum per day

Zone 1: Projects located within 45 miles of city hall in the reference cities listed below.
Zone 2: More than 45 miles, but less than 60 miles.
Zone 3: More than 60 miles, but less than 100 miles.
Zone 4: More than 100 miles.

TRADE	BASIC HOURLY RATE	FRINGE RATE

IRONWORKER (continued)

Note: Zone pay for Ironworkers shall be determined using AAA road mileage computed from the city hall of the reference cities listed below **or** the residence of the employee, whichever is nearer to the project.

Reference Cities

Medford Portland

LABORER

Zone 1 (Base Rate):

Group 1	**26.09**	**12.85**
Group 2	**27.09**	**12.85**
Group 3	**22.57**	**12.85**

Note: A Hazardous Waste Removal Differential must be added to the base rate if work is performed inside the boundary of a Federally Designated Hazardous Waste Site. A Group 1 base rate is used for General Laborer on such a site. For further information on this, call the Prevailing Wage Rate Coordinator at (971) 673-0839.

Zone Differential for Laborers
(Add to Zone 1 Base Rate)

Zone 2	**.65**
Zone 3	**1.15**
Zone 4	**1.70**
Zone 5	**2.75**

Zone 1: Projects located within 30 miles of city hall in the reference cities listed below.
Zone 2: More than 30 miles but less than 40 miles.
Zone 3: More than 40 miles but less than 50 miles.
Zone 4: More than 50 miles but less than 80 miles.
Zone 5: More than 80 miles.

Reference Cities

Albany	Burns	Hermiston	Roseburg
Astoria	Coos Bay	Klamath Falls	Salem
Baker City	Eugene	Medford	The Dalles
Bend	Grants Pass	Portland	

LABORER (continued)

Note: All job or project locations shall be computed (determined) on the basis of road miles and in the following manner. A mileage measurement will start at the entrance to the respective city hall, facing the project (if possible), and shall proceed by the normal route (shortest time-best road) to the geographical center on the highway, railroad, and street construction projects (end of measurement). On all other project contracts, the geographical center where the major portion of the construction is located, shall be considered the center of the project (end measurement).

LIMITED ENERGY ELECTRICIAN

Area 1	**18.90**	**8.20**

Reference Counties Area 1

Malheur

Area 2		**28.75**	**14.96**

Reference Counties Area 2

Baker	Grant	Umatilla	Wallowa
Gilliam	Morrow	Union	Wheeler

Area 3		**25.95**	**13.03**

Reference Counties Area 3

Coos	Douglas (a)	Lincoln
Curry	Lane (a)	

(a) Those portions of Lane and Douglas lying **west** of a line running North and South from the NE corner of Coos County to the SE corner of Lincoln County.

Area 4	**27.39**	**12.72**

Reference Counties Area 4

Benton	Jefferson	Marion
Crook	Lane (b)	Polk
Deschutes	Linn	Yamhill (c)

(b) That portion of Lane County lying **east** of a line running North and South from the NE corner of Coos County to the SE corner of Lincoln County.

(c) South half

TRADE	BASIC HOURLY RATE	FRINGE RATE

LIMITED ENERGY ELECTRICIAN (continued)

Area 5	**28.75**	**15.21**

Reference Counties Area 5

Clackamas	Hood River	Tillamook	Yamhill (d)
Clatsop	Multnomah	Wasco	
Columbia	Sherman	Washington	

(d) North Half

Area 6	**24.90**	**11.25**

Reference Counties Area 6

Douglas (e)	Jackson	Klamath
Harney	Josephine	Lake

(e) That portion of Douglas County lying **east** of a line running North and South from the NE corner of Coos County to the SE corner of Lincoln County.

LINE CONSTRUCTOR

Area 1

Group 1	**51.10**	**15.34**
Group 2	**45.62**	**15.15**
Group 3	**26.10**	**10.23**
Group 4	**39.23**	**11.82**
Group 5	**34.22**	**11.17**
Group 6	**31.31**	**11.15**
Group 7	**15.60**	**8.51**

Reference Counties Area 1
All counties except Malheur County

Group 1
Cable Splicer
Leadman Pole Sprayer

Group 2
Heavy Line Equipment Man
Journeyman Lineman Welder
Journeyman Lineman
Pole Sprayer

Group 3
Tree Trimmer

Group 4
Line Equipment man

Group 5
Head Groundman
Jackhammer Man
Powderman

Group 6
Groundman

Group 7
Tree Trimmer Groundman

LINE CONSTRUCTOR (continued)

Area 2

Cable Splicer	**45.27**	**13.88**
Journeyman Lineman	**41.01**	**13.49**
Line Equip. Operator	**34.14**	**12.74**
Groundman	**24.31**	**10.58**

Reference County Area 2
Malheur County

MARBLE SETTER	**33.75**	**16.65**

(This trade is tended by "Tile, Terrazzo, & Marble Finishers")

PAINTER & DRYWALL TAPER

COMMERCIAL PAINTING	**19.81**	**8.93**
INDUSTRIAL PAINTING	**21.01**	**8.93**
BRIDGE PAINTING	**24.81**	**8.93**

Add $0.75 to base rate for work over 60 ft. high on swing stage, mechanical climber, spider or bucket truck for both commercial and industrial painting.

DRYWALL TAPER	**32.22**	**12.70**

PLASTERER AND STUCCO MASON
(This trade is tended by "Tenders to Plasterers")

Nozzleman	**29.86**	**16.55**
Swinging Scaffold	**28.86**	**16.55**
All Other Work	**27.86**	**16.55**

PLUMBER/PIPEFITTER/STEAMFITTER

Area 1	**26.00**	**13.57**

Reference Counties Area 1

Baker	Harney (a)	Malheur

(a) Except that portion which lies North and West of a North-South line drawn from the town of John Day to a point five miles east of the town of Burns and three miles South of Burns thence on an airline through the town of Wagontire West to the county line.

TRADE	BASIC HOURLY RATE	FRINGE RATE

PLUMBER/PIPEFITTER/STEAMFITTER (continued)

Add $2.21 per hour to basic hourly rate if it is possible for worker to fall 30 ft. or more, or if required to wear a fresh-air mask or similar equipment for 2 hours or more.

Zone Differential for Area 1
Plumbers/Pipefitters/Steamfitters
(Add to Base Rate)

Zone 1	**2.50** per hour
Zone 2	**3.50** per hour
Zone 3	**5.00** per hour

Zone mileage based on road miles:

Zone 1: Forty (40) to fifty five (55) miles from City Hall in Boise, Idaho.
Zone 2: Fifty five (55) to one hundred (100) miles from City Hall in Boise, Idaho.
Zone 3: Over one hundred (100) miles from City Hall in Boise, Idaho.

There shall be a maximum of ten (10) hours of zone pay per workday.

Area 2	**48.10**	**25.89**

Reference Counties Area 2

Grant	Umatilla	Wallowa
Morrow	Union	

Zone Differential for Area 2
(Add to Base Rate)

Zone 2 **10.62/**hr. not to exceed $80.00 day.

Zone mileage based on road miles:

Zone 2: Eighty (80) miles or more from City Hall in Pasco, Washington.

Area 3	**39.71**	**22.37**

Reference Counties Area 3

All Remaining Counties

POWER EQUIPMENT OPERATOR

Zone 1 (Base Rate)

Group 1	**38.25**	**13.70**
Group 1A	**40.16**	**13.70**
Group 1B	**42.08**	**13.70**
Group 2	**36.56**	**13.70**
Group 3	**35.54**	**13.70**
Group 4	**34.56**	**13.70**
Group 5	**33.43**	**13.70**
Group 6	**30.34**	**13.70**

Note: A Hazardous Waste Removal Differential must be added to the base rate if work is performed inside the boundary of a Federally Designated Waste Site. For information on this differential, call the Prevailing Wage Rate Coordinator at (971) 673-0839.

Zone Pay Differential
(Add to Zone 1 Base Rate)

Zone 2	**3.00**
Zone 3	**6.00**

For projects in the following metropolitan counties:

Clackamas	Marion	Washington
Columbia	Multnomah	Yamhill

See map on page 50 for Zone 1 of this classification

(A) All jobs or projects located in Multnomah, Clackamas and Marion counties, West of the western boundary of Mt. Hood National Forest and West of Mile Post 30 on Interstate 84 and West of Mile Post 30 on State Hwy 26 and West of Mile Post 30 on Hwy 22 and all jobs located in Yamhill County, Washington County and Columbia County shall receive Zone 1 pay for all classifications.

(B) All jobs or projects located in the area outside the *identified boundary* above, but less than 50 miles from the Portland City Hall shall receive Zone 2 pay for all classifications.

(C) All jobs or projects located more than 50 miles from the Portland City Hall, but outside the identified border above, shall receive Zone 3 pay for all classifications.

TRADE	BASIC HOURLY RATE	FRINGE RATE

POWER EQUIPMENT OPERATOR (continued)

Reference cities for projects in all remaining counties:

Albany	Coos Bay	Grants Pass	Medford
Bend	Eugene	Klamath Falls	Roseburg

(A) All jobs or projects located within 30 miles of the respective city hall of the above mentioned cities shall receive Zone 1 pay for all classifications.

(B) All jobs or projects located more than 30 miles and less than 50 miles from the respective city hall of the above mentioned cities shall receive Zone 2 for all classifications.

(C) All jobs or projects located more than 50 miles from the respective city hall of the above mentioned cities shall receive Zone 3 pay for all classifications.

Note: All job or project locations shall be computed (determined) on the basis of road miles and in the following manner. A mileage measurement will start at the entrance to the respective city hall, facing the project (if possible), and shall proceed by the normal route (shortest time-best road) to the geographical center on the highway, railroad, and street construction projects (end of measurement). On all other project contracts, the geographical center where the major portion of the construction is located, shall be considered the center of the project (end measurement).

ROOFER

Area 1*

Roofer	**28.03**	**11.06**
Handling coal tar pitch	**30.83**	**11.06**
Remove fiberglass insulation	**30.83**	**11.06**

Reference Counties Area 1

Baker	Gilliam	Multnomah	Washington
Clackamas	Grant	Sherman	Wheeler
Clatsop	Hood River	Tillamook	
Columbia	Jefferson	Wasco	

*On all jobs on which coal tar pitch is the basic roofing material or where the old roof being removed is composed of coal tar based material, a rate of pay ten percent (10%) greater than the basic rate of pay shall be paid for all work performed.

ROOFER (continued)

*All employees engaged in removing fiberglass insulation shall receive a rate of pay ten percent (10%) greater than the employee's basic rate of pay.

Area 2**

Roofer	**23.87**	**11.58**

Reference Counties Area 2

Benton	Douglas	Lake	Marion
Coos	Harney	Lane	Polk
Crook	Jackson	Lincoln	Yamhill
Curry	Josephine	Linn	
Deschutes	Klamath	Malheur	

** Add $2.00 to basic hourly rate for application, spudding and cutting or removal of coal tar products.

** Add $0.50 per hour to base hourly rate for application, spudding and cutting or removal of fiberglass insulation.

Area 4***

Roofers	**24.82**	**10.22**

Reference Counties Area 4

Umatilla Union Wallowa

*** Add $2.00 to basic hourly rate for employees working with irritable bituminous materials.

*** Add $2.00 to basic hourly rate for employees removing fiberglass insulation.

Area 5****

Roofers	**24.88**	**10.27**

Reference County for Area 5

Morrow

**** Add $3.00 to basic hourly rate for employees working with irritable and pitch bituminous materials.

TRADE	BASIC HOURLY RATE	FRINGE RATE

SHEET METAL WORKER

Area 1 **36.68** **18.24**

Reference Counties Area 1

Benton	Grant	Multnomah	Washington
Clackamas	Hood River	Polk	Wheeler
Clatsop	Lincoln	Sherman	Yamhill
Columbia	Linn	Tillamook	
Gilliam	Marion	Wasco	

Add $1.00 to base rate for work performed on any swinging platform, swinging chair or swinging ladder.

Add $1.00 to base rate for work where a worker is exposed to resins, chemicals or acid.

Area 2 **23.69** **15.68**

Reference Counties Area 2

Baker Malheur

Area 3 **32.83** **17.21**

Reference Counties Area 3

Morrow Umatilla Union Wallowa

Add $1.00 per hour to base rate for work where it is necessary to wear a chemically activated type face mask.

Area 4 **31.17** **16.36**

Reference Counties Area 4

Douglas Lane

Add $1.00 to base rate for work performed on any swinging platform, swinging chair or swinging ladder.

Add $1.00 to base rate for work where a worker is exposed to resins, chemicals or acid.

SHEET METAL WORKER (continued)

Area 5 **30.62** **17.42**

Reference Counties Area 5

Coos

Add $1.00 to base rate for work performed on any swinging platform, swinging chair or swinging ladder.

Add $1.00 to base rate for work where a worker is exposed to resins, chemicals or acid.

Area 6 **26.56** **15.55**

Reference Counties Area 6

Curry	Jackson	Klamath
Harney	Josephine	Lake

Add $1.00 to base rate for work performed on any swinging platform, swinging chair or swinging ladder.

Add $1.00 to base rate for work where a worker is exposed to resins, chemicals or acid.

Area 7 **28.98** **15.39**

Reference Counties Area 6

Crook Deschutes Jefferson

Add $1.00 to base rate for work performed on any swinging platform, swinging chair or swinging ladder.

Add $1.00 to base rate for work where a worker is exposed to resins, chemicals or acid.

SOFT FLOOR LAYER **25.74** **14.26**

TRADE	BASIC HOURLY RATE	FRINGE RATE

SPRINKLER FITTER

Area 1	**33.08**	**20.20**

Reference Counties Area 1

Benton	Deschutes	Klamath	Polk
Clackamas	Douglas	Lake	Sherman
Clatsop	Harney	Lane	Tillamook
Columbia	Hood River	Lincoln	Wasco
Coos	Jackson	Linn	Washington
Crook	Jefferson	Marion	Wheeler
Curry	Josephine	Multnomah	Yamhill

Area 2	**29.56**	**20.10**

Reference Counties Area 2

Baker	Grant	Morrow	Union
Gilliam	Malheur	Umatilla	Wallowa

TENDERS TO MASON TRADES (Brick and Stonemason, Mortar Mixer, Hod Carrier)

27.63 12.85

Add $0.50 to base rate for refractory work.

Add to base rate an amount equal to that received for safety belt requirements or other unusual job conditions by the mechanic this worker is tending.

TENDER TO PLASTERER AND STUCCO MASON

28.11 13.25

TESTING AND BALANCING (TAB) TECHNICIAN

Air-Handling Equipment, Ductwork

See SHEET METAL WORKER

Water Distribution Systems

See PLUMBER/PIPEFITTER/STEAMFITTER

TILE SETTER/TERRAZZO WORKER: Hard Tile Setter

29.19 15.09

(This trade is tended by "Tile, Terrazzo, & Marble Finisher")

TILE, TERRAZZO, AND MARBLE FINISHER

1. TILE, TERRAZZO FINISHER

21.82 11.36

2. BRICK AND MARBLE FINISHER

21.82 11.49

Add $1.00 to base rate if safety belt required by State safety regulations.

Add $1.00 to base rate if work involves epoxy, furnane, alkor acetylene black grouting or waterproof membrane.

TRUCK DRIVER

Zone A (Base Rate):

Group 1	**26.90**	**13.75**
Group 2	**27.02**	**13.75**
Group 3	**27.15**	**13.75**
Group 4	**27.41**	**13.75**
Group 5	**27.63**	**13.75**
Group 6	**27.79**	**13.75**
Group 7	**27.99**	**13.75**

For the Following Cities:

Albany	Grants Pass	Ontario
Astoria	Hermiston	Oregon City
Baker	Hood River	Pendleton
Bend	Klamath Falls	Portland
Bingen	LaGrande	Port Orford
Brookings	Lakeview	Reedsport
Burns	Longview	Roseburg
Coos Bay	Madras	Salem
Corvallis	Medford	The Dalles
Eugene	McMinnville	Tillamook
Goldendale	Newport	Vancouver

Zone differential for Truck Drivers
(Add to Zone A Base Rate)

Zone B	**.65**
Zone C	**1.15**
Zone D	**1.70**
Zone E	**2.75**

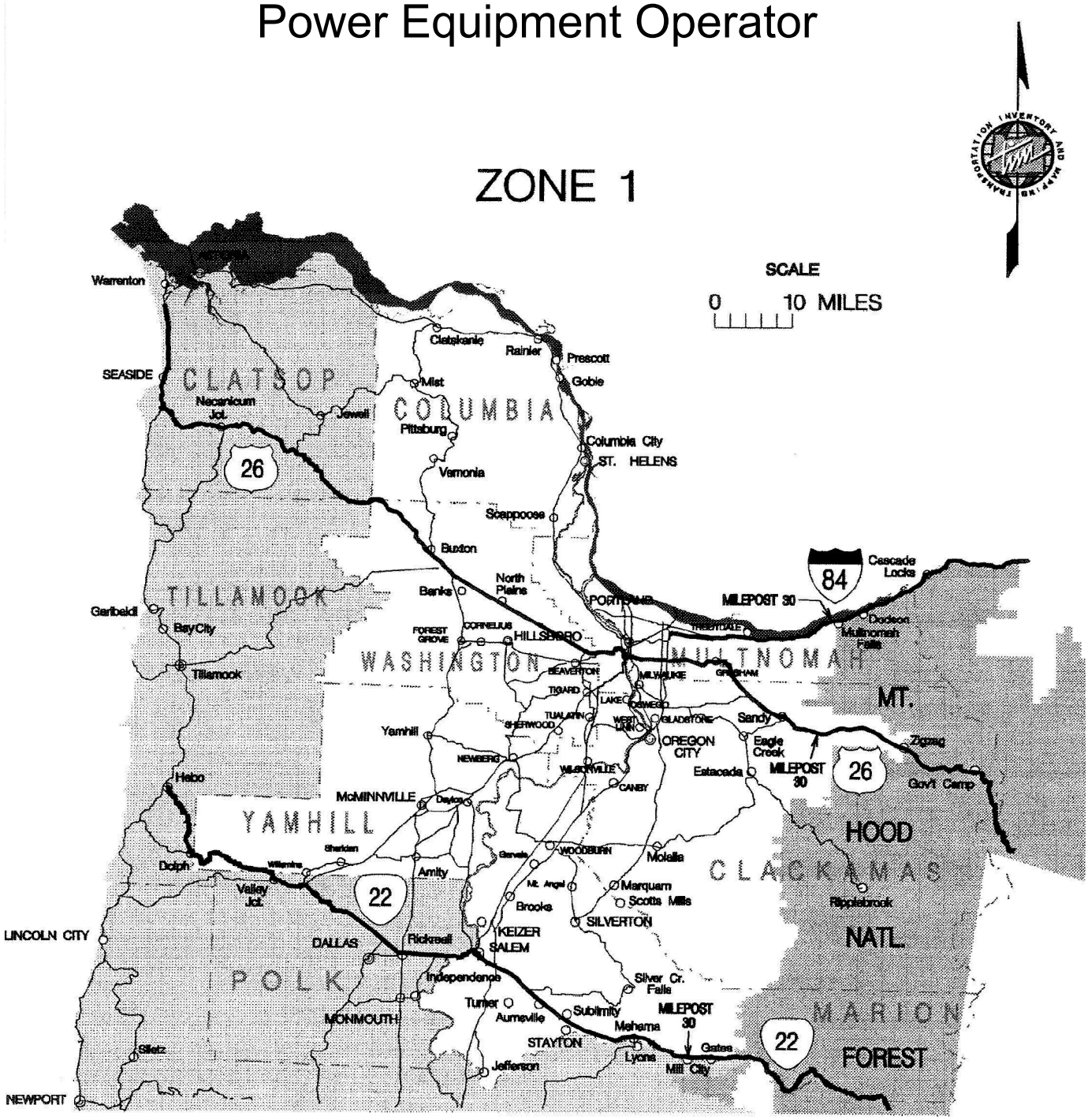
TRADE	BASIC HOURLY RATE	FRINGE RATE	TRADE	BASIC HOURLY RATE	FRINGE RATE

TRUCK DRIVER (continued)

Zone A: Projects within 30 miles of the cities listed above
Zone B: More than 30 miles but less than 40 miles.
Zone C: More than 40 miles but less than 50 miles.
Zone D: More than 50 miles but less than 80 miles.
Zone E: More than 80 miles.

Note: All job or project locations shall be computed (determined) on the basis of road miles and in the following manner. A mileage measurement will start at the entrance to the respective city hall, facing the project (if possible), and shall proceed by the normal route (shortest time-best road) to the geographical center on the highway, railroad, and street construction projects (end of measurement). On all other project contracts, the geographical center where the major portion of the construction is located, shall be considered the center of the project (end measurement).

Power Equipment Operator



AMENDMENTS TO OREGON DETERMINATION 2014-01
EFFECTIVE APRIL 1, 2014

TRADE	BASIC HOURLY RATE	HOURLY FRINGE

ELECTRICIAN

Area 5

Electrician	**38.75**	**20.31**
Electrical Welder	**42.63**	**20.43**
Material Handler/ Lighting Maintenance	**22.09**	**13.14**

Reference Counties Area 5

Clackamas	Hood River	Tillamook	Yamhill (d)
Clatsop	Multnomah	Wasco	
Columbia	Sherman	Washington	

(d) North Half

LIMITED ENERGY ELECTRICIAN

Area 5	**29.75**	**15.69**

Reference Counties Area 5

Clackamas	Hood River	Tillamook	Yamhill (d)
Clatsop	Multnomah	Wasco	
Columbia	Sherman	Washington	

(d) North Half

PAINTER & DRYWALL TAPER

DRYWALL TAPER	**32.72**	**13.00**

SPRINKLER FITTER

Area 1	**33.74**	**20.20**

Reference Counties Area 1

Benton	Deschutes	Klamath	Polk
Clackamas	Douglas	Lake	Sherman
Clatsop	Harney	Lane	Tillamook
Columbia	Hood River	Lincoln	Wasco
Coos	Jackson	Linn	Washington
Crook	Jefferson	Marion	Wheeler
Curry	Josephine	Multnomah	Yamhill

Area 2	**30.15**	**20.10**

Reference Counties Area 2

Baker	Grant	Morrow	Union
Gilliam	Malheur	Umatilla	Wallowa

Public Works Department
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Appendix B

Bid Clarifications

CLARIFICATION

Project Number: PW-10-14
Bland Intertie Pump Station

Public Works Department
22500 Salamo Road
West Linn, Oregon 97068
Telephone: (503) 722-5500
Fax: (503) 656-4106

Project Description: Bland Intertie Pump Station

Issue Date: April 7, 2014

This Clarification forms part of the "Invitation for Bid." The following clarifications are applicable to the Technical Specifications and Drawings. If any contradiction exists between this clarification document and the Technical Specifications, previous Addenda and Drawings, this document shall prevail.

1. This project is lump sum. However, bidder's will be required to give an individual cost for each item of work. A Bid Form is provided in the contract documents, page 25 of 35.

2. Section 15100 Mechanical Equipment

   A) The pumps, pump cans, and associated motors units will be purchased and provided by the City of West Linn. The pumps, pump cans and associated motors shall be installed by the Contractor in a method complying with all applicable standards and requirements.

   B) The work in this section consists of furnishing all labor, hardware and equipment as required for the installation of the pumps, pump cans and motor units as shown on the drawings. Work for pump and motor installation shall be bid under item #9, Pump and Motor Installation.

   C) The work in this section will **also** consist of furnishing all labor, material, hardware and equipment for the installation of the valves, piping, flowmeter, and appurtenances as shown on the drawings. Work for valves, piping, flowmeter, and appurtenances shall be bid under bid item #10, Mechanical Work.

3. Section 17000 Instrumentation/Control and Telemetry Systems

   The System Integrator, S&B Inc., is a single firm pre-selected by the City of West Linn to design and furnish the Instrumentation/Control and Telemetry Systems. The Contractor **shall include** the cost of the Instrumentation/Control and Telemetry Systems in their bid price provided by S&B Inc. Work in this section shall be bid under bid item #14, Motor Control Center/SCADA Controls.

4. Section 01650 System Startup and Testing

   A) An experienced, competent, and authorized representative of the manufacturer shall visit the site of work and inspect, check, adjust if necessary and approve the equipment installation. The

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representative shall be present when the equipment is placed in operation, and shall revisit the job site up to 2 days total, until all problems are corrected and the equipment installation and operation are satisfactory in the opinion of the City.

B) The manufacturer's representative shall furnish a written report certifying that the equipment has been properly installed and lubricated; is in accurate alignment; is free from any undue stress imposed by connecting piping or anchor bolts; and has been operated under full load conditions and that it operated satisfactorily.

C) The contractor shall coordinate all such System Starting and Testing with the manufacturer's representative.

5. Bidding for this project is for the pump station and pipe network required to hook the existing reservoir to the pump station**,** as shown on the drawings. The associated transmission main will be bid separately.

6. The contractor is responsible for all construction surveying and staking for the project. Surveying and staking will be considered incidental.

7. The previous Addendum #1 (from 2/5/2014 bid) still applies to this project, however a signature acknowledgement will not be required at the time of the bid submittal since it is provided in the contract documents.

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Appendix C

ADDENDUM #1

(From 2/5/14 bid)

ADDENDUM No. 1

Project Number: PW-10-14
Bland Intertie Pump Station

Public Works Department
22500 Salamo Road
West Linn, Oregon 97068
Telephone: (503) 722-5500
Fax: (503) 656-4106

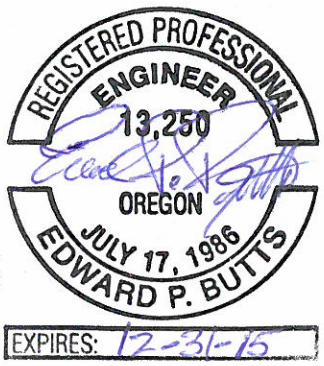
Project Description: Bland Intertie Pump Station

Issue Date:

This Addendum forms part of the "Invitation for Bid" and modifies or clarifies the original "Invitation for Bid" for the Project identified above. Prospective Bidders shall acknowledge receipt of the total number the Addenda issued for this Project by signing and returning each Addendum with the Bid. Failure to do so may subject Bidder to disqualification.

The following clarifications are applicable to drawings and specifications for the project referenced above.

See attached documents



ACKNOWLEDGEMENT OF ADDENDUM

Inclusion of the above Addendum is hereby acknowledged.

CONTRACTOR:

Contractor: THIS ADDENDUM FORMS A PART OF THE BID AND NO SIGNATURE IS NEEDED HERE

Signature

Date

Company Name

1) The project's site address is 23120 SW Bland Circle West Linn, OR 97068
2) The Owner will establish and provide five (5) field survey references: four (4) five (5') foot corner offsets for each building corner and one (1) temporary benchmark elevation (TBM) at the site for Contractor's use. Although these references are provided for the convenience and use of the Contractor, any errors in their use and/or interpretation occurring beyond the references shall be the responsibility of the Contractor.
3) The Owner shall make allowances for the existing storage tank to be off-line and drained for up to one (1) full day to allow for the revision and switch-over of the valving configuration. The Contractor shall plan and make all appropriate preparations for this change-over in advance of the draining of the reservoir.
4) The drain line connection shall be made using an 8" x 2" saddle to the existing drain line.
5) The electrical service shall be brought into the site and to the pump station as detailed on the revised and attached drawings for both primary and secondary power circuits.
6) Section 04200, Part C.(4)(b) of the specifications (page 8 of Section 04200) shall be amended to read, "Use a 6 mil visqueen vapor barrier under all interior slabs." The use of a geotextile fabric is not required on this project.
7) Paper-backed insulation shall be allowed for ceiling insulation.
8) Both the gutters and downspouts shall be constructed of 26 gauge (minimum) steel with a baked enamel finish.
9) The soffit for the 3' front overhang shall be closed using 1/2" T111 plywood and painted using 2 coats of a flat latex paint, 6 mils minimum D.F.T.
10) Re: Section 03480 – Precast Vault System – Part 2: Products – 2.2 Vault Structure, Paragraph I. Amend to read: "The flowmeter vault shall be a Utility Vault model 506-LA or approved equal. (I.D. = 4'2" x 4'2" x 5'2")". RE: Plans – Sheet M-2 – Vault Detail: Amend sump drain rim elevation to read: "527.00±" and I.E. to read: "526.00±". Adjust 2" drainpipe slope and connection to maintain specified fall to 8" pipe. The hatch for the flowmeter vault as detailed in Section 03480, Part 2.2(G) shall be amended to read, "The vault shall be supplied with a single galvanized, lockable deck steel hatch. The hatch shall be capable of a full 180 degree opening and have a recessed opening handle. The vault shall include one (1) hatch".
11) A hose bibb and pressure gauge assemblies for the suction and discharge manifolds shall be added as detailed on the attached drawings.
12) The yard light shall be a 50W fluorescent weathertight fixture with a rapid-start ballast.
13) The motor feeders shall be UL listed, 600 VAC rated cable, and shall consist of XLPE insulated copper cable with three (3) #1 ga.cu power and three (3) #8 ga.cu symmetrical ground conductors. OLFLEX VFD symmetrical or approved equal. Increase conduit sizes from MCC to motors to 2½" (from specified 2").
14) The quantity of trees as detailed in Part 4 of Section 02930 of the specifications is the anticipated number of trees for screening. This number shall be used for bidding purposes.
15) The total anticipated length of fencing for this project shall be 835 linear feet, not including the single 15' gate (total length of fencing and gate estimated to be 850'). This value shall be used for bidding purposes.

16) The 200A generator receptacle shall be a UL certified, 3 phase, 480 VAC, 4W receptacle. Receptacle shall be capable of being locked out from the exterior. Arktite or equivalent.

17) To the best knowledge of the Owner and Engineer, there is currently no pump in the well.

18) All suction and discharge piping under the pump station slab shall be concrete encased.

19) Piping labels shall not be required for this project.

20) Electrical Section 16000, subsection 1.06, A: All work, including installation, rough-in, connections, and testing shall be performed by qualified and licensed personnel, working under competent supervision. The Contractor shall be licensed and bonded, as required, to conduct electrical contracting and installation work in the State of Oregon.

21) The 2" cleanout for the vault sump shall comply with City of West Linn Standard Construction detail WL-206.

22) The Contractor shall coordinate with the City and CenturyLink to intercept the existing phone service to the tank in a new telephone handhole and connect this handhole using a 2" PVC conduit into the pump station. Provide a 2'x2'x3/4" plywood telephone demarcation adjacent to the RTU for telephone service. Install a pull cord inside the 2" conduit for use by the phone company. Prepare for the telephone changeover immediately prior to pump station startup. Revise wire count shown on sheet E-3 for raceway number 1 from 4-#12, 2 pair Cat6 to 4-#12, 2 pair 16 GA. T&S.

23) To reroute the existing electrical service to the reservoir, the Contractor shall revise wire count shown on sheet E-3 and end point location for raceway number 2. Revise origin from RTU to MCC SEC 5, revise wire from spare to 5-#12. Supply terminal junction box and GFCI WP 120V outlet with cover. Terminate raceway number 2 at new terminal junction box and locate below existing cathodic protection unit. Route one circuit to cathodic protection and second circuit to outlets. Route GFCI protected wires from outlet to reservoir level enclosure immediately adjacent to cathodic protection unit for heat lamp use.

24) Each 75 HP booster pump motor shall be equipped with an integral overheat sensor, capable of monitoring winding temperatures and activating a single pole normally closed switch to a remote circuit (open on temperature increase). A ½" underslab conduit with 3 - #12 cu conductors shall be added between each motor and its respective motor controller cabinet to route this circuit to the MCC.

25) The Owner will apply for, procure, and pay all costs for the building permit, as well as perform all routine inspections, however, the Contractor shall coordinate and schedule these inspections as required by the Contract Documents, applicable building codes, and West Linn Standards.

26) Special inspections shall be required for two (2) specific tasks: 1) verifying the reinforcement size, quantity, placing, cover, and for general compliance with the plans and 2) to verify the CMU block wall material, reinforcement, mortar, and grouting, and for general compliance with the plans. All responsibility for coordinating and scheduling as well as the costs for special inspections shall be borne by the Contractor. Special inspections must be performed by firms and/or individuals that are state certified in the respective class of work. The Contractor shall submit adequate evidence of the required certification(s) as an element of the post-bid submittals.

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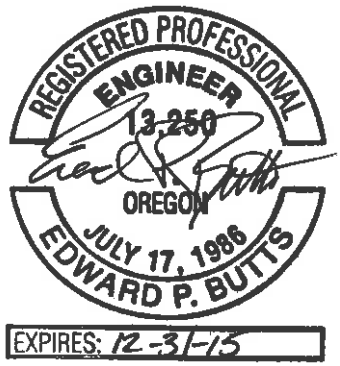
Appendix D

TECHNICAL SPECIFICATIONS

City of West Linn
Bland Circle Intertie Pump Station

Technical Specifications and Drawings



March, 2014

City of West Linn
Bland Circle Intertie Pump Station
Technical Specifications and Drawings

Table of Contents

SECTION 01300
SUBMITTALS

1. GENERAL

A. LIST OF ARTICLE TITLES

1.01 SUBMITTAL REQUIREMENTS
1.02 SCHEDULE
1.03 DETAILED BREAKDOWN OF LUMP SUM PRICES

1.01 SUBMITTAL REQUIREMENTS

A. General:

1. All submittals shall be identified by project title and numbers and shall include Contractor's name, date, and revision date. In addition, shop drawings, product data and samples shall include names of subcontractor and supplier, applicable specification section number and Contractor's stamp, dated and initialed or signed, certifying to review of submittal, verification of field measurements and compliance with contract documents.

2. All submittals shall be accompanied by a submittal transmittal form. Equipment numbers shall be listed for each item being submitted. A separate form shall be used for each specific item, class of material, equipment, and items specified in separate, discrete sections, for which the submittal is required. Submittals for various items shall be made with a single form when the items taken together constitute a manufacturer's package or are so functionally related that expediency indicates checking or reviewing group or package as a whole.

3. A unique number, sequentially assigned, shall be noted on the transmittal form, accompanying each item submitted.

B. Shop Drawings:

Submit four (4) copies of each shop drawing required by the specifications. Show the information, dimensions, connections and other details necessary to ensure that the shop drawings accurately interpret the contract documents. Show adjoining work in such detail as required to demonstrate proper connections. Where adjoining connected work requires shop drawings or product data, submit such information for review at the same time so that connections can be accurately checked.

C. Product Data:

Submit four (4) copies of each item of product data required by the specifications. Modify product data by information which is not applicable to the project or by marking each copy to explicitly identify pertinent

products. Supplement standard information, if necessary, to provide additional information applicable to project. If adequate specificity regarding product data is not submitted (for example: which product on a submittal sheet is being submitted for review), submittals will be refused and Contractor shall be required to resubmit product data detailing specific information (product model, size, etc.) to the satisfaction of the Engineer.

D. Review Procedure:

Unless otherwise specified, within 10 days after receipt of the submittal, the Engineer will review and return the submittal. The returned submittal will indicate one of the following actions:

1. If the review indicates that the material, equipment, or work method is in general conformance with the design concept and complies with the Drawings and Specifications, submittal copies will be marked "NO EXCEPTION TAKEN" or "APPROVED" and given review action 1. In this event the Contractor may begin to implement the work method or incorporate the material or equipment covered by the submittal.

2. If the review indicates that limited corrections are required, copies will be marked 'FURNISH AS CORRECTED" and given review action 2. The Contractor may begin implementing the work method or incorporating the material and equipment covered by the submittal in accordance with the noted corrections. Where submittal information will be incorporated in O&M data, a corrected copy shall be provided, otherwise no further action is required.

3. If the review reveals that the submittal is insufficient, contains incorrect data, or the comments are of a nature that can be confirmed without a resubmittal, copies will be further marked "COMMENTS" and given review action 3. If the submitted item does not comply with the specifications or an item without allowable substitution is submitted, copies will be marked "SUBMIT SPECIFIC ITEM" and returned. If the comments require additional revision and resubmittal, copies will be further marked "REVISE AND SUBMIT" and given review action 4. Except at its own risk, the Contractor shall not undertake work covered by this submittal until the attached comments have been either confirmed by a separate written communication or the submittal has been revised, resubmitted, and returned marked with "NO EXCEPTIONS TAKEN" or "APPROVED".

4. If the review indicates that the material, equipment, or work method is not in general design concept or in compliance with Drawings and specifications, copies of the submittals will be marked "REJECTED" and given review action 5. Except at own risk, the Contractor shall not

undertake work covered by such submittals until a new submittal is made and returned marked either "NO EXCEPTIONS" or "APPROVED".

E. Effects of Review of Contractor's Submittals:

Review of Drawings, method of work, or information regarding materials or equipment the Contractor proposes to provide, shall not relieve the Contractor of its responsibility for errors therein and shall not be regarded as an assumption of risks or liability by the Engineer or Owner, and the Contractor shall have no claim under the Contract on account of the failure, or partial failure, of the method of work, material, or equipment so reviewed. A mark of "NO EXCEPTIONS TAKEN" or "NOTE MARKINGS" shall mean that the Engineer has no objection to the Contractor, upon the Contractor's own responsibility, using the plan or method of work proposed, or providing the materials of equipment proposed.

1.02 SCHEDULE

A. The Contractor shall provide the following schedules and submit them not later than at the pre-construction meeting as stated in bid documents.

1. Contractor's Construction Schedule
   a. The Contractor shall be required to prepare and submit to the Owner for review an overall construction schedule covering all work to be performed.
   b. The schedule shall indicate the sequence of the work, the time of starting and completion of each part and the installation dates for major items.
   c. The schedule shall be submitted to the Owner for review and approval. This schedule shall be revised and resubmitted as necessary until it is acceptable to the Owner. Action on payment requests will be contingent upon receipt of an acceptable construction schedule.

1.03 DETAILED BREAKDOWN OF LUMP SUM PRICES

A. The Contractor shall, within 10 days of receipt of the notice to proceed, submit a complete breakdown of the lump sum price for each major bid item, showing the value of each individual area of work. The detailed estimate shall be supported by such evidence, including certified copies of subcontractors, as the Engineer may direct. Upon acceptance by the Owner of breakdown prices, they shall be used as the basis for all requests for payment.

END OF SECTION 01300

SECTION 01600
MATERIAL AND EQUIPMENT

1. GENERAL

A. LIST OF ARTICLE TITLES

1.01 DESCRIPTION OF WORK

A. This section includes general requirements pertaining to materials and equipment. Any such requirements as may be specified elsewhere or required by law are additional to the provisions included in this section.

1.02 SOURCE OF MATERIALS

A. No source has been provided or recommended for any of the materials for construction of this project. The Contractor shall make their own arrangements to obtain this material at his/her own expense and all costs of acquiring, producing and placing this material in the finished work will be considered incidental to the bid item involved. Preference shall be given to domestic (U.S. manufactured) products.

1.03 QUALITY AND QUANTITY

A. Material and equipment: Material and equipment shall be and of a quality equal to that specified or accepted, and shall be furnished in quantities required to avoid delays in the progress of the work. Mechanical and electrical equipment shall be the products of established manufacturers of good reputation, regularly engaged in the fabrication of such equipment.
B. The work shall be executed in conformity with the best accepted standard practice of the trade so as to contribute to maximum efficiency of operation, accessibility and appearance, minimum cost of maintenance and construction of future alternations and additions. It shall be so executed that the completed work will conform and adjust itself to any existing installation.
C. When materials are specified: When materials are specified to conform to ASTM, AWWA, federal, or other reference or recognized specifications, the materials delivered to the site shall bear the manufacturer's printed labels stating that the materials meet the requirements of such referenced specifications. Store all drums of oil, solvents and like materials in a manner that prevents contact with the ground and provides secondary containment to prevent soil or water contamination.

1.04 TRANSPORTATION AND HANDLING

A. Factory-packed products: Factory-packed products shall be delivered in the manufacturer's original containers.
B. Products: Products shall be transported and handled in a manner so as to prevent their damage.
C. Arrangements: Arrange for delivery of products within the time limits established by the Contract.
D. Site Storage: Furnish workmen and equipment to receive and unload all products delivered to the site. Do not deliver, or have delivered, any products to the site unless such forces are available and the products can be safely protected and stored on site.

1.05 STORAGE AND PROTECTION

A. Neatly pile, store and protect: Neatly pile, store, and protect products in locations where directed. Protect from damage due to construction activities and/or storage.
B. Weather Protection: Protect products subject to damage by temperature or other inclimate weather conditions.
C. Site Protection: Provide secure and lockable storage facilities on the work site in order to provide adequate protection from theft and/or vandalism for all products delivered or stored upon the site. Secure the facilities when not physically on the work site.

END OF SECTION 01600

SECTION 01650
SYSTEM STARTUP AND TESTING

1. GENERAL

A. LIST OF ARTICLE TITLES
   1.01 DESCRIPTION OF WORK
   1.02 FIELD TESTS AND ADJUSTMENTS
   1.03 SYSTEM STARTUP AND TESTING

1.0 DESCRIPTION OF WORK

A. Provide complete startup, testing and operator training services to ensure operability of all equipment supplied.

1.02 FIELD TESTS AND ADJUSTMENTS

A. General: All mechanical and electrical equipment and all alarm and operating modes for each such piece of equipment shall be tested by the Contractor to the satisfaction of the Owner before they are put into operation. Tests shall be as specified herein and shall be made to determine whether the equipment has been properly assembled, installed, aligned and connected. Any changes, adjustments or replacements required to make the equipment operate as specified shall be carried out by the Contractor as part of the work.

B. At least 5 days before the time allowed in the construction schedule for commencing testing and startup procedures, the Contractor shall submit to the Owner, in duplicate, details of the procedures proposed to be adopted for testing, startup, and adjustment of all mechanical and electrical equipment. The Contractor shall be responsible to demonstrate the proper functionality of all equipment installed.

C. The Contractor's testing and startup procedures shall include detailed descriptions of all pre-operational electrical, mechanical and/or instrumentation testing work. Each control device, item of mechanical, electrical and instrumentation equipment, and all testing procedures, shall be designed, in a stepwise and logical sequence to ensure that all equipment has been properly serviced, aligned, connected, calibrated and adjusted prior to operation. The Contractor is advised that failure to observe these precautions may place the acceptability of the subject equipment in question, and he may be required to replace it as determined by the Owner. Testing procedures shall be designed to duplicate, as nearly as possible, all conditions of operations, and shall be carefully selected to ensure that the equipment is not damaged. Once the testing procedures have been accepted by the Owner, the Contractor shall produce checkout, alignment and adjustment, and calibration sign off

forms for each item of equipment, which shall be used in the field by the Contractor and the Owner, jointly, to ensure that each item of electrical, mechanical and instrumentation equipment has been properly installed and tested.

D. Equipment startup: Before startup, the Contractor shall properly lubricate all bearings and other items which normally require lubrication, and fill each gear case and oil reservoir to the proper operating level, using the equipment manufacturer's supplied lubricant. The Contractor shall be responsible for lubrication of equipment throughout the entire equipment "break-in" period and shall include as a minimum the first lubrication charge.

E. The Contractor shall be responsible for the startup, adjustment, initial maintenance and checkout of all equipment and instrumentation. All systems shall be carefully checked for conformance with the design criteria.

F. If any equipment or system does not operate properly, the Contractor shall immediately replace or repair components until it operates properly.

G. When the equipment startup is complete, the Contractor shall submit a startup report to the Owner.

1.03 SYSTEM STARTUP AND TESTING

A. General requirements: After the new equipment has been tested and adjusted, the new pump station shall be put into operation. An authorized representative of the pump manufacturer shall be present and supervise all adjustment and startup procedures. The Contractor shall verify the operation of all equipment during the succeeding 30-day period and shall be responsible for the proper operation and care thereof. During the 30-day period thus provided, the Owner will have available staff to respond to operating issues as related to pump station operation.

B. Adjustments: When a motor, valve, meter, instrument or other item of equipment is found to be in conflict with the stated design criteria, an adjustment shall be made to the item by an experienced representative of the manufacturer.

C. If adjustments fail to correct the operation of a piece of equipment, the equipment at issue shall be removed from the project site and replaced with a workable replacement that will meet the performance specifications and requirements.

D. Lubrication: Immediately prior to final acceptance, the Contractor shall perform a final check of all lubrication requirements, and leave all equipment properly lubricated, ready for Owner's use. Contractor shall provide the owner with a one year supply of lubrication products as required by various equipment manufacturers.

E. Testing devices:

1. Gauges, meters, recorders and monitors shall be provided by the Contractor as required by the Owner to properly demonstrate that all equipment fully satisfies the requirements of this project. All devices employed for the purpose of measuring the performance of the facility's equipment and systems shall be specifically selected to be consistent with the variables to be monitored. All instruments shall be recently calibrated, and the Contractor shall be prepared at all times to demonstrate, through recalibration, the accuracy of all instruments employed for testing purposes. Calibration procedures shall be in accordance with applicable standards of the Hydraulic Institute, NEMA, ASTM, ISA, and IEEE. The adequacy of all gauges, meters, records and monitors shall be subject to review of the Owner. Written evidence of the calibration at each device and its serial number is required.

2. Records: The Contractor shall provide sign off forms for all installed and operational testing to be accomplished under this contract. The sign off forms shall be produced in quadruplicate. Sign off forms shall be provided for each item of mechanical and electrical equipment provided or installed under the Contract, referenced by equipment number, and shall contain provisions for recording relevant performance data for original testing and not less than three re-tests. Separate sections shall be provided to record values for the pre-operation checkout, initials of representatives of the equipment manufacturers, the Contractor, the Owner, and the date and hour of each test.

END OF SECTION 01650

SECTION 01700
PROJECT CLOSEOUT

1. GENERAL

A. LIST OF ARTICLE TITLES

1.01	SUBSTANTIAL COMPLETION
1.02	WRITTEN GUARANTEES
1.03	FIELD TESTS AND ADJUSTMENT
1.04	FINAL CLEANUP
1.05	PROJECT RECORD DRAWINGS (AS-BUILT)
1.06	OPERATION AND MAINTENANCE MANUALS

1.01 COMPLETION

A. General: When the Contractor considers that the work, or a designated portion thereof, which is acceptable to the Owner, is complete as defined in the City of West Linn Standard Terms and Conditions, the Contractor shall prepare for submission to the Owner a "punch list" of items to be completed or corrected. The failure to include any items on such a list does not alter the responsibility of the Contractor to complete all remaining work in accordance with the Contract Documents. When the Owner, on the basis of an inspection, determines that the work, or a designated portion thereof, is complete, he will then prepare a certificate of completion which shall establish the date of completion, shall state the responsibilities of the Owner and the Contractor for security, maintenance, heat, utilities, damage to the work and insurance; and shall fix the time within which the Contractor shall complete the items listed therein. Warranties required by the contract shall commence on the date of completion of the work or a designated portion thereof, unless otherwise provided in the certificate of completion. The certificate of completion shall be submitted to the Owner and the Contractor for their written acceptance for the responsibilities assigned to them in any such certificates.

B. Partial payment: Upon completion of the work or of a designated portion thereof, and upon application by the Contractor and proper certification by the Owner, the Owner shall make a payment to the Contractor, reflecting adjustments in the retainage, if any, for any such work or portion thereof, as provided for in the Contract Documents.

1.02 WRITTEN GUARANTEES

A. Written guarantees, in duplicate, addressed and submitted to the Owner shall be prepared and forwarded in the following format:

To: Owner w/ Address----RE: Project Name

"I (We) the undersigned do hereby guarantee of eighteen (18) months from date of certificate of substantial completion all work performed under the terms of the Contract Documents. I (We) will remedy at my (our) expenses any defects appearing during that period due to poor materials or workmanship and will pay for any damage to other work resulting from occurrence of said defects or the correction of same.

This guarantee shall not be interpreted as holding the Contractor responsible for any deterioration of the work due to normal use or the abuse of the Work by the Owner.

Very truly yours, _____Contractor

1.03 FIELD TESTS AND ADJUSTMENTS

A. All mechanical and electrical equipment shall be tested by the Contractor to the satisfaction of the Owner before the facility is put into operation. Tests shall be as specified herein and shall be made to determine whether the equipment has been properly assembled, aligned and connected. Any changes, adjustments or replacements to make the equipment operate as specified shall be carried out by the Contractor as part of the work.

B. At least 5 days before the time allowed in his construction schedule for commencing testing and start-up procedures, the Contractor shall submit to the Owner, in duplicate, details of the procedure he proposes to adopt for the testing and start-up of all mechanical and electrical equipment, except when such procedures have been addressed and covered within the specifications.

C. The Contractor's testing and start-up procedures shall include detailed descriptions of all pre-operational, electrical, and instrumentation testing work. Each control device, each item of mechanical, electrical, and instrumentation equipment: and all control circuits shall be considered in the testing procedures, which shall be designed, in a stepwise, logical sequence to ensure that all equipment has been properly serviced, aligned, connected, calibrated and adjusted prior to operation.

D. During the testing of the mechanical, instrumentation, and electrical equipment, the Contractor shall make necessary representatives of the manufacturers of all the various pieces of equipment or other qualified persons who shall instruct the Owner's personnel in the operation and care thereof. Instructions shall include written and step-by-step operational and troubleshooting procedures with a complete description of all necessary test equipment and all protective device settings.

1.04 FINAL CLEANUP

A. Completion of the work: At the completion of the work, the site of work shall be left in a neat, clean, and unobstructed condition.

B. Removal: Remove all tools, appliances, and equipment from the site of work as soon as possible upon completion of the work within the contract.

C. Final Cleanup: The final cleanup of the project shall be done with care and all walls, floors, and equipment shall be clean and mud and dust free prior to the final acceptance of the work.

1.05 PROJECT RECORD DRAWINGS (AS-BUILTS)

A. Maintenance: Maintain, at the project site, one set of the contract drawings for recording as-built conditions. Mark (in red) any and all changes or modifications made during the course of construction.

B. Completion of work: Upon completion of the work, turn over the one marked-up set of field mark-up plans to the Engineer.

C. Partial payment: Requests for partial payment will not be approved if the marked-up field set of prints are not kept current and the request for final payment will not be approved until the finalized marked-up prints are delivered to the Engineer.

D. Specified elsewhere: Where specified elsewhere in the technical specifications, the Contractor shall furnish the Engineer with corrected reproducible tracings of all work included in the contract.

1.06 OPERATION AND MAINTENANCE MANUALS

A. Three (3) separate sets of an Operation and Maintenance (O&M) manual for the pump station shall be prepared at the conclusion of the project and submitted to the Engineer before release of the final payment.

B. Each manual shall include and detail all features and aspects of the installation and construction of the pump station, including: instruction and operation manuals for all electrical and mechanical equipment, test reports, inspection reports, data sheets explicitly detailing equipment used in the project, warranties, manufacturers operational and maintenance manuals, and other relevant information.

END OF SECTION 01700

SECTION 02060
AGGREGATE BASE

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and the Contract, including City of West Linn Standard Terms and Conditions, and City of West Linn Public Works Standard Construction Specifications apply to work of this section.

DESCRIPTION OF WORK:

Aggregate base is specified herein for pipe bedding, pipe zone, and granular backfill material and/or as shown on the drawings.

RELATED SECTION:

Follow Section 02324- Excavation, Bedding, and Backfill for aggregate base requirements for trench excavation, bedding, and backfill.

QUALITY ASSURANCE:

Testing Service: The Contractor shall provide testing or certified test reports for quality acceptance of all proposed aggregate material. The Owner shall reserve the right to perform additional tests. Allow access to materials and facilities.

SUBMITTALS:

Coordinate sampling of all materials with a testing service for qualifying tests. Sample sources shall be representative and clearly marked to indicate the source of the material and the intended use.

Test Reports: The testing service shall submit the following reports directly to the Contractor with copies to the Owner:

- One gradation for each type of material proposed.
- One optimum moisture-maximum density curve for each type of material proposed.
- Field density test reports as specified herein.

PART 2 - PRODUCTS

2.1 Pipe Zone Material

A. Use pipe zone material consisting of ¾"-0 crushed aggregate or sand, as noted on the plans or in the special provisions.

B. Pipe zone material shall be as specified for crushed aggregate material in Section 2.3: Class B Backfill, ¾"-0 Crushed Aggregate

2.2 NOT USED

2.3 Class B Backfill, ¾"-0 Crushed Aggregate

A. Coarse and fine aggregates shall conform to requirements of this section and to additional requirements contained herein.

B. Crushed aggregates to be incorporated in the work shall have a sand equivalent of not less than 35 when tested in conformance with AASHTO T-176. Crushed aggregate shall meet the following requirements for Liquid Limit and Plasticity:

Percent of Material Passing No. 40 Sieve	**Liquid Limit (Maximum) AASHTO T 89**	**Plasticity Index (Maximum) AASHTO T 90**
0.0 to 5.0, inclusive	33	6
5.1 to 10.0, inclusive	30	5
10.1 to 15.0, inclusive	27	4
15.1 to 20.0, inclusive	24	3
20.1 to 25.0, inclusive	21	2
Over 25.0	21	0 or N.P.

C. Grading Requirements: Aggregate base shall conform to the following grading requirements as determined by AASHTO T 27:

Designated Size	**2 ½" – 0"**	**2" – 0"**	**1 ½" – 0"**	**1"-0"**	**¾" – 0"**
Sieve Size	**Percentages Passing (by weight)**				
3"	100				
2 ½"	95-100	100			
2"		95-100	100		
1 ½"			95-100	100	
1 ¼"	55-75				
1"		55-75		90-100	100
¾"			55-75		90-100
½"				55-75	
3/8"					55-75
¼"*	30-45	30-45	35-50	40-55	40-60

* Of the fraction passing the 1/4-inch sieve 40 percent to 60 percent shall pass the No. 10 sieve. For determination of sizes and grading conform to AASHTO T-27.

D. Where 1"-0 base aggregate is approved for use, at least 70% (by weight) of the material passing through the 1/4 in. sieve but retained on the No. 10 sieve shall have at least one mechanically fractured face.

E. Crushed aggregate will be sampled for acceptance at one or more of the following times as determined by the City Engineer:

- In its final state on the roadbed after all processing and prior to the placement of subsequent surfacing materials;
- In the stockpile after all shaping work has been completed; or,
- Immediately after crushing.

F. For trench backfill, the maximum particle size shall not exceed ¾" (nominal) in the pipe zone.

G. Gravel shall have at least one fractured face on 50 percent of the material retained on each sieve size 1 1/2 inch and above and 70 percent for the material passing the 1 1/2-inch sieve and retained on each of the sieves down to 1/4 inch.

H. The source material from which aggregate base materials are obtained, produced or manufactured, shall meet the following qualifying test requirements:

Test	Test Method	Requirements
Degradation:		
Passing No. 20 sieve	ODOT TM 208	30% Max.
Sediment Height:	ODOT TM 208	3" Max.
Abrasion:	AASHTO T 96	35% Max.

I. Sand Equivalent: Base aggregates shall have a sand equivalent of not less than 30 when tested in conformance with AASHTO T 176.

PART 3 - EXECUTION

Follow Section 02324 -Excavation, Bedding, and Backfill for aggregate base execution requirements for pumphouse, trench excavation, bedding, and backfill.

PART 4 - MEASUREMENT AND PAYMENT

Payment shall be considered incidental to the project and included in the lump sum price for the pump station.

END OF SECTION 02060

SECTION 02324
EXCAVATION, BEDDING, AND BACKFILL

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and the Contract, including City of West Linn Standard Terms and Conditions, apply to work within this section.

DESCRIPTION OF WORK:

The extent of excavation, bedding, and backfill is shown on the drawings and/or as required to install and connect the piping to the existing water, and storm systems, conduits to the electrical utility, and excavation and backfill under the pumphouse floor slab.

- Excavation, trench foundation, pipe bedding, pipe zone material, trench backfill, site fill, and surface removal for the pumphouse, piping and their appurtenances are part of this work.

- All excess excavated material shall be disposed of at an approved off-site location.

RELATED SECTIONS:

Refer to Section 02060 – Aggregate Base for aggregate base material specified herein for granular site fill, pipe bedding, pipe zone, and granular backfill.

DEFINITIONS:

Surface removal is defined as the removal of surface material such as topsoil, sod, pavement, curbs, sidewalks, gravel, etc.

Excavation is defined as the removal of all material encountered in and within the building site, trenches, and pits to the depths as shown or as directed and shall be unclassified. Unclassified excavation is hereby defined as all excavation on this site regardless of the type, nature, or condition of the materials encountered.

Trench foundation is defined as the bottom of the trench on which the pipe bedding is to lay and which provides support for the pipe.

Pipe bedding is defined as the furnishing, placing, and compacting the specified materials on the trench foundation to uniformly support the barrel of the pipe to the spring line. The total bedding depth shall be a minimum of 6 inches below the outside bell of the pipe.

Pipe zone is defined as the furnishing, placing and compacting of specified materials for the full width of the trench from the top of the bedding to a point no less than 12-inches above the top outside surface of the barrel of the pipe.

Backfill is defined as the furnishing, placing, and compacting of material in the trench and/or pits, between the top of the pipe zone material and the bottom of the pavement base rock, ground surface, or surface material. Two (2) types of backfill material are to be used on this project:

- **Granular Backfill:** Aggregate base meeting the requirements of Section 02060 - Aggregate Base. Designated size shall be 3/4"- 0". (Class B Backfill)

Work Site or site is defined as the area encompassing and including the location of the new pumphouse building, all excavations and trenches between the pumphouse and the existing utilities on the shared access road, and the immediate area surrounding the pumphouse.

PART 2 - PRODUCTS

GENERAL:

Materials may be native or imported as indicated. Import materials proposed for use in the work shall not be used without approval of the Owner.

GRANULAR SITE FILL:

3/4"-0" crushed rock with no fines

TRENCH FOUNDATION:

Trench foundation shall be undisturbed native material. Where ground water or other unstable conditions exist and the pipe cannot be adequately supported, additional excavation and trench stabilization material may be required and will be paid as a force account item only upon approval of the Owner.

TRENCH STABILIZATION MATERIAL:

1-1/2"- 3/4" crushed rock with little or no fines.

PIPE BEDDING AND PIPE ZONE:

Pipe bedding and pipe zone material shall be Granular Backfill material. ¾"-0"

TRENCH BACKFILL:

Granular Backfill: Provide where shown on the drawings. All granular backfill shall be compacted to City of West Linn compaction standard.

EXCAVATION BACKFILL:

Select granular backfill material shall be used to backfill all excavations and trenches above the pipe zone. Backfill material shall be placed in lifts not exceeding 6" (six inches) and shall be fully compacted to 90% or greater density.

PART 3 - EXECUTION

EXCAVATION:

General:

A. The Contractor is responsible for having a thorough knowledge of all Drawings, Specifications, General and Supplementary Conditions, and other Contract Documents. Failure to acquaint himself with this knowledge does not relieve him of the responsibility for performing his work in a manner acceptable to the Owner. No additional compensation will be allowed because of conditions that occur due to failure by the Contractor to familiarize himself and all workers with this knowledge.

B. The Contractor shall be responsible for determining the existing conditions of the site and shall thoroughly examine all factors reasonably available to him, including, but not limited to: the Drawings, Specifications, site boundary and topography, site conditions, site history, local information, and seasonal weather conditions. A geotechnical report is available upon request and it is the Contractor's responsibility to use this information cautiously and to further investigate the site conditions as he determines necessary. The Contractor shall be totally responsible for acceptance of the site and preparation of the site to the proper grade and compaction requirements as indicated by the Contract Documents, including: Construction Drawings and Specifications. Any construction performed by the Contractor on the project will constitute acceptance of the site.

C. All excavated and disturbed areas surrounding the pumphouse shall be restored using granular backfill. Select material removed from under the pumphouse can be used for this purpose providing it is acceptable material and compacted to specified levels.

UNCLASSIFIED EXCAVATION

General:

The work called for by this section shall consist of clearing and grubbing, loosening, loading, removing, and disposing of, in the specified manner, all wet and dry materials

encountered that must be removed for construction purposes; furnishing, placing, and maintaining all sheeting, shoring, bracing, and timbering necessary for the proper protection and safety of the work, the workmen, the public, and adjacent property and improvements; the dewatering of trenches and other excavations; the preparation of satisfactory pipe beds; the backfilling and tamping of trenches, foundations, and other structures; the preparation of fills and embankments; the removal of unsuitable material from outside the normal limits of excavation and, where ordered by the Owner, their replacement with suitable materials; and all other grading or excavation work incidental to or necessary for the work. This work shall be performed as specified below.

PREPARATION OF THE SITE-GENERAL

A. Before starting construction, remove from the work site all vegetative growth (except as hereinafter excluded), debris, and/or other objectionable matter as well as any buildings and/or other structures that the drawings and/or the Owner specifically indicate are to be removed. Dispose of this refuse material in a manner acceptable to the Owner off the work site.

B. In certain areas it may be desirable for existing trees, shrubs, or other vegetation on the site to be preserved for the permanent landscape. Such vegetation may be shown on the drawings, specifically listed in the specifications, marked on the site, or identified by the Owner. In no case shall the Contractor damage or remove such growth without written permission from the Owner.

C. If the area to be excavated is occupied by trees, brush, or other vegetative growth, clear all such growth and grub the excavated area and remove all large roots to a depth of not less than 18 inches below the bottom of the proposed construction. Dispose of the growth removed in a manner satisfactory to the Owner at an approved off-site location. Fill all holes or cavities created during this work that extend below the subgrade elevation with suitable replacement material and compact to the same density as the surrounding material.

D. Trees, cultivated shrubs, etc., that are situated within any public right-of-way and/or construction easements through private property, but not directly within the excavation area, shall remain undisturbed unless it is necessary to remove them so that the work can be performed safely and unless their removal is specifically ordered by the Owner. Take special precautions to protect and preserve such growth throughout all stages of the construction.

E. Preparation of the site shall be considered an integral part of the excavation for which no separate payment shall be allowed.

PREPARATION OF THE SITE-PUMPHOUSE

1. Select Fill should consist of ¾-inch minus, clean (i.e., less than 5% passing the #200 U.S. Sieve), well-graded, crushed gravel or rock.
2. Compact the Select Fill and subgrade to City of West Linn compaction standard. Efficient compaction of granular fills will require a smooth drum, vibratory roller.

Compaction of the subgrade should be completed with a padfoot roller. Walk-behind plate compactors or backhoe-mounted compactors will be required for smaller excavations where access with self-propelled equipment is not feasible.

3. Place and compact the Select Fill in loose lifts not exceeding 12 inches to the standard specified above. Reduce the loose lift thickness to 6 inches if light or hand-operated equipment is used.
4. Excavate the disturbed material from the test pit and replace it with compacted Select Fill.

The site grading shall be completed in general conformance with the following:

1. Excavate to the required grade to remove the duff and organic soil. Complete the excavation using a hoe equipped with a smooth bucket to minimize disturbance to the finish subgrade. The excavator should operate from outside of the excavation or from a thickened rock section extending into the excavation. Do not permit vehicles or construction equipment on the subgrade unless they are supported on a minimum of 18 inches of compacted Select Fill.
2. Compact the subgrade using a padfoot roller for construction during dry weather. Subgrade moisture conditioning (i.e., wetting or drying) may be required depending on when construction begins.
3. Construct the building pad using Select Fill following subgrade compaction. The initial lift of fill should be placed in a manner that will not disturb the subgrade or require construction equipment to operate directly on the subgrade. A minimum ±18-inch thick initial lift should be placed prior to allowing equipment on the rock, and the fill should be spread using a low ground-pressure dozer or spread with the excavator bucket.

UNSUITABLE MATERIALS

Wherever muck, quicksand, soft clay, swampy ground, or other material unsuitable for foundations, subgrade, or backfilling is encountered, remove it and continue excavation until suitable material is encountered. The material removed shall be disposed of in the manner described below. Then refill the areas excavated for this reason with crushed rock.

SHEETING, SHORING, AND BRACING

A. Take special care to avoid damage wherever excavation is being done. Sufficiently sheet, shore, and brace the sides of all excavations to prevent slides, cave-ins, settlement, or movement of the banks and to maintain the specified trench widths. Use solid sheets in wet, saturated, or flowing ground. All sheeting, shoring, and bracing shall have enough strength and rigidity to withstand the pressures exerted, to keep the walls of the excavation properly in place, and to protect all persons and property from injury or damage. Separate payment will not

be made for any required sheeting, shoring, and bracing, which are considered an incidental part of the excavation work.

B. Whenever employees may be exposed to moving ground or cave-ins, shore and lay back exposed earth excavation surfaces more than 5 feet high to a stable slope, or else provide some equivalent means of protection. Effectively protect trenches less than 5 feet deep when examination of the ground indicates hazardous ground movement may be expected. Guard the walls and faces of all excavations in which employees are exposed to danger from moving ground by a shoring system, sloping of the ground, or some equivalent protection acceptable to local, state, and federal safety agencies.

C. Comply with all OSHA standards in determining where and in what manner sheeting, shoring, and bracing are to be done. The sheeting, shoring, and bracing system shall be designed by a professional engineer licensed in the State of Oregon and shall be subject to approval by the Owner. However, such approval does not relieve the Contractor of the sole responsibility for the safety of all employees, the effectiveness of the system, and any damages or injuries resulting from lack or inadequacy of sheeting, shoring, and bracing.

D. Where excavations are made adjacent to existing buildings or structures or in paved streets or alleys, take particular care to sheet, shore, and brace the side of the excavation so as to prevent any undermining of or settlement beneath such structures or pavement. Underpin adjacent structures wherever necessary, but only with the approval of the Owner.

E. Do not leave sheeting, shoring, or bracing materials in place unless this is called for by the drawings, ordered by the Owner, or deemed necessary or advisable for the safety or protection of the new or existing work or features. Remove these materials in such a manner that the new structure or any existing structures or property, whether public or private, will not be endangered or damaged and that cave-ins and slides are avoided.

F. Fill and compact all holes and voids left in the work by removal of sheeting, shoring, or bracing as specified herein.

G. The Contractor may use a trench box, which is a prefabricated movable trench shield composed of steel plates welded to a heavy steel frame, however, the trench box shall be designed to provide protection equal to or greater than that of an appropriate shoring system.

Open Trench Limit:

The length of open trench shall be kept to a minimum. In normal cases, the open trench length shall not exceed 50-feet. **The Contractor shall be required to design and place steel plating over trenches or open excavations/pits at no additional cost to the Owner whenever the work site is shutdown or unattended.**

Trench Width:

Trench width shall be as shown or as required for bank stabilization and protection of workers.

- Trench widths shown are pay limits; no additional payment will be made for trench excavations greater than that shown.

Trench Grade:

The Contractor shall excavate the trench to the lines and grades shown or established by the drawings, with proper allowances for pipe thickness, pipe bedding, and foundation stabilization (if any). The foundation upon which the bedding is to be placed shall be firm, undisturbed, and true to grade. If the trench is excavated below indicated subgrade without authorization, the Contractor shall restore the subgrade with pipe bedding material at no additional expense to the Owner. The restoration material shall be placed over the full width of the trench, in compacted lifts to comply with City of West Linn compaction standard.

SURFACE REMOVAL AND REPLACEMENT:

Remove curbs, walks, and similar items by saw cutting at the nearest existing joint. Remove items as required to permit trenching, pipe laying, meter box or vault installation, and to permit replacement operations.

For topsoil, aggregate base, and similar material remove and stockpile for replacement or dispose and provide new material.

- Replace items immediately after backfilling and compacting. Refer to other sections of these specifications or to the standard specifications for material and workmanship requirements.

DISPOSAL OF EXCESS MATERIAL:

All excess excavated material shall be legally disposed at an approved off-site location.

TRENCH AND EXCAVATION PROTECTION:

Provide all materials, labor and equipment necessary to protect trenches at all times. The method of protection shall provide safe working conditions as well as protect the work, existing property, utilities, pavement, observers etc. **The method of protection shall be according to the Contractor's design.** The Contractor may elect to use a combination of shoring, over break, tunneling, boring, sliding trench shields, or other methods of accomplishing the work provided the method meets with the approval of all applicable local, state, and federal safety codes.

- Damages or injury resulting from improper shoring, improper removal of shoring or from failure to shore shall be the sole responsibility of the Contractor.

EXISTING ABANDONED FACILITIES:

When encountered during trench excavations the Contractor shall remove and dispose of existing abandoned pipe, structures, and other facilities (if any) necessary to construct the project. The cost of such removal will be considered incidental to the project.

- Cap or plug all abandoned lines in place with suitable fittings designed for the pipe encountered.

ROCK EXCAVATION:

Where ledge rock or boulders and large stones are encountered during trench excavation, the rock shall be removed to provide a minimum of 6-inches of clearance to each side of and below all pipe and appurtenances.

- The use of explosives will not be permitted on this project.

DEWATERING:

Promptly remove and dispose of all water entering the trench or bore pit during the time the trench or pit is being prepared for the casing or pipe installation, during the installation of the pipe and until the backfill at the pipe zone has been completed. The Contractor shall dispose of the water in a suitable manner without damage or pollution to adjacent property or waterways. In all cases, dewatering shall be performed in a manner that will not be injurious to personnel, equipment, or structures under construction on the site.

- Groundwater shall be controlled to prevent softening of the bottom of excavations or formation of "quick" conditions or "boils." Dewatering systems shall be designed and operated so as to prevent removal of the natural soils and so that the groundwater level outside the excavation is not reduced to the extent that would damage or endanger adjacent structures or property.

TRENCH STABILIZATION:

When, in the judgment of the Owner, the existing material at subgrade is unsuitable for supporting the pipe, the Contractor shall excavate below subgrade, as directed by the Owner. The excavated material shall be replaced with trench stabilization material.

- Unsuitable foundation material removed and replaced with trench stabilization material will be paid for as a negotiated, force account item.

PIPE BEDDING:

The Contractor shall spread bedding smoothly to proper grade so the pipe is uniformly supported along the barrel. Excavate bell holes at each joint to permit proper assembly and inspection of the joint. Bedding under the pipe shall provide a firm, unyielding support along the entire pipe length. The Contractor shall place subsequent lifts of not more than 6-inches in thickness up to the spring line of the pipe, bringing lifts up together on both sides of the pipe. The material under the pipe haunches shall be thoroughly compacted, to the satisfaction of the Owner, by use of "tee bars" or other approved hand tamping tools.

- Compaction: Pipe Bedding shall be compacted to City of West Linn compaction standard.

PIPE ZONE:

Pipe zone material shall be carefully placed around the pipe and thoroughly compacted in 6-inch layers (lifts) to provide complete support of the pipe and to prevent deflection or damage, 12" minimum above the pipe bell. The Contractor shall prevent pipe from movement either horizontally or vertically during placement and compaction of pipe zone material.

- Compaction: Pipe Bedding shall be compacted to City of West Linn compaction standard.

TRENCH BACKFILL AND COMPACTION:

Take reasonable precautions to prevent excavated Native Backfill material, where indicated, from exceeding the optimum moisture limits and replace any Native Backfill material exceeding its optimum moisture content with Granular Backfill material at no additional expense to the Owner.

- Backfill the trench above the pipe zone in successive lifts as required obtaining minimum compaction densities indicated below. Backfill shall not be allowed to free-fall into the trench until at least 1-foot of cover (pipe zone) material is provided over the top of the pipe.

- Compact each lift to the minimum density as dictated by the City of West Linn compaction standard:

The method of compaction shall be modified as necessary to protect the pipe. If the specified compaction is not obtained, use a modified compaction procedure and/or reduce the thickness of lifts. If approved materials meeting the specifications cannot be compacted to the required density regardless of the compaction effort or method, the Owner may reduce the required density or direct that alternate materials be used. Further excavation and pipe laying operations shall cease until backfill is compacted to the satisfaction of the Owner. When the backfill and compaction is complete, replace the surface area as indicated on the drawings.

SURFACE RESTORATION:

The upper area of the excavation pits and trenches above the pipe zones and all disturbed or excavated area outside the pumphouse boundaries shall be backfilled with granular material compacted to City of West Linn compaction standard.

PART 4 - MEASUREMENT AND PAYMENT

PIPE EXCAVATION:

Excavation (including disposal of excavated material) and backfill will be considered incidental to the project and included in the lump sum Schedule of Contract Prices.

END OF SECTION 02324

SECTION 02513
PIPE AND FITTINGS

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and the Contract, including City of West Linn Standard Terms and Conditions, apply to this section.

DESCRIPTION OF WORK:

The extent of piping and fittings is shown on the drawings. The Owner shall make allowances for the existing storage tank to be off-line and drained for up to one (1) full day to allow for the revision and switch-over of the valving configuration. The Contractor shall plan and make all appropriate preparations for this change-over in advance of the draining of the reservoir.

RELATED SECTIONS:

Refer to Section 15100 – Mechanical Equipment for booster pumps, flowmeter, and valves.

Refer to Section 02516 – Pump System Testing and Disinfecting for testing and disinfecting procedures required for water distribution pipe and fitting work.

SUBMITTALS:

Furnish product data for all products in accordance with Section 01300 - Submittals.

PART 2 - PRODUCTS:

GENERAL:

Pipe and fittings shall have a current "Certificate of Compliance" issued by Underwriters' Laboratories, Inc. and be NSF approved for potable water application.

DUCTILE-IRON PIPE:

Ductile-iron pipe shall be cement-mortar lined and seal-coated and conform to ASTM A536, AWWA C151 (Ductile-Iron Pipe, Centrifugal Cast for Water and Other Liquids), AWWA C104 (Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water), and AWWA C111 (Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings). Unless otherwise indicated, ductile-iron pipe shall be Class 52.

- All valves and fittings shall have Class 125 lb.flanged or restrained mechanical joints, as shown.

- Ductile iron pipe joints shall use "Field Loc" type gaskets or an approved alternate that provides total thrust restraint without the need for external thrust blocks or additional means

STEEL PIPE:

Steel pipe shall conform to ASTM A-53 A or B or A106, Schedule 40 with a minimum wall thickness of .375" (3/8") for nominal sizes of 5" IPS or larger and ASTM A-120 for nominal sizes of 4" IPS or smaller. Steel pipe, equal to or larger than 5" IPS nominal diameter, shall be connected to fittings or other pipe by using complete arc welded joints, using a minimum of a three (3) full and complete weld passes consisting of a single, fully penetrating root pass followed by no fewer than two (2) cover passes with each weld covering and overlapping at least 50% of the adjacent weld with the final combined weld thickness no less than the full thickness of the pipe wall. Each weld joint shall be initially prepared using a 45° beveled cut into each section and a 1/8" gap. The final assembly shall receive a fusion-bonded epoxy coating in compliance with ANSI/AWWA C116/A21.16 and NSF 61 approved for potable water usage. Where directed, steel pipe, equal or smaller in nominal sized to 4" IPS nominal diameter, shall be hot-dipped galvanized on the interior and exterior exposures and connected using standard national pipe thread (NPT) connections complying with ANSI/ASME B1.20.1

PVC PIPE:

Pipe—PVC pipe shall be as uniform as commercially practicable in color, opaqueness, density, and other specified physical properties. It shall be free from visible cracks, holes, foreign inclusions, excessive age, sunlight fading, or other defects. The dimensions of the pipe shall be measured as prescribed in ASTM D 2122.

Unless otherwise specified, the pipe shall conform to the requirements listed in this specification and the applicable reference specifications in Table 1 and the requirements shown on the drawings.

Fittings and Joints—Fittings and joints shall be of a schedule, SDR or DR, pressure class, external load carrying capacity, or rated pipe stiffness that equals or exceeds that of the plastic pipe attached thereto. The dimensions of fittings and joints shall be compatible with the pipe and measured in accordance with ASTM D 2122. Joint and fitting material shall be compatible with the pipe material. Fittings and joints shall conform to the requirements listed in this specification, the requirements of the applicable specification referenced in the applicable ASTM or AWWA specification for the pipe, the requirements specified in NSF Standard 61, and the requirements shown on the drawings.

Solvents—Solvents for solvent welded pipe joints shall be compatible with the plastic

pipe used and shall conform to the requirements of the applicable specification referenced in the NSF 60/61, ASTM or AWWA specification for the pipe, fitting, or joint.
Gaskets—Rubber gaskets for pipe joints shall conform to the requirements of ASTM F 477, Elastomeric Seals (Gaskets) for Jointing Plastic Pipe.

Table 1-----Pipe Specification
PolyVinyl Chloride (PVC) pipe

Plastic pipe -Schedules 40, 80, 120 (IPS)----------	ASTM D 1785 ASTM D 2466
Pressure rated pipe – SDR/DR Series ----------	AWWA C 900 ASTM D 2241
Plastic drain, waste, and vent pipe and fittings----------	ASTM D 2665
Joints for IPS PVC pipe using solvent weld cement----------	ASTM D 2672
Composite sewer pipe----------	ASTM D2680
Type PSM PVC sewer pipe and fittings----------	ASTM F 3034
Large-diameter gravity sewer pipe and fittings----------	ASTM F 679

Pipe shall be delivered to the job site and handled by means that provide adequate support to the pipe and do not subject it to undue stresses or damage. When handling and placing plastic pipe, care shall be taken to prevent impact blows, abrasion damage, and gouging or cutting (by metal edges and/or surface or rocks). The manufacturer's special handling requirements shall be strictly observed. Special care shall be taken to avoid impact when the pipe must be handled at a temperature of 40 degrees Fahrenheit or less.

Pipe shall be stored on a relatively flat surface so that the barrels are evenly supported. Unless the pipe is specifically manufactured to withstand exposure to ultraviolet radiation, it shall be covered with an opaque material when stored outdoors for 15 days or longer. Stored pipe ends shall be blocked off to prevent rodent or animal intrusion into the pipe until installation.

PART 3 – FITTINGS AND ACCESSORIES

FITTINGS-GENERAL:

Fittings shall be at least equal in class and pressure rating to the pipe on which they are used. Joint materials shall be compatible with the adjacent pipe. Cement lining shall conform to AWWA C104/A21.4. All ductile or cast-iron fittings shall comply with applicable ANSI/AWWA standards and have a minimum pressure rating of 180 psi. PVC fittings shall have a minimum pressure rating of 180 psi.

All valves and fittings shall have a minimum Class 125 lb. connection rating for cold water application, for flanged or restrained mechanical joints, as shown and as detailed on the drawings.

Direct Buried Fittings: Provide cement-lined, ductile iron fittings conforming to AWWA C153/A21.53 (Ductile-Iron Compact Fittings). Polyethylene encasement, where specified, shall comply with ASTM A674 and ASNI/AWWA C105/A21.5.

PIPE FITTINGS

A. Unless otherwise noted, fittings for interior piping shall be cast or ductile iron with flanged ends. Flanged fittings shall comply with the latest version of ANSI/AWWA Standard C110/A21.10-03, Class 125. Mechanical joints, when used, shall have joint restraint follower glands equal to EBAA Iron Sales, Inc. i.e. Megalug style ONLY. Set screws bearing directly on the pipe are not acceptable. Flanged ends shall be cast integrally and shall be Class 125 as indicated in accordance with ANSI B16.1. Fittings shall be manufactured by Griffin, Trinity Valley, Tyler, Union Foundry, U.S. Pipe, or approved equal.

B. Steel pipe fittings shall conform to AWWA C208. Steel pipe fittings equal to or larger than 5" IPS, nominal size, shall be Schedule 40 rated weld fittings, minimum of 0.375" wall thickness, and rated for 200 psi minimum operating pressure. Assembled fittings shall be equipped with an interior coating and lining to be fusion-bonded epoxy conforming to ANSI/AWWA C116/A21.16 and NSF approved.

C. Flanged Coupling adapters shall comply with AWWA C219 coupling specification. End ring and flanged body shall be cast from ductile iron, and shall meet or exceed ASTM A 536. The flange shall be compatible with ANSI Class 125 bolt circles for the size of connection. Gaskets shall be manufactured from virgin Styrene Butadiene Rubber (SBR) compounded for water and sewer service in accordance with ASTM D 2000 MBA 710. Flange gasket shall be an "O" ring style made of Nitrile Butadiene Rubber (NBR) in accordance with ASTM D 2000. Flanged coupling adapter shall be as manufactured by Romac Industries, Bothell, WA.

RETAINER GLANDS:

Retainer glands for restrained mechanical joint fittings and valves shall be Series 1100 (for AWWA C151 DI) retainer glands as manufactured by EBAA Iron Sales, Inc., "Mega-Lug." ONLY.

- Restrainer gaskets for restraint of pipe joints on each side of retainer glands shall be Field Loc™ Gaskets as manufactured by U.S. Pipe & Foundry Company or approved equal.
- Restrainer gaskets and joints shall be installed at all pipe joints regardless of location.

Seek direction from the Owner for unlisted or unusual conditions before implementing.

MECHANICAL COUPLINGS

The ends of pipe to be connected with mechanical couplings shall be machined to allow coupling the pipe sections without damaging or displacing the gaskets and to ensure uniform end separation of the pipes. Machined ends of the pipe that receive the coupling sleeves shall be free from dents, gouges, rust, or scale. The pipe and couplings shall be assembled with continuous rubber ring gaskets conforming to the dimensions and tolerances recommended by the pipe manufacturer. Coupling followers shall be drawn up evenly to ensure uniform pressure on the gaskets. Tie-roads, tie-backs, or secure brackets shall be installed across all mechanical couplings with a minimum capacity, adequate to handle all conceivable thrust and pressure, including surges from water hammer.

Grooved and shouldered joints shall be furnished and installed in accordance with AWWA Standard C606.

FLANGED JOINTS

All steel ring flanges shall be fabricated in accordance with AWWA Standard C207. Gaskets shall be either a neoprene cloth insert 1/16 or 1/8 inch thick or full-face style red rubber 1/16 inch thick minimum. All gaskets shall be full face where used between flat face flange surfaces. All flanged joints shall be made up tightly and shall not allowed any visible leakage.

FITTING AND COUPLING COATINGS:

Compression couplings, mechanical couplings, and flanged fittings shall be shop coated with the AWWA Standard C203 coal tar enamel coating, as recommended by the coating manufacturer, or a factory-applied vinyl coating at least 12 mils in thickness and as specified in other parts of this specification. All bolts furnished for flanges, couplings, and other types of bolted connections shall be stainless steel or low alloy steel (Grade 2, minimum) and shall be field coated with a coal tar enamel or vinyl coating after installation.

ADAPTERS:

Adapters for direct restrained connection of mechanical joint valves and fittings shall be Foster Adapters as manufactured by Infact Corporation or approved equal.

TRANSITION COUPLINGS:

Transition couplings for connection to existing work shall be:

Style FC2A as manufactured by the Ford Meter Box Company, Inc., or Style "501"

as manufactured by Romac Industries, Inc. or approved equal.

- Provide correct gasket for type and size of pipe encountered.

JOINT LUBRICANT:

Joint lubricant for assistance with assembly of gasketed pipe joints shall be in accordance with the pipe or joint manufacturer's recommendations and shall be NSF approved, water soluble and non-toxic.

GASKETS, NUTS, BOLTS AND WASHERS:

Unless otherwise noted all nuts, bolts and washers shall be ductile iron or zinc coated steel. Zinc coating shall be by the hot-dip process and shall conform to ASTM B6. Gaskets shall be rubber or reinforced fiber, full face, with a minimum thickness of 0.125 (1/8") inch.

THRUST RESTRAINT:

Thrust blocks shall be used on all fittings under the floor slab and underground, along with retainer glands, unless directed by the Owner or otherwise shown (see Retainer Glands and Adapters above). All thrust loads incurred at all fittings shall be resisted and restrained by a combination of the retainer glands, specified above, and concrete thrust blocks. At a minimum, the assembled fittings and adjacent piping shall be capable of fully restraining the working pressure of the pipe and/or fittings (minimum of 350 psi).

PART 4 - EXECUTION

GENERAL:

The minimum horizontal separation between a water line paralleling a sewer line shall be 10 feet and the water line shall be installed above the crown elevation of the sewer. When water and sewer lines cross, the water line shall be higher than the sewer line and the vertical clearance separation shall not be less than 18 inches. In addition, a full length of continuous water pipe shall be centered over the sewer crossing to assure water line joints are as far as possible from the sewer line. Where there is less than 18 inches of vertical clearance above the sewer, the sewer line shall be replaced with a full length of ductile iron pipe centered below the crossing. Horizontal separation of 3 feet with all other utilities is required. Verification via pothole in advance of excavation to maintain these clearances is recommended.

HANDLING AND STORAGE:

All material shall be handled with care to avoid damage. Material shall not be dropped, bumped, or allowed to impact on itself or supporting platform. The Contractor shall provide safe storage for material until it has been incorporated into the work. During storage, pipe ends shall be blocked off to prevent rodent or animal intrusion into the pipe.

The interior of all pipe, couplings, rings, fittings, and other accessories shall be kept free from dirt and other foreign matter at all times. Valves shall be drained and stored in a manner that will protect them from damage due to freezing. Damaged materials shall be replaced by the Contractor at no additional expense to the Owner.

ALIGNMENT AND GRADE:

All pipe shall be laid to and maintained at the lines and grades required by the Engineer. No additional ells or bends beyond those shown on the plans shall be permitted without the expressed approval of the Owner. Fittings, valves, and air valves shall be installed at the required locations with joints centered, spigots fully engaged, and valve stems plumb.

DUCTILE IRON PIPE:

Installation of ductile iron pipe shall conform to AWWA C600 and these specifications.

VALVES, FITTINGS, PLUGS AND CAPS:

Valves, fittings, plugs, and caps shall be set and joined to the pipe in the manner shown. Valves shall be installed in conformance with manufacturer's instructions. Valves shall not be used to bring misaligned pipe into alignment during installation.

THRUST BLOCKS:

Thrust blocks of adequate bearing area and strength shall be used on all fittings under the floor slab and underground in conjunction with retainer glands, unless directed by the Owner or shown (Retainer Glands and Adapters above).

VALVE BOXES:

Valve boxes shall be the cast iron "Vancouver" pattern (18 in. tall casting only). Valve riser pipe from the valve to the cast iron top shall be 6 in. PVC sewer pipe ASTM D 3034, SDR-35, or equal for the Vancouver box and as detailed in the design drawings.

Valve box castings shall be smooth and uniform. Box lid shall not protrude above the rim and lids shall seat flat without rocking. Boxes of uneven thickness, pitted, or otherwise flawed in the casting will be rejected. PVC sewer pipe shall be cut off smooth with no sharp edges.

Valve boxes shall be installed so as not to transmit shock or stress to the valve. The box cover shall be flush with the surface of the area in which installed. The valve-operating nut shall be readily accessible for operation through the opening in the box or vault.

Valve boxes shall be centered on the valve shaft.

PART 5 - MEASUREMENT AND PAYMENT

INCIDENTAL WORK:
Pipe, fittings, excavation and backfill, including setting bed and pipe zone material shall be considered incidental to the project and included in the lump sum price for the pump station.

Thrust retainer glands, restrainer gaskets, adapters, and other fitting-related hardware such as, gaskets, joint lubricants, nuts, bolts, and washers needed to complete the installation and connection to each end of the existing sewer and waterline will be considered incidental to fittings or, if shown in a detail, shall be included in the lump sum stated in the proposal.

END OF SECTION 02513

SECTION 02516
PUMP STATION PRESSURE TESTING AND DISINFECTING

1. General

   A. Related Documents

      1. Drawings and the Contract, including City of West Linn Standard Terms and Conditions, and other Technical Specification Sections, apply to work in this section.

   B. Referenced Standards

      1. Certain City of West Linn Standard Construction Specifications and AWWA Standards are referenced herein. The Contractor shall obtain and maintain a set of the City of West Linn Standard Construction Specifications for use and reference during the project.

   C. Description of Work

      1. This section covers the field-testing of potable water pressure piping including all interior and exterior piping and fittings.

      2. Defective items revealed by the testing procedures shall be removed and replaced or otherwise corrected as directed by the Owner.

      3. All costs for labor and materials necessary to conduct the testing and disinfecting procedures specified, and all costs of labor and materials required to remedy defective items shall be borne by the Contractor.

      4. The Contractor shall perform pressure tests for pressure piping per the City of West Linn Standard Construction Specification: 403.14 Testing and Chlorination. The Owner shall witness all testing procedures.

      5. The Contractor shall perform disinfecting per City of West Linn West Linn Standard Construction Specification: 403.14 Testing and Chlorination.

2. Products

   A. Temporary appurtenances, chemicals (chlorine and dechlorinating), and equipment required for testing and disinfecting shall be provided by the Contractor.

3. Execution

   A. Pressure Piping

      1. Follow City of West Linn Standard Construction Specification: 403.14 Testing and Chlorination and the following:

         a. All pressure piping shall be tested under a minimum of 180 psi hydrostatic pressure. Test shall be made after the pipe and fittings have been installed and the test pressure shall be maintained for a minimum of one hour or as

required to permit a complete inspection of the system. During the test, all pipe, fittings, and valves with welded and/or flanged joints shall be completely tight. All ductile and cast iron and steel pipe, fittings, and valves shall have no measurable or visible loss of water or pressure during the test.

B. Non-Pressure Piping

Follow the City of West Linn Standard Construction Specifications for testing of all sanitary and storm sewer pipelines.

C. Disinfecting

1. After testing and repair, where necessary, all potable water piping shall be thoroughly flushed, cleaned, and disinfected in accordance with the following:

   b. Oregon State Health Department - Drinking Water Section Regulations.

   c. AWWA C651

   d. City of West Linn Construction Specification 403.14 Testing and Chlorination

2. Two negative coliform bacteria samples shall be obtained before the Contractor shall be permitted to place the pump station on-line.

3. Water with excessive levels of free chlorine ($\geq$ 1 mg/l) shall be dechlorinated using an approved product (Vitachlor or equal) before discharging into a waterway or storm sewer or onto the ground. Water with higher levels of chlorine shall be discharged into the sanitary sewer, if necessary. All discharge of wastewater shall comply with DEQ and City of West Linn standards and codes.

4. Measurement and Payment

A. Payment for water system testing and disinfecting of pressure pipe will be considered incidental to the project and included in the total project lump sum.

END OF SECTION 02516

SECTION 02520
WELL ABANDONMENT

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and the Contract, City of West Linn Standard Terms and Conditions, apply to work within this section. The well log for the existing well is attached to this specification as Exhibit A.

PART 2 – BACKGROUND

The well is located in the southeastern corner of the project site and was originally drilled in 2004 as a domestic well. It has been unused since being drilled. The well log is attached as an exhibit to this specification.

PART 3 - EXECUTION

A. All well abandonment procedures shall comply with applicable rules and standards of the Oregon Water Resources Department Rules:
   1. Chapter 690: Well Construction Standards-Abandonment of Water Supply Wells, Division 220, OAR 690-220-0005 through OAR 690-220-0140 (current edition)
   2. Grouting shall comply with OAR 690-210-0310 and shall consist of a uniform mixture consisting of Type I Portland Cement and potable water in a proportion not to exceed 4.5-6 gallons of water per sack of cement.
   3. Any requirement for a special standard must be obtained from the Water Resources Department per OAR 690-220-0090 and approved by the Owner before proceeding.

B. The 4 ½" plastic lining shall be removed or drilled out.

C. The 6" well casing shall be fully perforated in place with no less than six (6) fully penetrating perforations per lineal foot of well casing. Each row of perforations shall be staggered at least 45 degrees (2.25 circumferential inches) from the rows immediately above and below.

D. In order to facilitate the movement of grout to the exterior side of the well casing, each perforation shall be no less than 0.375" (3/8") in width x two inches (2") in length.

E. Perforations shall be placed in the casing from zero to thirty-nine feet (0'-39') below ground surface.

F. Introduction of grout into the well shall be performed using a positive displacement pump, designed for the transfer of a cement grout mixture, along with the tremie pipe method with the cement grout pumped into the well from the lowest borehole elevation.

G. Grouting shall be witnessed by the Owner and schedule and conducted in a continuous manner, with no interruption of the grouting process permitted.

H. The proposed perforating method, type, procedure and size/quantities, and the grout mixture and pumping procedure shall be submitted to the Engineer for review and

approval before proceeding. Upon completion of the sealing procedure and verification of a fully grouted borehole, the well casing shall be terminated no less than 24" below surrounding grade with a ¼" thick steel plate fully welded to the upper 6" well casing surface.

I. After completion of the well abandonment, the Contractor shall remove all cement sacks, spoils, bailed material from the well, and other debris from the site, as well as clean all cement splatter. Any damage caused by the activities of the Contractor to the site or access road shall be corrected at the Contractor's expense. Additionally, the Contractor shall submit to the Engineer two (2) copies of the abandonment well log.

PART 4 - MEASUREMENT AND PAYMENT

Abandonment of the well will be considered incidental to the project and included in the lump sum Schedule of Contract Prices.

END OF SECTION 02520

SECTION 02520 CLAC 59826 EXHIBIT A

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765)
Instructions for completing this report are on the last page of this form.

(WELL I.D.)# L 88144
(START CARD) # 161869

(1) OWNER: Well Number
Name ELITE CONSTRUCTION
Address 10696 SE 145TH AVENUE
City PORTLAND State OR Zip 97236

(2) TYPE OF WORK
☑ New Well ☐ Deepening ☐ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD:
☑ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger
Other

(4) PROPOSED USE:
☑ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Livestock ☐ Other

(5) BORE HOLE CONSTRUCTION:
Special Construction approval ☐ Yes ☑ No Depth of Completed Well 523 ft.
Explosives used ☐ Yes ☑ No Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Sacks or pounds
10"	0	38	BENTONITE	0	38	22 SACKS
6"	38	523				

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E
☑ Other POURED AND TAMPED
Backfill placed from ft. to ft. Material
Gravel placed from ft. to ft. Size of gravel

(6) CASING/LINER:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:	6"	+1	39	.250	☑	☐	☑	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:	4 1/2"	0	523		☐	☑	☐	☐
					☐	☐	☐	☐

Final location of shoe(s) 39 OUTSIDE

(7) PERFORATIONS/SCREENS:
☑ Perforations Method SAW
☐ Screens Type LINER Material PLASTIC

From	To	Slot size	Number	Diameter	Telescope/pipe size	Casing	Liner
463	523	1"	600	1/8		☐	☑
						☐	☐
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour

☐ Pump ☐ Bailer ☑ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
30	123	523	1 hr.

Temperature of water 57 Depth Artesian Flow Found
Was a water analysis done? ☐ Yes By whom
Did any strata contain water not suitable for intended use? ☐ Too little
☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other
Depth of strata:

(9) LOCATION OF WELL by legal description:
County CLACKAMAS Latitude Longitude
Township 2 S Range 1 E WM.
Section 35B NE 1/4 NW 1/4
Tax Lot 500 Lot Block Subdivision
Street Address of Well (or nearest address) 23128 BLAND CIR WEST LINN

(10) STATIC WATER LEVEL:
400 ft. below land surface. Date 2/13/2004
Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES:
Depth at which water was first found 480

From	To	Estimated Flow Rate	SWL
480	490	4.5	400
515	517	25.5	400

(12) WELL LOG:
Ground Elevation

Material	From	To	SWL
BROWN CLAY	0	10	
BLUE & BROWN SANDSTONE BROKEN	10	25	
BASALT	25	80	
WEATHERED ROCK	80	105	
BASALT BROKEN	105	160	
BASALT	160	410	
MULTI COLORED BASALT	410	523	400

RECEIVED
FEB 20 2004
WATER RESOURCES DEPT
SALEM, OREGON

Date started 2/11/2004 Completed 2/13/2004

(unbonded) Water Well Constructor Certification:
I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
WWC Number 1778
Signed Date 2/18/2004

(bonded) Water Well Constructor Certification:
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.
WWC Number 1541
Signed Date 2/18/2004

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT SECOND COPY-CONTRACTOR THIRD COPY-CUSTOMER

SECTION 02820
CHAIN LINK FENCES AND GATES

PART 1 GENERAL

1.1 DESCRIPTION

A. The work to be completed under this Section consists of the furnishing and installation of a chain link fence and gate, including fittings and appurtenances, all as indicated on the Drawings and as specified herein.

B. The total anticipated length of fencing for this project shall be 835 linear feet, not including the single 15' gate (total length of fencing and gate estimated to be 850'). This value shall be used for bidding purposes.

1.2 SUBMITTALS

A. General: Submittals shall be according to Section 01300 – Submittals

1.3 ASSEMBLY AND INSTALLATION

A. Contractor shall provide manufacturer's instructions that detail proper assembly and materials in the design for fence, gate, hardware and accessories.

B. Erection/Installation drawings shall be submitted along with manufacturer's catalog data for complete fence assembly, gate assembly, hardware assembly and accessories.

C. Fence height shall be six (6) feet above grade.

D. All hardware and accessories of fencing shall be coated with 3 mils of black powder coating.

PART 2 PRODUCTS

2.1 GENERAL

A. Fencing materials shall conform to the requirements of ASTM A 116, ASTM A 121, ASTM A 390, ASTM A 584, ASTM A 702, ASTM F 1043, and as specified.

2.2 COATING

A. Ferrous-metal components and accessories, except as otherwise specified, shall be hot-dip galvanized after fabrication.

B. Weight of zinc coating shall not be less than 1.8 ounces per square foot, as determined from the average result of two specimens, when tested in accordance with ASTM A 90/A 90M.

C. Zinc coating shall conform to the requirements of the following:

1. Pipe: FS RR-F-191/3D Class 1 Grade A in accordance with ASTM F 1083 and ASTM F 1043.

2. Hardware and accessories: ASTM A 153/A 153M, Table 1

3. Surface (ASTM F 1043):

a. External: Type B-B surface zinc with organic coating, 0.9 ounce per square foot, minimum thickness of acrylated polymer, then covered with 3 mil minimum epoxy powder coating. Color: black.

b. Internal: Surface zinc coating of 0.9 ounce per square foot, minimum.

D. Galvanizing repair material shall be a cold-applied zinc-rich coating conforming to ASTM A 780.

E. After applying the hot dipped galvanized undercoat, all fencing hardware and accessories shall have an epoxy powder coating applied. Color: black.

F. The powder material shall be a finely ground free flowing powder of a one-component material consisting of a resin and curing agent system, catalysts, fillers, colorants, and flow control agents in order to form a powder formulation capable of being electrostatically applied. The powder shall be uniform, free from grit, and free of solvent, abrasives, water, chlorides, or other impurities. When applied to a substrate and subjected to a heating cycle, the material shall melt, fuse, and subsequently cure to form a coating. The powder coating shall be applied by established commercial powder coating methods. Coatings shall have a total dry film thickness of 3 mils minimum. The cured coating shall be uniform, smooth, even, and free of runs, sags, and streaks. The powder shall have a cure cycle (time and temperature) of less than 30 minutes at a temperature of less than 400 ± 10 degrees Fahrenheit. The temperature and time duration of the powder coating cure cycle shall not affect the material properties of the coated substrate.

2.3 FABRIC

A. Fabric shall consist of No. 8-gauge, wires woven into a 2" mesh, with dimensions of fabric and wire conforming to ASTM A 116, ASTM A 121, ASTM A 390, ASTM A 584, ASTM A 702 and ASTM F 1043, with 3 mils thickness black powder coating.

B. Fence shall have one-piece fabric widths.

2.4 TOP AND BOTTOM SELVAGES

A. Top and bottom selvages shall be knuckled for 5 inch wide mesh fabric.

2.5 LINE POSTS

A. Minimum acceptable line posts shall be as follows:

Grade A: 1.900 inches O.D. pipe weighing 2.72 pounds per linear foot.

2.6 END, CORNER, AND PULL POSTS

A. Minimum acceptable end, corner, and pull posts shall be as follows:

Grade A: 2.375 inch O.D. pipe weighing 3.65 pounds per linear foot.

2.7 SLEEVES

A. Sleeves for setting into concrete construction shall be of the same material as post sections. Size shall be 1-inch greater than the diameter or dimension of the post. Flat plates shall be welded to each sleeve base to provide anchorage and prevent intrusion of concrete.

2.8 TOP RAIL

A. Rails shall be a minimum of 1.660 inches O.D. pipe Grade A weighing 2.27 pounds per linear foot. Expansion couplings 6-inches long shall be provided at each joint in top rails.

2.9 CENTER RAILS BETWEEN LINE POSTS

A. Center rails shall be 1.660 inches O.D. pipe, Grade A weighing 2.27 pounds per linear foot.

2.10 POST-BRACE ASSEMBLY

A. Bracing shall consist of 1.660 inches O.D. pipe; Grade A weighing 2.27 pounds per linear foot, and 3/8 inch, adjustable truss rods and turnbuckles.

2.11 TENSION WIRE

A. Wire shall be galvanized, No. 7-gauge, coiled spring wire, provided at the bottom of the fabric only.

2.12 STRETCHER BARS

A. Bars shall be one-piece lengths equal to the full height of the fabric with a minimum cross section of 3/16 by 3/4 inch in accordance with ASTM A 116, ASTM A 121, ASTM A 390, ASTM A 584, ASTM A 702 and ASTM F 626.

2.13 POST TOPS

A. Tops shall be steel, wrought iron, or malleable iron designed as a weather tight closure cap. One cap shall be provided for each post, unless equal protection is provided by a combination post-cap and barbed-wire supporting arm. Caps shall have an opening to permit through passage of the top rail.

2.14 STRETCHER BAR BANDS

A. Bar bands for securing stretcher bars to posts shall be steel, wrought iron, or malleable iron spaced not over 15 inches, on center. Bands may also be used in conjunction with special fittings for securing rails to posts. Bands shall have projecting edges chamfered or eased.

2.15 GATE POSTS

A. Contractor shall provide a gatepost for supporting each gate leaf as follows: 2.5 inch nominal pipe.

2.16 GATES

A. Perimeter gate frames shall be 1.5 inch nominal pipe.

B. Gate frame assembly shall be welded or assembled with special malleable or pressed-steel fittings and rivets to provide rigid connections. Fabric shall be installed with stretcher bars at vertical edges; stretcher bars may also be used at top and bottom edges. Stretcher bars and fabric shall be attached to gate frames on all sides at intervals not exceeding 15 inches. Hardware shall be attached with rivets or by other means that will provide equal security against breakage or removal. Gates shall be supported and installed in a manner to prevent scraping of any part of the gate during either opening or closing operations.

C. Diagonal cross bracing, consisting of 3/8-inch diameter adjustable-length truss rods on welded gate frames, shall be provided where necessary to obtain frame rigidity without sag or twist. Non-welded gate frames shall have diagonal bracing.

D. One gate shall be provided for this project: The vehicle gate shall be 15' in width.

2.17 GATE HARDWARE AND ACCESSORIES

A. Gate hardware and accessories shall conform to ASTM A 116, ASTM A 121, ASTM A 390, ASTM A 584, ASTM A 702, ASTM F 626, and be as specified:

1. Hinges shall be malleable iron, forged steel, or pressed steel to suit gate size, non-lift-off type, offset to permit 180-degree opening.

2. Latches shall permit operation from either side of the gate, with a padlock eye provided as an integral part of the latch.

3. Stops and holders of malleable iron shall be provided for vehicular gates. Stops shall automatically engage the gate and hold it in the open position until manually released.

B. Gates shall be provided with a cane bolt and ground-set keeper, with latch or locking device and padlock eye designed as an integral part.

2.18 MISCELLANEOUS HARDWARE

A. Miscellaneous hardware shall be provided as required and shall be hot-dip galvanized.

2.19 WIRE TIES

A. Wires for tying fabric to line posts shall be 16-gauge 1.6-millimeter galvanized steel wire spaced 12 inches on center. For tying fabric to rails and braces, wire ties shall be spaced 24 inches on center. For tying fabric to tension wire, 0.105-inch hog rings shall be spaced 24 inches on center. Manufacturer's standard procedure will be accepted if of equal strength and durability.

2.20 CONCRETE

A. Concrete shall conform to ASTM C 94/C 94M. Mix shall be designed to obtain concrete with a minimum 28-day compressive strength of 2,500 psi.

PART 3 EXECUTION

3.1 GENERAL

A. Fencing installation shall not begin before the final grading has been completed and finish elevations have been established, unless otherwise approved.

3.2 EXCAVATION

A. Excavations for post footings shall be in virgin or compacted soil, of minimum sizes as indicated.

B. Footings shall be spaced for line posts at 12 feet, on center maximum, and at closer intervals when indicated. Footings shall be 12" in diameter for gate, end, corner, or intermediate posts, and 9" in diameter for line posts.

C. Post depths

1. The bottom of each post end or corner post shall be set not less than 30-inches below finished grade when in firm, undisturbed soil. The bottoms of the holes for each post end or corner post shall be 34" inches below finished grade, 4" below the bottoms of the posts.

2. The bottom of a line post shall be set not less than 22-inches below finished grade when in firm, undisturbed soil. The bottoms of the holes for each brace post shall be 24" inches below finished grade, 4" below the bottoms of the posts.
3. Posts shall be set deeper, as required, in soft and problem soils and for heavy, lateral loads.

D. Soil from excavations shall be spread uniformly adjacent to the fence line or on areas of property, as directed.

E. When solid rock is encountered near the surface, the Contractor shall drill into the rock at least 12 inches, for line posts and at least 18 inches for end, pull, corner, and gateposts. Holes shall be drilled at least 1 inch greater in diameter than the largest dimension of the placed post.

F. If solid rock is below the soil overburden, Contractor shall drill to the full depth required except that penetration into rock need not exceed the minimum depths specified above.

3.3 SETTING POSTS

A. Loose and foreign materials shall be removed from holes and the soil moistened prior to placing concrete.

B. Tops of footings shall be trowel finished and sloped or domed to shed water away from posts. Hold-open devices, sleeves, and other accessories shall be set in concrete.

C. Exposed concrete shall be kept moist for at least 7 calendar days after placement or cured with a membrane curing material, as approved.

D. Posts set into sleeved holes in concrete shall be grouted in with an approved grouting material.

E. Posts set in concrete construction shall be set vertically, with tops aligned and held in position until concrete has set.

3.4 CONCRETE STRENGTH

A. Concrete shall have attained at least 75 percent of its minimum 28-day compressive strength, but in no case sooner than 7 calendar days after placement, before rails, tension wires, barbed wire, or fabric are installed. Fabric and wires shall not be stretched or gates hung until the concrete has attained its full design strength.

3.5 TOP RAILS

A. Top rails shall run continuously through post caps or extension arms, bending to radius for curved runs. Expansion couplings shall be provided as recommended by the fencing manufacturer.

3.6 CENTER RAILS

A. Center rails shall be one piece between posts set flush with posts on the fabric side, using special offset fittings where necessary.

3.7 BRACE ASSEMBLY

A. Contractor shall provide bracing assemblies at end and gateposts and at both sides of corner and pull posts, with the horizontal brace located at mid-height of the fabric.

B. Brace assemblies shall be installed so posts are plumb when the diagonal rod is under proper tension.

C. Two complete brace assemblies shall be provided at corner and pull posts where required for stiffness and as indicated.

3.8 TENSION WIRE INSTALLATION

A. Tension wires shall be installed by weaving them through the fabric and tying them to each post with not less than 7-gauge, galvanized wire or by securing the wire to the fabric with 10-gauge, ties or clips spaced 24 inches, on center.

3.9 FABRIC INSTALLATION

A. Fabric shall be provided in single lengths between stretch bars with bottom barbs placed approximately 1-1/2-inches above the ground line. Fabric shall be pulled taut and tied to posts, rails, and tension wires with wire ties and bands.

B. Fabric shall be installed on the security side of fence, unless otherwise directed.

C. Fabric shall remain under tension after the pulling force is released.

3.10 STRETCHER BAR INSTALLATION

A. Stretcher bars shall be threaded through or clamped to fabric 4 inches, on center and secured to posts with metal bands spaced 15 inches on center.

3.11 GATE INSTALLATION

A. Gates shall be installed plumb, level, and secure, with full opening without interference. Ground-set items shall be installed in concrete for anchorage as

recommended by the fence manufacturer. Hardware shall be adjusted for smooth operation and lubricated where necessary.

3.12 TIE WIRES

A. Tie wires shall be U-shaped to the pipe diameters to which attached. Ends of tie wires shall be twisted not less than two full turns and bent so as not to present a hazard.

3.13 FASTENERS

A. Nuts for tension bands and hardware shall be installed on the side of the fence opposite the fabric side.

3.14 COATING REPAIR

A. Surfaces damaged by welding or abrasions, and cut ends of fabric, barbed wire, or other cut sections shall be cleaned and repaired with specified repair material applied in strict conformance with the manufacturer's printed instructions.

3.15 TOLERANCES

A. Posts shall be straight and plumb within a vertical tolerance of 1/4 inch, after the fabric has been stretched. Fencing and gates shall be true to line with no more than 1/2-inch, deviation from the established centerline between line posts. Defects shall be repaired as directed.

PART 4: PAYMENT

A. Payment shall be considered incidental to the project and included in the lump sum price for the pump station.

END OF SECTION 02820

SECTION 02930
PLANTING OF TREES

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and the Contract, City of West Linn Tree Technical Manual, and City of West Linn Standard Terms and Conditions, apply to work within this section.

DEFINITIONS:

Diameter at breast height (DBH) is defined as a tree's diameter at 4-1/2 feet or 54 inches above the highest natural ground level. DBH measured in this fashion is considered the accepted method for measuring the size of a tree, by both industry and scientific standards.

PART 2 - PRODUCTS

GENERAL:

Screening of the pump station site as detailed on the drawings shall be evergreen trees, such as Leyland cypress, interspersed with native shrubs. The Contractor shall provide a list of proposed vegetation for approval by the City Arborist.

A minimum of one (1) shade tree shall be planted near the parking area, and shall be a minimum of 2 inches in diameter at breast height. The species and exact location of the tree(s) shall be submitted by the Contractor and approved by the City Arborist.

PART 3 – EXECUTION

PLANTING STOCK

It is the contractor's responsibility to supply stock that meets ANSI 760.1-1996 and City of West Linn Tree Technical Manual Standards. All plants and trees installed within the City of West Linn shall conform with American Association of Standards, ANSI Z60.1, Specifications for Acceptance of Nursery Trees at the Time of Delivery, in all ways.

- Plants shall be sound, healthy, vigorous, and free of plant disease and insect pests and their eggs.
- Container stock shall be grown for at least 8 months in containers in which delivered and shall not be root bound or have girdling roots.
- Trees shall not have been topped or headed.
- Plants and trees with broken tops, branches or injured trunks shall be rejected.

MISCELANEOUS MATERIALS

The following materials shall be used unless otherwise specified:

- **Tree stakes**: Support stakes shall be treated 2-inch diameter pine or equal, two stakes per tree. No cross brace shall be used. After installation, stakes shall be trimmed so that the branches clear the top of the stake.
- **Tree Ties**: Twist brace, fabric-reinforced rubber (3/8-inch minimum), or equivalent approved by the City of West Linn shall be used and installed in a figure eight fashion to support the tree to the stakes.
- **Mulch**: Screened untreated wood chips, bark dust or approved equal, spread to a 2-inch depth out to the edge of the root ball. The mulch should be kept at least two inches away from the trunk and shall be applied to each tree.
- **Mower guards**: For trees in turf areas requiring regular mowing, the tree stem shall be protected with TreeGuard or equivalent.
- **Tree Grates**: Where sidewalk width is less than 8-feet and new trees will be installed in a tree well, metal tree grates shall be used and approved by Public Works. Minimum size grates shall be 4' x 4' unless specified otherwise. All tree grates shall be mounted in frames inset into a concrete foundation within the sidewalk or surface material and shall be flush with the surrounding surface.

SOIL PREPARATION AND CONDITIONING

- All debris, wood chips, pavement, concrete and rocks over 2-inches in diameter shall be removed from the planting pit to a minimum of 24-inch depth, unless specified.
- Trees in a confined planter pit or sidewalk area: The planting hole shall be excavated to a minimum of 30-inches deep x the width of the exposed area. Scarify the sides of the pit. Soil beneath the rootball shall be compacted to prevent settling.
- Trees in all other areas: Excavate the hole's width a minimum of three times the diameter of the container, and deep enough to allow the root ball of the container to rest on firm soil. Scarify the sides and the bottom of the pit.
- The height of the container root ball should be 1-2-inches higher than grade level, except when structural urban tree soil mix is used, in which case the tree may be planted at level grade.
- If the soil is dry, add a few inches of water in the hole. Let it drain before planting the tree.

PLACING THE TREE

- **Roots:** Remove tree from the container and trim the root ball in the following way: Straighten and/or cut cleanly any thick circling roots. For thin roots make three to four vertical cuts 1/2-inch deep around root ball and spread the bottom out if necessary
- **Orientation:** Locate the tree in the hole, and rotate the tree to direct the main branches away from the street side, if possible.
- **Filling the Hole:** Place the aeration tubes, fill the hole halfway up with original soil (amended soil only when approved), and gently tamp out air pockets with a pole or shovel handle. Add about 1-inch of water, and let drain. Fill the rest of the hole to grade, water the fill soil, and let drain.

- **Staking:** Place the stakes at the edge of the root ball (drive them 2-feet into undisturbed ground), and avoid contact with the branches. If in a windy area, set the stakes in a plane at right angles to the wind. Remove the nursery stake. Loosely place two ties in a figure eight around the trunk, as low as needed to hold the tree upright and nail to the stake. Stakes shall be trimmed so that the branches clear the top of the stake. Do not install a cross-brace.
- **Berm, Mulch and Water:** In non-turf areas, form a soil berm 3 to 4-inches high at the outermost edge of the root ball. Place 1 to 2-inches of mulch or bark over root ball and berm, keeping the mulch away from the trunk a minimum of 2-inches. Fill the berm with water to capacity.
- **Turf Areas:** In turf areas that receive regular watering, the watering berm may be eliminated. The turf shall be maintained a minimum of one foot from the new tree stem, and mulch placed on top of the root ball. The mulch shall not be touching the tree stem.
- **Aeration Tubes for Trees:** If required, 4-inch diameter perforated aeration tubes with grated plastic caps placed at the edge of the root ball to the bottom of the pit. Irrigation heads shall not be installed inside the aeration pipes. Any of the above holes, pipes, grates or fixtures shall include the installation of Filter Fabric wrap over the side openings and secured as recommended by manufacturer when connected to an approved aeration system.

PART 4 - MEASUREMENT AND PAYMENT

Planting of trees will be considered incidental to the project and included in the lump sum Schedule of Contract Prices. To form estimates for the cost of planting trees, a minimum of a combination of twenty (20) Leyland Cypress, ten (10) native shrubs with a maximum height of 10', and one (1) shade tree shall be anticipated.

END OF SECTION 02930

SECTION 03480
PRECAST VAULT SYSTEM

PART 1: GENERAL

1.1 SCOPE

A. This section includes furnishing and installing one (1) pre-cast concrete flowmeter vault, including all piping, valves, and appurtenances as shown on the drawings, as specified herein or as required for a complete installation and for satisfactory operation.

PART 2: PRODUCTS

2.1 GENERAL

A. The vault structure shall be a pre-cast structure, poured from concrete and reinforced with steel reinforcement bar. It shall be the product of a company regularly engaged in the design and construction of pre-cast concrete vaults.

2.2 VAULT STRUCTURE

A. The vault structure shall be designed and built to resist all soil and hydraulic pressures, including lateral, surcharge, and hydraulic uplift pressures.

B. Pre-cast vault base slab, top slabs, and riser section rings, if used, shall confirm to the requirements of ASTM C857 and ACI-318 except as modified herein.

C. All pre-cast concrete shall develop a minimum compressive strength of 4500 psi at 28 days. All bar reinforcing shall be grade 60 deformed bars conforming to ASTM A-615 or ASTM 616.

D. The base of the vault shall be a minimum of 4" thick, while the walls shall have a minimum thickness of 3-inches. An integral sump shall be cast in the base of the vault, near the wall, such that the sump is not located under the flowmeter, to allow for proper draining of accumulated water to the stormwater system. The base of the vault shall be sloped toward the sump. The 2" cleanout for the vault sump shall comply with City of West Linn Standard Construction detail WL-206.

E. Breakable knockouts shall be provided to accommodate the entrance and exit of the pipes in the locations shown on the plans. All unused openings shall be effectively sealed after installation. The annulus space between the open knockouts and the installed pipes shall be fully sealed using "Link-Seals" or an approved grout.

F. The top of the vault shall be equipped with an adjustable section to allow adjustment of the final grade.

G. The vault shall be supplied with galvanized, lockable diamond deck steel hatches. All hatches shall be capable of 180 degree opening and have recessed opening handles. The vault shall include two (2) hatches.

H. The top slab of each vault shall be designed to safely handle a non-traffic load of 300 PSF.

I. The flowmeter vault shall be a Utility Vault model 506-LA or approved equal. (I.D. = 4'2" x 4'2" x 5'2")". RE: Plans – Sheet M-2 – Vault Detail: Amend sump drain rim elevation to read: "527.00±" and I.E. to read: "526.00±". Adjust 2" drainpipe slope and connection to maintain specified fall to 8" pipe. The hatch for the flowmeter vault as detailed in Section 03480, Part 2.2(G) shall be amended to read, "The vault shall be supplied with a single galvanized, lockable deck steel hatch. The hatch shall be capable of a full 180 degree opening and have a recessed opening handle. The vault shall include one (1) hatch".

PART 3: PAYMENT

Payment shall be considered incidental to the project and included in the lump sum price for the pump station.

END OF SECTION 03480

SECTION 04200
PUMP HOUSE BUILDING

A: Scope

1) Work to include, but not limited to, the following:
   a) Mobilization
   b) Excavation and backfill for the foundation.
   c) Concrete footings and floor slabs.
   d) Construction of a complete well house building structure as shown on the
   e) Coordination with other trades to assure all piping, conduits, etc. are placed before concrete is poured.

2) The Owner will establish and provide five (5) field survey references: four (4) five (5') foot corner offsets for each building corner and one (1) temporary benchmark elevation (TBM) at the site for Contractor's use. Although these references are provided for the convenience and use of the Contractor, any errors in their use and/or interpretation occurring beyond the references shall be the responsibility of the Contractor.

3) The Owner will apply for, procure, and pay all costs for the building permit, as well as perform all routine inspections, however, the Contractor shall coordinate and schedule these inspections as required by the Contract Documents, applicable building codes, and West Linn Standards.

4) Special inspections shall be required for two (2) specific tasks: 1) verifying the reinforcement size, quantity, placing, cover, and for general compliance with the plans and 2) to verify the CMU block wall material, reinforcement, mortar, and grouting, and for general compliance with the plans. All responsibility for coordinating and scheduling as well as the costs for special inspections shall be borne by the Contractor. Special inspections must be performed by firms and/or individuals that are state certified in the respective class of work. The Contractor shall submit adequate evidence of the required certification(s) as an element of the post-bid submittals.

B: Materials

1) Excavation and Backfill

   a) Excavation- Refer to Section 02324-Excavation for details

   b) Backfill

      1) Granular backfill and underslab base rock shall be ¾" - 0" selected rock, placed in layers (lifts) not greater than 4" lifts. All granular backfill material shall be compacted to a compaction level of not less than 95% relative density. Rock under floor slabs shall be compacted to a minimum density of 98%. A visqueen vapor barrier shall be applied between the rock backfill and floor slab.

2) Outside building - clean native materials or imported topsoil, as detailed.

3) Piping under floor slab - concrete blocking as detailed on the plans.

2) Concrete and Reinforcing

a) Conform to all material and workmanship specifications listed herein.

b) Bolts: ASTM A307 unless otherwise indicated. Anchor Bolts: ASTM F1554-Grade 36. Provide 3" round standard plate washers under all bolt heads and nuts in contact with wood.

c). All exposed interior concrete surfaces to be cured by spraying with liquid membrane (2 coats) of a non-yellowing, sealing and curing compound conforming to ASTM C309, Type 1, quantity as recommended by the manufacturer. Meadows Seal-Tite or approved equal.

d) Form material for surfaces exposed to view in finished work shall be new plywood to produce good quality acceptable concrete surfaces.

e) Cement to conform to ASTM C150, Type I. Water to be clean and free of oil, organic matter and other deleterious substances. Aggregate shall conform to ASTM C33.

f) The concrete mix used throughout shall meet the following specifications:

Minimum compressive strength at 28 days:	3000 psi
Maximum water per 94 lb sack of cement:	5 ½ gallons
Slump Range (inches):	3 - 4
Maximum size coarse aggregate:	¾"
Entrained air (percent by volume) (range):	3% - 5%

No other admixtures are permitted without the express permission of the Owner

g) Reinforcement to be deformed, billet-steel bars conforming to ASTM A615 Grade 60 (Fy = 60,000 psi).

h) Miscellaneous steel to conform to ASTM A-36. Anchor bolts to conform to ASTM F-1554, Grade 36 with a minimum yield strength of 60,000 psi (minimum).

3) Building Construction

a) Concrete masonry units shall conform to ASTM C90, Grade N-1, with maximum linear shrinkage of 0.6 percent from standard to oven dried condition.

b) Exterior wall cement masonry units shall be 8 inches by 8 inches by 16 inches nominal dimensions, hollow core, "medium" weight cement masonry units, as manufactured by Willamette Graystone Inc., or Mutual Materials. CMU shall comply with ASTM C90 for "medium weight" (f'm = 1500 psi) CMU blocks and shall be capable of a minimum uniform bearing stress of 105 psi.

c) CMU shall be placed in a running or common bond style and the appropriate blocks for corners, opening and bond bars shall be used. CMU blocks shall be "smooth" face and placed as detailed on the building plans.

d) Mortar shall comply with ASTM C270 for Type "M" mortar displaying a minimum compressive strength of 2500 psi after 28 days. Mortar shall be equal in all respects to "Spec-mix" mortar as manufactured by Oldcastle Inc and shall be pre-colored to match the CMU block color.

e) Vertical and horizontal reinforcement shall be placed as shown on the drawings.

f) All cells shall be fully grouted, using a cement grout with a minimum compressive strength of 4000 psi following erection. Grout shall be placed into all cells without segregation or separation of mix. Grout shall be placed, rodded, and distributed along all reinforcement bar surfaces to insure that adequate bond between the reinforcement and wall occurs. Reinforcement bar shall be effectively and fully grouted in all locations.

g) Lintels: For openings of 4'-0" wide or less, provide 8"x 8" lintels with two #5 bars; for openings greater than 4'-0" wide but less than 8'-0" wide, provide 8" x 16" lintels with two #5 bars. Extend bars not less than 24 inches past each jamb opening.

h) Type and Color of CMU block: Standard CMU, Dark Green to match existing Bland reservoir (submit sample of color for approval)

i) Masonry Sealant: Following CMU erection, grouting, and curing, all CMU blocks shall be fully cleaned from all excess mortar, dirt and other debris. CMU shall thereafter be fully sealed by using an approved system consisting of a primer/sealant. All CMU blocks shall be fully prepared as per the manufacturer's recommendations before applying the coating system. The sealant coat shall consist of a clear water repellent applied at a coverage rate between 75-85 square foot per gallon and applied without dilution. The primer/water repellent shall be equal to Prime-A-Pell 200, Series 660 as manufactured by Chempore (Tnemec). Following an acceptable drying period, a second coat shall be applied.

j) Wood placed directly against concrete, masonry, or in direct contact with the ground shall be fully pressure treated with an approved preservative. Plywood shall comply with all applicable APA standards and shall be grade CDX (3/4" thickness-span rating: 32-16) for the roof overlay, and Type CCX (19/32"

thickness) for exposed eaves as shown on the drawings. Plyclips shall be used at all sheet edges for the roof sheathing at spacings as per the manufacturers recommendations. All plywood and lumber used for exterior exposures shall be approved for such use.

k) Trusses shall be prefabricated wood trusses using a "Queenpost" configuration and designed to safely accommodate a continuous distributed live loading of not less than 35 pounds per square foot (psf) combined with a dead load of not less than 15 psf with a maximum deflection of L/240. A manufacturer's certification, including a professional engineer's stamp, shall be submitted before placing an order for the trusses. Trusses on the two ends of the building shall be designed and placed to provide the same loading as specified for the intermediate trusses. Trusses shall be secured to the wall sill using a Simpson model H-14 "Hurricane" anchor or approved equal. The wall sill shall consist of a pair (2) of pressure treated 2" x 8" wood sills, secured to the CMU through the use of ½" x 10" "J" bolts installed at intervals not exceeding 24" on center and adjacent to all corners and doors. Each bolt shall be fully imbedded into the wall grout a minimum length of 4" plus the hook and affixed to the sills using a fully engaged nut and washer. Blocking and purlins shall be provided between all roof trusses with vents provided as shown on the drawings and per code. Trusses, including header trusses around roof openings, shall be designed and fabricated by the truss supplier. Trusses must be accompanied by design calculations sealed by a licensed Professional Engineer qualified to perform work in Oregon.

l) Roof sheathing shall be secured using a minimum of 10d nails at a field spacing not to exceed 12" with a maximum spacing of 6" at all ends. Exterior fasteners shall be corrosion resistant.

m) Drywall used for the finished ceiling shall be gypsum, 1/2" thickness. Fasteners to connect drywall to wood members shall be approved for drywall to prevent withdrawal and provide a secure connection. Fasteners shall consist of 11 gauge x 13/4" galvanized nails or type "w" lag screws designed for drywall Drywall installation shall comply with all provisions of ASTM C1280 and the Gypsum Association Construction Guide GA-253. Joints shall be taped and sealed before painting. Finishing shall consist of an approved drywall primer followed by two coats of a flat latex paint resistant to water and corrosive vapors with a minimum dry film finished thickness of 5 mils. Drywall shall be the product of U.S. Gypsum.

n) Insulation in the finished roof shall be fiberglass, foil or paper backed, Rating R-21 or better. Owens-Corning or equal.

o) Pedestrian doors on rear/utility (door schedule number 101 and 102) shall be hollow metal (steel) entrance doors with hardened cases and frames and comply with the door schedule shown on Sheet MISC-2 of the drawings. Frames to match each selected door set shall be provided at all rough openings. Hardware shall be stainless steel or hardened case steel, as appropriate for the

application and use. Locks shall be deadbolt style, independent of a lever type opening mechanism. Locks shall be keyed to match City of West Linn standard. Schlage or equal thresholds shall be provided at all normal traffic doors.

p) Roofing material shall consist of standing seam metal roofing, rated for a minimum 30 year life. Metal roofing shall be laid over 30# overlap felt and the roof sheathing.

q) 5" 26 gauge (minimum) steel continuous gutters over a 2"x6" facia board shall be provided on roof truss tails. Downspouts shall constructed of 26 gauge (minimum) steel and be routed through 4" riser and lateral pipes to splash blocks. All fascia and trim metal shall be provided by AEP Span or approved equal to match the roofing. Submit color samples for approval.

r) Two louvers shall be installed in the locations shown on the drawings. Louvers shall be corrosion resistant and constructed from either stainless steel or aluminum (.040" gauge minimum), with adequate open area to supply up to 2500 cfm of free air at a pressure drop not to exceed 0.125" (1/8") s.p. and at be capable of handle a free area velocity of 750 fpm without rain or moisture penetration into the building. Louvers shall be equipped with fixed blades and bird screening with a minimum of 50% net open area.

s) Skylights shall be tempered glass fixed curb mounted skylights with minimum interior side curb dimensions of 34.5" each way. Velux FCM 3434 skylights. Flashing to be compatible with metal roofing. Flashing and counterflashing shall be installed to comply with manufactures recommendations and form a watertight seal around skylight. Curb of skylight to be made from 2" x 8" DF #2 or better and secured to truss connection ties on all four sides, following truss designer recommendations.

t) Skylight tunnel shall be constructed using ¾" CDX sheathing to form a square passage with side interior dimensions of 34.5" minimum in both directions. Sheathing shall be directly attached to bottom chord of truss, truss connection tie, skylight curb, and header truss, as applicable to location of each based on truss design.

u) The soffit for the 3' front overhang shall be closed using 1/2" T111 plywood and painted using 2 coats of a flat latex paint, 6 mils minimum D.F.T.

4) Lumber

a) Grading in conformance with current standard grading rules for western lumber published by Western Wood Products Association or similar standard for species not included therein.

b) All dimension lumber S4S Douglas fir, unless otherwise indicated.

c) Dimensional lumber not otherwise specified to be No. 2 grade or better.

d) Pressure treat the following lumber in contact with concrete as specified hereinafter:

1. Bottom wood plates on earth-supported concrete slabs or walls.
2. Keep waterborne preservative treated materials covered to prevent excess leaching of material from surface.

e) Lumber for designated use to be of grades indicated below:

USE (if applicable)	GRADE
Sills	D.F. No. 2 or better
Plates	D.F. No. 2 or better
Studs and Joists	D.F. No. 2 or better
Exterior Posts and Beams	D.F. Select structural-pressure treated
Cross Bridging	D.F. No. 2 or better
Blocking	D.F. No. 2 or better
Fascia, Millwork and other finish material not designated	VG finish kiln-dried, grade b, S4S
Miscellaneous materials	No. 2 or better - for repairs, match existing, unless otherwise specified.
Roof and skylight sheathing	Structural I CDX DFPA ¾" or 19/32"
Roof gable sheathing	Plywood Siding 5/8"

f) Grade Marks

1) Show applicable association grade mark and trade mark on each piece of material, or furnish certificate of inspection with each shipment attesting conformance to specified grade.

g) Preservations

1) Material - Waterborne preservative AWPA standard P5 of chromated copper arsenate (CCA) or acid copper chromate (ACC) or approved equal.

2) Treatment - Conform to AWPA standards C1-2-9-14-16-23-28, empty cell process to the following retention by assay in pounds per cubic foot:

Preservative	Above Ground
CCA	0.250
ACC	0.025

3) After treatment, kiln dry all waterborne preservative treated lumber to moisture content set forth in section where furnishing of lumber is specified.

5) Miscellaneous Material

a). Nails, Fastenings, and Rough Hardware

1) Provide all rough hardware required to complete work.

2) Nails, bolts, washer, spikes, and similar fasteners and rough hardware to be of best commercial grade, products or recognized manufacturers, and suitable for intended use.

3) Bolts, nuts, and washers to be galvanized or plated.

b) Caulking Compound

1) Resin base, Federal Specification TT-C-598, Grade 1 for gun consistency and Grade 2 for knife consistency.

c) Door Hardware

1) Provide and install all hardware required for proper operation as shown on the plans and specified herein:

Hardware finish:	Brushed chrome
Hinges:	NRP Steel

2) Doors and frames to be reinforced for and furnished with a 1" throw dead bolt. Passage hardware and deadbolts to be keyed. All locks to be keyed to City of West Linn standard.

d) Flashing

1) All roof flashings shall match the roof.

e) Rain Gutters and Downspouts

1) Use 26 gauge steel with baked enamel finish.

f) Building Felt

1) 30 pound asphalt saturated asbestos felt conforming to ASTM D-2500. Use galvanized steel or aluminum roofing nails.

6) Doors and Frames (shop drawings required)

a) Doors to be hollow metal framed, 1 3/4" thick, style 3 conforming to steel door institute standard SDI 100. Doors to be constructed to receive hardware specified. Doors and frames to be factory primed, but receive a finish of Kynar 500 resin coating,

b) Frames to be knockdown or welded type and to conform to steel door institute standard SDI 100. Provide adequate reinforcement and cutouts for hardware. Furnish adequate floor and wall anchors. Frames to be a product of the metal door manufacturer.

c) Provide weather-stripping on all doors, manufacturer's standard product, as approved.

d) Door threshold shall be flat and each door shall be fitted with a 36" exterior rated door sweep. Door sweep shall be UL rated and fastened to the door with screws. Self-adhesive door sweeps shall not be allowed. Sweep material shall be rubber or vinyl. Color to match door as selected by City.

C: Workmanship

1.. General

a) Comply with all provisions of the International Building Code (IBC), most recent edition, Oregon amendments and supplements, county and local building codes, and state and federal safety rules and regulations.

2. Protection and Storage

a) Cover and protect all new work or material from damage.

b) Replace and repair carpentry work damaged through neglect or failure to provide proper protection without extra cost.

c) Provide temporary partitions and facilities required for protection.

3. Excavation and Backfill

a) Excavate for slab and footings as required.

b) Backfill with specified materials in 6" lifts and mechanical compact to prevent any subsequent settlement.

4. Concrete and Reinforcing

a) Conform to material specifications listed herein. Finish interior floor smooth, finish exterior walls with medium broom finish.

b) Use 6 mil visqueen vapor barrier under all interior slabs.

c) Concrete forms to be sufficiently tight to prevent leakage of concrete and shall be properly braced and/or tied together so as to maintain desired position and shape until removed.

d) All form ties to provide adequate and positive spacing of forms before and during placing of concrete.

e) Concrete shall not be allowed to drop more than 3 feet at any time.

f) All reinforcement shall be placed and secured in the proper position to within ¼" of designated location and spacing before concrete is poured. All debris shall be removed in the space to be occupied by concrete before pouring. Thoroughly wet gravel fill under slabs on ground, except where vapor barrier is specified, and all wood forms prior to placement of concrete.

g) Handle concrete from mixer, ready-mix truck or from transporting vehicle to place of final deposit as rapidly as practical by methods which prevent separation of mix. Under no circumstances shall concrete that has partially hardened be deposited in work.

h) During placement of concrete, work concrete into corners and round reinforcement, during and immediately after depositing, and compact by mechanical vibration.

i) Deposit concrete continuously or in layers of such thickness that no concrete will be deposited on concrete which has hardened sufficiently to cause formation of seams and planes of weakness throughout section.

j) Concrete pedestals, slabs, and floors to be thoroughly compacted by mechanical vibration. Finish slabs and floors by screening and floating with straight edges to bring surfaces to required finish elevation shown on the plans. While concrete is still green, but sufficiently hardened to bear a man's weight without imprint, it shall be wood floated to a true, even plane with no coarse aggregate visible. Concrete slabs and floors to be hand trowelled after surface moisture has disappeared to a smooth surface, free from trowel marks. Power machine finishing is allowed with approval of the Owner and in accordance with the directions of the manufacturer.

k) All concrete shall be kept continuously wet for 7 days after pouring to provide proper curing. Exposed concrete shall be covered, in necessary, for proper curing during cold weather (less than 40° F).

l) All reinforcement shall be cleaned from all oil, dirt, and other contaminants before placing. All bars shall be cold bent. Place reinforcement as shown on the drawings and secure with appropriate tie wire or clips. Support all reinforcement in slabs and floors using appropriate chairs and concrete blocks. Reinforcement spacing shall be within +/- ¼" beams or slabs and with +/- 2" lengthwise spacing in slabs and walls.

m) No deviation of the above specifications shall be allowed without the express permission of the Owner.

5. Storage and Protection of Material and Construction of Well House

a) Storage and Protection

1) Stack materials level, on boards, dimensions or timbers off ground. Protect boards, dimension lumber, timber and plywood from weather with adequate waterproof cover.

2) Store finishing lumber and millwork in weathertight, well ventilated areas and do not install until concrete or masonry is completed and dry.

3) Cover and protect all new work or materials from damage.

b) Framing

1) Provide competent supervision and utilize skilled craftsmen. Carefully layout, cut, fit and erect framing.

2) Arrange plates to form continuous horizontal ties. Splice single plates. Stagger ends of double plates.

3) Minimum Nailing Schedule: All materials shall be sized to an even thickness and shall be firmly bridged, spiked, braced and ties together and shall be nailed in accordance with the following schedule. Other nailing shall be in proportion or as directed, and thoroughly secured. Exterior nails shall be galvanized iron. If splitting from nailing occurs, and where specifically shown, drill holes slightly smaller than nail size before nailing.

c) Plywood Roofing

1) Provide thickness shown. Lay with long dimension perpendicular to supports; stagger end joints. Nail with 10d common nails at 6" O.C. at ends and 12" O.C. at all intermediate supports. Use of two clips required. 10d at 4" O.C. at all roof openings. Support edge joints by use of two plyclips (min).

2). Building felt and roofing material to be installed in conformance with latest edition of International Building Code and the manufacturers recommendation.

d) Treated Lumber

1) Provide preservative treated lumber for all blocking, furring, and nailing strips built into exterior masonry walls, wood in contact with concrete.

e) Caulking

1) Thoroughly clean all joints to be caulked.

2) Install back-up material where shown on plans and all joints greater than 3/16".

3) Caulk joints between all door or window frames completely with silicone sealant.

4) Prime contact surfaces as required by sealant manufacturer.

f) Storage of Doors

1) Doors and frames to be stored under cover on building site on wood sills or on floors in a manner to prevent damage.

g) Installation of Doors

1) Install doors true and plumb in openings and in accordance with manufacturer's recommendations as approved.

2) Hang doors in frames and install hardware in neat, secure manner so that doors will operate without dragging or binding. Upon completion of project and before work is turned over to owner, recheck hardware and make any necessary adjustments so that doors operate smoothly and satisfactorily. Replace all damaged units. Turn all keys over to the owner at the completion of work.

h) Rain Gutters and Downspouts

1) Seal all gutter corners and splices. Fasten downspouts at each end. Downspouts to terminate as shown on the plans.

i) Clean Up

1). At the completion of work, clean up work area and remove all materials, debris, etc.

D: Payment—Payment shall be considered incidental and included in the lump sum price for the pump station.

END OF SECTION 04200

SECTION 09900
PAINTING

1. GENERAL

A. LIST OF ARTICLE TITLES

1.01 DESCRIPTION OF WORK

A. Work of this section includes materials, labor, and equipment necessary for and incidental to painting work where indicated on the drawing and specified herein.

1.02 QUALITY ASSURANCE

A. Specifications for non-latex paint are based on products of the Tnemec Co., Inc. Equivalent products by the following manufacturers are acceptable: Porter, Carboline, Sherwin-Williams, Kynar, Olympic, Behr or equal.

B. Field quality control: Coating thickness will be measured in the following ways:

1. Visual inspection: Show-through of substrate or previous coating will be grounds for rejection.
2. Dry film thickness on steel and galvanized substrates will be measured with a calibrated magnetic nondestructive testing apparatus.

C. Shop painting: Except where shop finishing is specified as final material finish, all item required to be painted shall be painted as specified herein including surface preparation, primer and subsequent coats. Exceptions:

1. Equipment or assembly shop-painted with primer system approved by Owner and Painting Installer as equivalent to the specified primer system and compatible with subsequent coats.

2. Equipment or assembly shop-painted with the specified paint system or equivalent approved by the Owner.

3. Where a specific primer system is specified as a shop coating the shop primer shall be considered the equivalent of the surface preparation and primer specified in this section.

1.03 SUBMITTALS

A. Product data: Submit manufacturer's material specifications and application instructions, including recommendations for application equipment to be utilized. Submit samples of intended color for approval.

1.04 DELIVERY AND STORAGE

A. Deliver materials to the job-site in original, new, and unopened packages and containers bearing manufacturer's name and label.

1. Provide labels on each container with the following information:

a. Name or title of material.

b. Federal Specification number, if applicable.

c. Manufacturer's stock number.

d. Manufacturer's name.

e. Contents by volume, for major pigment and vehicle constituents.

f. Thinning instructions.

g. Application instructions.

B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing, and application of paint in a clean condition, free of foreign materials and residue.

1.05 JOB CONDITIONS

A. Do not apply paint when conditions are such that dust, dirt, or other deleterious substances which may impair the quality of coats or the finish are present or will be present before the coating is fully dry.

B. Comply with manufacturer's printed recommended limitations for ambient and surface temperature and humidity.

C. Comply with manufacturer's printed recommendations for minimum and maximum times between applications.

2. PRODUCTS

2.01 GENERAL

A. Provide the best quality grade of the various types of paint as regularly manufactured by approved materials manufacturers. Materials not displaying the manufacturer's identification as a standard, best-grade product will not be acceptable.

B. Provide undercoat paint produced by the same manufacturer as the finish coats. Use only thinners approved by the special coatings manufacturer, and use only within recommended limits.

C. Paint coordination: Provide finish coats which are compatible with prime paints used. Upon request from other trades, furnish information or characteristics of specified finish materials, to ensure compatible prime coats are used.

2.02 PAINT SYSTEMS

A. Paint for Mechanical Piping

1. Surface preparation: SSPC-SPI, solvent cleaning.

2. Prime coat: Tnemec Series 66, coverage at 150 square feet per gallon.

3. Finish coat: Tnemec Series 113, coverage at 250 square feet per gallon.

B. Architectural painting: Products of the following manufacturers, or approved, are specified for use on this project for architectural painting: Dutch Boy, Sherwin Williams, Behr, Olympic.

3. EXECUTION

3.01 INSPECTION

A. Installer must examine the areas and conditions under which painting work is to be applied. Notify the Contractor in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.

1. Test previously painted or primed surfaces for compatibility with painting systems. Test in accordance with ASTM D 3359 Method A.

B. Leak tests and other functional tests shall be completed prior to painting unless permitted otherwise by the Owner.

C. Starting of painting work will be construed as the installer's acceptance of the surfaces and conditions within any particular area.

D. Contractor shall provide spot painting of approximately 1 square foot area in advance of full application to assure color match. Do not proceed with full application until color match is accepted by Owner.

3.02 PREPARATION

A. Contractor shall demonstrate that the shop coating is compatible with field coating.

B. General: Perform preparation and cleaning procedures in strict accordance with the paint manufacturer's instructions and as herein specified, for each particular substrate condition.

C. Masking: Protect surfaces that have received finish coat or are specified below not to be painted (or receive special coating) by any method which will prevent overspray, spatters, or drips from affecting finished surfaces.

D. Prefinished items:

1. Unless otherwise indicated, do not include painting when factory finishing is specified for such items as toilet accessories, and cabinet-work and electrical panels.

2. For factory finished items that require additional field painting see painting schedule.

E. Finished metal surfaces: Metal surfaces of aluminum louver and similar finished materials will not require painting except as otherwise indicated.

F. Operating parts and labels:

1. Do not paint any moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sensing devices, motor and fan shafts, unless otherwise indicated.

2. Do not paint over any code-required labels, such as Underwriters Laboratories and Factory Mutual, or any equipment identification, performance rating, name, or nomenclature plates.

G. Remove all hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be finish-painted, or provide surface-applied protection prior to surface preparation and coating operations. Remove, if necessary, for the complete painting of the items and adjacent surfaces. Following completion of painting of each space or area, reinstall the removed items by workmen skilled in the trades involved.

H. Clean surfaces to be painted before applying coatings or surface treatments. Remove oil and grease prior to mechanical cleaning. Program the cleaning and painting so that contaminants from the cleaning process will not fall onto wet, newly coated surfaces.

3.03 APPLICATION

A. General:

1. Apply paint in accordance with the manufacturer's printed directions. Use applicators and techniques best suited for the type of material being applied. Do not exceed manufacturer's recommended coverage per gallon.

2. Apply additional coats when undercoats, stains, or other conditions show through the finish coating, until the paint film is of uniform finish color and appearance.

3. Apply paint to surfaces behind movable equipment and furniture the same as similar exposed surfaces. Coat surfaces behind permanently-fixed equipment or furniture with prime coat and base coat only.

4. Each coat of paint is to be slightly darker than the preceding coat unless approved otherwise by the Owner.

B. Factory-finished items (including factory primer):

1. The Contractor shall repair or have repaired all surface damage to factory-finished items. The Owner shall determine if damage can be repaired at job site or if item is to be returned to the factory. Any coating done shall be equal to the original coating in every way, and compatible with the shop coats.

2. Where additional coats of paint are required, the factory applied primer shall be from the paint system selected, or be compatible with it. The finish coat shall be field applied. Coordinate this work with equipment manufacturers. Colors will be selected by the Owner.

C. Coating inspection: Each coat of material shall be inspected and approved by the Owner before applying succeeding coats; otherwise no credit for coat applied will be given, and Contractor assumes recoat responsibilities.

3.04 CLEANUP

A. Cleanup: During the progress of the Work, remove from the project daily discarded coating materials, rubbish, cans, and rags.

B. Cleaning: Upon completion of painting work, clean window glass and other:-pattered surfaces. Clean by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

C. Corrected work: Correct damages by cleaning, repairing, or replacing, and painting as directed by the Owner. Provide 'Wet Paint" signs as required to protect newly-coated finishes. Remove temporary protection wrappings provided by others for protection of their work, after completion of painting operations.

D. Repair of defective work: Where painted surface exhibits rust through its finished coat, all layers of primer and paint shall be removed down to the bare metal. The metal surface shall be prepared again to receive a completely new paint system. The new system shall be the same as the one removed or as selected by the Owner.

3.05 ARCHITECTURAL PAINTING

1. Interior Surfaces require the following specified coats

   a. Drywall– 1 application of approved drywall primer, followed by 2 coats of an approved flat latex paint resistant to water and corrosive vapors with a minimum dry film finished thickness of 5 mils.

   b. Hollow metal doors (101 and 102 on door schedule) - 1 coat factory primer, 2 coats Kynar 500 resin paint.

2. Exterior surfaces

   a. Gutters and downspouts, flashing - 2 coats of Kynar 500 resin paint or approved equal. Submit color for approval.

3.06 PAYMENT

Payment to be considered incidental to the project and included in the lump sum price for the pump station.

END OF SECTION 09900

SECTION 15100
MECHANICAL EQUIPMENT

1. GENERAL

1.01 DESCRIPTION OF WORK

A. The work consists of furnishing all labor, material and equipment as required for the pump and motor units, valves, piping, flowmeter, and appurtenances as shown on the drawings and as specified herein.

1.02 MANUFACTURER

A. Manufacturers shall be of established good reputation, regularly engaged in the fabrication and manufacture of such equipment. Unless otherwise noted, any equipment offered shall be of current production which shall have been in successful regular operation under comparable conditions, for no less than five (5) years.

1.03 SUBMITTALS

A. Submit shop drawings in accordance with Section 01300 and furnish operation and maintenance manuals in accordance with Section 01700. Where additional and more detailed submittals are necessary, those requirements are included hereafter or in this section.

1. Shop drawings and operation and maintenance information shall be provided for each type of mechanical device used on this Project.

2. PRODUCTS

2.01 BOOSTER PUMP EQUIPMENT

A. Booster Pump

The booster pumps and associated motors will be provided by the City of West Linn and shall be installed by the Contractor in a method complying with all applicable standards and requirements.

B. Air Release Valves

Each pump shall be equipped with a "combination" type of air release valve to provide automatic venting of accumulated air within the pump can and bowls during pump startup as well as any accumulated air during shutdown.

- Valves on the pump cans to be ½" Apco model 55 or Val-Matic.

- Valves on the discharge lines to be capable of 200 psi working pressure. Apco model 50 with 1/16 orifice or Val-Matic.

C. Pump Can

The pump cans shall be made of 12" mild steel (0.375" wall) pipe. A 12" Class 150 steel flange with tapped bolt holes shall be welded to the top of the can using a minimum of three (3) full circumferential weld passes, starting with a fully penetrating root pass followed by no less than two (2) cover passes. The welds shall render the top terminus of the well fully and completely "water tight" with no allowable leakage. The pump cans shall be coated on both interior and exterior exposures with 2 coats of a fusion bonded potable water epoxy coat with a minimum finished thickness of 10 mils, and oven baked and cured. The exterior of the cans shall be encased in concrete with a minimum thickness of 6". A 6" thick by 3.5' diameter concrete ring shall be formed 2' below the floor of the pump station. The bottom of the pump can shall be directly welded to the intake tee from the suction piping. Before encasing the pump cans in concrete, the cans shall first be wrapped with two (2) layers of half-lapped two inch wide 10 mil tape, and thereafter covered with "poly-wrap" polyethylene pipe wrap.

2.02 VALVES

A. Control Valve

The pump control valve shall be a 4" diaphragm actuated, single seated, hydraulically operated globe-type valve. It shall have one operating chamber. The valve shall contain a resilient, synthetic rubber disc, with a rectangular cross-section contained on three and one-half sides by a disc retainer, forming a tight seal against a single removable seat insert. Body shall be ductile iron with bronze trim. Valve shall have 4" Class 125 pound flanges suitable for 175 psi operation. Cla-Val 52-03 surge anticipator valve as manufactured by Cla-Val Co., no exceptions.

B. Butterfly Valves

Isolation valves larger than and including 4" inside the pump station shall be butterfly valves. All butterfly valves shall be rubber-seat type and bubble-tight at 150 psi pressure with flow in either direction. They shall be designed for direct burial and be satisfactory for application involving valve operation after long periods of inactivity. Valves shall conform to AWWA Specification C-504, Class 150B. All valves shall be Mueller or approved equal. Operating nut for the valve shall be located on the side of the main shown on the plans. The Contractor shall provide and install the butterfly valves in the locations shown on the design drawings.

Direct buried line valves of 12 in. size or larger shall be butterfly valves. All fittings shall be factory cement lined and coated.

C. Gate Valves

Direct-buried line valves of 10 in. size or smaller shall be gate valves. Gate valves (4" and larger) used for potable water service shall be cast iron body, resilient style with non-rising stem and 2" square operating nut. Gate valves shall be capable of continuous operation or complete leaktight shutoff at a pressure rating of not less than 175 psi and equipped with flanged or mechanical joints, type and size as detailed on the plans. Gate valves in sizes 3" and smaller shall be Class 125, equipped with n.p.t. female threaded connections, bronze construction with a solid wedge guided disc, handwheel, screwed bonnet, and non-rising stem approved for water service up to 175 psi minimum working pressure. Crane, Aqua, or equal.

D. Check Valves

The Contractor shall provide and install an 8" Class 125 lb. flanged "silent" check valves on each of the pump discharge lines. The silent check valves shall be a globe type, check valve with semi-steel body, bronze seat, and stainless steel spring. The check valve shall be equal in all respects to an Apco model 608 check valve.

2.03 SERVICE SADDLES

A. Service saddles shall be 2 in. I.P.T., double strap, stainless steel. Body of saddle shall be Ductile Iron coated with nylon, and straps, bolts, washers, and nuts shall be stainless steel.

2.04 FLOWMETERS

A. A 10" flanged (Class 150), magmeter type flowmeter shall be installed on the pump discharge line to monitor and report the flow from the booster pumps. The flowmeter shall comply with AWWA standard C704 for cold water meters with an operating range between 0-2000 GPM with an accuracy of 98% or greater. For uniformity in the City, the flowmeter shall be a Siemens Sitrans F M Magflo Type 5100W, no substitutions permitted.

3. EXECUTION

3.01 INSTALLATION

A. All equipment shall be installed in accordance with the manufacturer's recommendations, Drawings and Specifications. Alignment and adjustments shall be verified after installation.

1. Valves: Prior to valve installation, Contractor shall clean and touch up all surfaces previously primed; make visual check of operating parts for proper and satisfactory operation, and clean and remove all foreign matter from the valve.

2. All valves shall be installed in strict accordance with the manufacturer's instructions and as shown on the Drawings.
3. Flanged connections shall be in accordance with ANSI B16.1 Class 125.

4. Screwed connections shall be in accordance with ANSI B2.1

5. The booster pumps, motors, and all related equipped shall be installed and tested in full conformance with the manufacturers recommendations and guidelines.

3.02 INSTALLATION OF FLOWMETERS

A. The flowmeter shall be installed, calibrated, and wired in strict conformance with the manufacturers guidelines.

3.03 TESTING

A. The Contractor shall perform all required testing for each piece of equipment. Any defects which become evident during the tests shall be corrected by the Contractor and the test rerun. The Contractor shall notify the City's Project Manager at least five (5) days prior to performing any tests. All testing and verification of proper operation shall be conducted in accordance with Section 01650-Start-Up and Testing.

END OF SECTION 15100

SECTION 16000
ELECTRICAL

PART 1: GENERAL

1.01 Scope

A. This section of the specifications describes the materials, methods, and implementation to be utilized by the Electrical Contractor (hereinafter only referred to as "Contractor") for the supply and installation of the electrical systems and equipment on this project (hereinafter referred to as "work").

1.02 Standards

A. All work performed on this project shall comply with the latest revision of the following minimum standards:

1. American National Standards Institute (ANSI)
2. National Electrical Manufacturer's Association (NEMA)
3. Underwriters Laboratories (UL)
4. Most recent edition of the National Electrical Code (NEC)
5. Most recent edition of the Oregon Specialty Electrical Code
6. All state, local, and federal codes and standards that may apply
7. All work to comply with OSHA and state safety regulations

1.03 Drawings

A. The electrical drawings are intended to indicate general arrangement of conduit and equipment locations, and wiring schematics for this project. Actual locations and nomenclature must be ascertained after a thorough inspection and a full review of the site. All items not specifically indicated on the drawings, but necessary to ensure a workable installation, shall be planned and included.

1.04 As-Built Drawings

A. The Contractor shall maintain one active set of drawings on the site throughout the course of the project. The plans shall be marked ("redlined") to indicate the actual conduit runs and routes, as well as any changes in the circuitry. At the conclusion of the project, these changes shall be transferred to a reproducible sheet and presented to the Engineer.

1.04 Equipment Requirements

A. All equipment shall be new, unused, applied, and installed in the manner to which it was intended. All equipment shall bear approval by an

approved and appropriate testing laboratory such as UL, CSA, or ETL, as required by the State of Oregon.

B. All equipment and material shall be of a current and sturdy design, of one single manufacturer where similar, and be industrially rated.

1.06 Workmanship

A. All work, including installation, rough-in, connections, and testing shall be performed by qualified and licensed personnel, working under competent supervision. The Contractor shall be licensed and bonded, as required, to conduct electrical contracting and installation work in the State of Oregon.

1.07 Permits, Licenses, and Fees

A. The Contractor shall be responsible for obtaining all permits and licenses necessary for the satisfactory completion of the work. The Contractor shall pay all fees and be responsible for coordinating all required inspections.

B. Inspection: The Contractor shall cooperate with the Owner and all other inspecting authorities to allow a full inspection of all required work. All concealed work shall be inspected and approved before final concealment. The Contractor shall remove any covers, operate machinery, or perform any reasonable work which, in the opinion of the Owner, will be necessary to determine the actual quality or adequacy of the work.

1.08 Shop Drawings

A. Within 15 days after award of contract, the Contractor shall submit four (4) sets of shop drawings to the Engineer for review to determine general compliance with the specifications. The shop drawings shall provide clear and sufficient information to evaluate the suitability of the proposed equipment. After review, two (2) sets shall be returned to the Contractor with any comments or approvals. The Contractor bears all responsibility for ordering any equipment before the shop drawing approval is obtained.

B. Motor Control Center and Distribution Equipment - Shop drawings, if appropriate, shall be submitted in accordance with Section 01300 for all motor control and power distribution equipment including, but not limited, to:

1. Meter Base
2. Motor Control Center
3. A.I.C. rating of all applicable equipment
4. Lighting and Heating Fixtures
5. Conduit and Electrical Wiring Devices

1.09 Coordination with Other Parties

A. The Contractor shall coordinate his work with all other parties involved in the construction of this project. He shall coordinate the work to allow the proper planning and execution of all conduit runs and equipment installation before any work commences. The Contractor shall coordinate and provide a temporary electric service for all construction, as well as coordinate all work with the serving utility, Portland General Electric. The Contractor shall provide the trench, conduit, and wiring required for installation of all circuits to all remote equipment locations.

B. The Contractor shall coordinate with the City of West Linn and CenturyLink to intercept the existing phone service to the tank in a new telephone handhole and connect this handhole using a 2" PVC conduit into the pump station. Provide a 2'x2'x3/4" plywood telephone demarcation adjacent to the RTU for telephone service. Install a pull cord inside the 2" conduit for use by the phone company. Prepare for the telephone changeover immediately prior to pump station startup.

C. The Contractor shall schedule and coordinate his work to allow a smooth and seamless installation and activation of the Remote Telemetry Unit (RTU) and other SCADA systems to be used at this site. Construction drawings for the SCADA system are included for the bidders' reference. Contractor shall provide all necessary coordination with the I&C contractor, S&B Inc. of Bellevue, Washington. Contractor shall include cost of S&B work in Contractor's bid.

D. Utility Coordination - The Contractor shall coordinate his activities and planning with the local serving utility, Portland General Electric. The Contractor shall observe all utility requirements for metering, conduit size, type and burial depth, and current transformers, where required. Where telephone service is required (either for telemetry or telephone service) the Contractor shall observe all requirements and provide all conduits, wiring, pull boxes, and outlets necessary to complete the installation.

E. Conduit Installation - The Contractor shall be responsible for providing all trenching, excavation, and backfill necessary for the installation of all underground conduits and wiring. When the Contractor wishes to use on-site excavation personnel for the excavation of this material, he shall plan, coordinate, and pay for all such activities. In all cases, the Electrical Contractor shall be solely responsible for the electrical integrity and workmanship of all conduits. All conduits to be installed overhead shall be installed perpendicular or parallel to the building lines, as appropriate, and firmly supported and secured as required by the NEC.

1.10. Area Designations

A. General Purpose Locations: All areas and locations not indicated in the specifications or plans as specifically classified areas shall be "General Purpose" locations and all work and equipment installed shall comply with the general requirements for this area.

B. Wet Locations: All locations exposed to weather, or potentially wet locations shall be classified as wet locations. All raceways in these areas shall be rigid steel conduit, all entrances shall be threaded, and all fittings shall have gasketed covers. All cabinets, switchboards, and motor controls located outdoors shall be equipped with a NEMA 3R or 4 enclosure.

C. Corrosive Locations: All locations indicated in the specifications or plans as corrosive shall be equipped with PVC coated raceways and non-corrosive hardware. All junction boxes, outlet boxes, pull boxes, and enclosures shall be fiberglass and reinforced polyester. All conduits exiting these locations shall be equipped with sealing fittings. Lighting fixtures shall be vapor tight and approved for corrosive locations.

D. Hazardous Locations: All locations indicated in the specifications or plans as hazardous locations shall be provided with equipment, materials, and wiring methods for the specific hazard as defined by the NEC. All boxes and enclosures in these areas shall be NEMA 7. All exposed control wiring shall be intrinsically safe for the specific location. All conduits shall be galvanized, rigid steel and shall be equipped with approved sealing fittings as the raceway exits the location.

1.11 Grounding

A. Grounding continuity throughout the facility shall be maintained by routing and connecting an electrically continuous metallic conduit or a non-metallic conduit with a properly sized grounding conductor, where permitted. Metallic raceways shall be installed with double locknuts or hubs at enclosures. All non-metallic raceways containing AC conductors shall be equipped with a grounding conductor bonded to the appropriate locations. All metallic raceway systems shall be securely and effectively continuous to provide complete ground continuity. Where a metallic raceway system's continuity is compromised or discontinuous, a properly sized grounding conductor shall be included and bonded to the fed equipment, as needed.

B. Ground rods shall conform to UL Spec. 467 and shall be 3/4" x 10' copper-clad steel. Progressive lengths shall be installed until a minimum ground resistance of four (4) ohms or less is obtained. Progressive grounding rods shall be spaced at a minimum of 10 feet, with all rods connected to the ground grid. In addition, the Contractor shall effectively bond all steel floor reinforcement bars, well casings, and all metallic underground piping

extending 10 feet or more horizontally or vertically within the ground. All grounding cable shall be copper and sized in accordance with the NEC. Where steel conduits do not terminate at hubs or metal enclosures, an insulated grounding bushing shall be affixed and a copper grounding wire secured to the ground grid. All points of grounding shall be readily accessible for inspection and verification. The Contractor shall be expected to employ all measures necessary to insure a fully grounded and safe installation.

1.12 Anchoring Methods

A. All equipment shall be securely mounted to their supporting fixtures. Wall mounted equipment mounted to masonry walls shall be secured by anchors extending fully through the wall with back-up washers/nuts. Wall mounted panels that weigh more than 100 pounds shall be provided with a fabricated steel support base mounted securely to the floor. All transformers shall have full floor support. All wall and floor standing equipment shall be firmly anchored in place by methods sufficient to resist all vertical and lateral loads that may be applied to the equipment.

1.13 Conductor Identification

A. All conductors shall have assigned to them a unique identification number. These identification numbers shall be indicated on the As-Built drawing and must appear within (2) inches of all terminals. The Contractor shall use color-coding on specific circuits as follows:

	Phase A	Phase B	Phase C
120/240V, Single Phase, 3W	Black	Red	N/A
120/208V, 3 Phase, Wye, 4W	Black	Red	Blue
240V, 3 Phase, Delta, 3W	Black	Red	Blue
120/240V, 3 Phase, High-Leg Delta, 4W	Black	Orange	Blue
277/480V, 3 Phase, Wye, 4W	Brown	Orange	Yellow
480V, 3 Phase, Delta, 3W	Brown	Orange	Yellow

All high leg voltages to be marked with an orange color and designated as Phase "B".

All ground conductors shall be: Green

All neutral conductors shall be: White

General purpose AC control conductors shall be: Pink

B. Nameplates shall be provided for all panels, starters, switches, pilot lights, and circuit breakers. These nameplates shall be made from engraved phenolic plastic labels with an adhesive backing.

1.14 Raceways

A. Material and Work - Material shall be rigid steel conduit, unless indicated otherwise. Rigid steel shall be mild steel, hot dipped galvanized. All steel conduit installed through concrete and earth shall be protected from undue electrolytic or galvanic corrosion by taping the exterior or routing the conduit through a non-conductive sleeve. All non-metallic conduit shall be rigid PVC with Schedule 40 dimensions. Where a run of concealed PVC conduit extends through concrete, a transition to rigid steel conduit shall be required at least 12 inches below and through the concrete level. Where a sweep ell is involved, the ell shall be rigid steel before connection to the PVC conduit. Electrical metallic tubing (EMT) shall be galvanized inside and out, and shall have an interior enamel coating. All conduit runs shall be installed with secure and tight joints and cut ends of all conduits shall be de-burred to prevent wire abrasion. All conduit bends shall be smooth and performed with equipment specifically designed for that purpose. Conduits shall be installed inline, perpendicular, or parallel to building lines. Conduits shall be securely and rigidly supported as and where required by the NEC.

B. Liquid-Tite Conduit- Liquid-tite flexible conduit shall be used for routing of conduit to all motors and equipment subject to vibration. Liquid-tite flexible conduit shall not be used as a grounding path unless allowed by code, and even then, limited to a six foot (6') maximum run. Flexible liquid-tite conduit shall be Appleton "Sealtite" or equal. Connecting fittings shall be designed and approved specifically for use with liquid-tite flexible conduit. Aluminum or steel flex conduit shall not be allowed to be used.

C. Conduit Fittings - All conduit fittings shall be compatible with the raceways they will be used with. Insulated or grounding bushings shall be provided at all conduit terminations except at threaded junction boxes. All conduit fittings shall be fully tightened to provide grounding and mechanical continuity. Transition fittings to connect different types of conduit systems shall be furnished as recommended by the manufacturer. Ninety (90) degree turns shall be long sweep ells, compatible with the conduit system they are used with where underground or underslab; and a malleable iron body, oblong conduit, or threaded rigid conduit body with cast covers and gaskets (Type LB/equal) where the conduit or fitting is exposed.

1.15 Conductors

A. Material and Work - All conductors shall be copper with a 600VAC rating. Insulation shall bear the manufacturer's trademark, type, voltage rating and conductor size. Control wire shall be stranded, coated machine tool grade wire, type THHN/THWN. Service Entrance conductors and all motor and lighting panel circuits shall also be type THHN/THWN where larger than

#10 AWG. The smallest allowable wire size for power circuits is #12 AWG and the smallest allowable control circuit wire size is #16 AWG. Conductors shall not be pulled into a raceway until said raceway has been fully completed and freed of moisture and debris. All conductors shall be hand pulled and wire pulling lubricant, where needed, shall be UL approved. All wires in panels and cabinets shall be neatly grouped using nylon type straps or ties. All control circuit conductors shall terminate under terminal screws with preinsulated fork tongue lugs. Any splices performed on conductors shall be done by methods and materials suitable for the voltage and load the conductor must handle. All splices shall be performed in approved locations, such as junction boxes, wireways, or gutters. Conductors in sizes of #8 AWG and smaller may be spliced with pre-insulated spring connectors, such as Ideal wing nuts or equal. Motor connections shall be performed using liquid-tite flexible conduit between the rigid conduit and motor junction box.

C. Wiring Devices – General: All wiring devices shall be from a single manufacturer and of one style throughout the project.

D. Duplex Receptacles - General purpose, duplex receptacles shall consist of grounding type, 125 Volt, AC, 20 amperes; Leviton or equal. All receptacles used on this project, regardless if used in interior or exterior exposures, shall be protected by a ground fault circuit interrupter type (GFCI) circuit breaker.

E. Switches - General purpose switches shall be single pole, 20A, 125 VAC; Hubbell model 1221 or equal.

1.16 Outlet Boxes and Covers

A. Outlet boxes in general purpose locations, where surface mounted, shall be cast ferrous with zinc plating and an enamel finish.

B. Covers in general purpose locations shall be Cooper Crouse-Hinds or equal. Covers in corrosive locations shall be Cooper Crouse-Hinds "Arktite" or equal.

C. Wireways and any wireway fittings shall be formed sheet metal with a full cover, retained by screws. Wireways and wireway fittings shall be coated with a corrosive-resistant coating. Wireways to be as manufactured by Circle A-W, Appleton, or equal.

1.17 Metering & Utility Coordination

A. The Contractor shall verify and provide all new metering and service requirements with the local utility, Portland General Electric, for the new 400 amp, 480 VAC, 3-phase, 4 wire installation. The new meter base shall

be a 7-terminal, 600 VAC rated industrial meter base, Circle A/W model 127TB or approved equal. All utility requirements including, but not limited to: C.T. cabinet, meter bases (KW & KVAR), service conduits, service conductors, transformer pads, and utility coordination shall be observed and performed by the Contractor.

B. To reroute the existing electrical service to the reservoir, the Contractor shall run wire as shown on sheet E-3 of the drawings. Supply terminal junction box and GFCI WP 120V outlet with cover. Terminate raceway number 2 at new terminal junction box and locate below existing cathodic protection unit. Route one circuit to cathodic protection and second circuit to outlets. Route GFCI protected wires from outlet to reservoir level enclosure immediately adjacent to cathodic protection unit for heat lamp use.

PART 2: EQUIPMENT

2.01. General

A. All single and three phase power and distribution equipment shall be industrially rated for the voltage and phase it is to be applied to and designed for continuous duty operation. The minimum AIC rating of all 3 phase power equipment shall be 10,000 amp AIC.

2.02 Motor Control Center

A. The Contractor shall provide and install the MCC as shown on the plan drawings. The MCC is fully integrated with the SCADA equipment and controlled via a Process Field Bus network connection. The MCC supply is part of the overall I&C scope of delivery.

B. The motor feeders shall be UL listed, 600 VAC rated cable, and shall consist of XLPE insulated copper cable with three (3) #1 ga.cu power and three (3) #8 ga.cu symmetrical ground conductors. OLFLEX VFD symmetrical or approved equal. Conduit sizes from MCC to motors to be 2½".

C. Each 75 HP booster pump motor (provided by City) shall be equipped with an integral overheat sensor, capable of monitoring winding temperatures and activating a single pole normally closed switch to a remote circuit (open on temperature increase). A ½" underslab conduit with 3 - #12 cu conductors shall be added between each motor and its respective motor controller cabinet to route this circuit to the MCC.

2.03 Lighting Fixtures

A. Lighting Fixtures- Lighting fixtures shall be provided and installed as shown on the drawings according to type. All fixtures shall be securely installed in their intended location.

Type I: Type I fixtures shall be eight (8) foot, two bulb fluorescent fixtures, direct mounting, open bulb type with aperture. Fixtures to be equipped with energy saving ballast and be rapid starting. Fixtures to be equipped with T12 75 watt bulbs, high output style. Lithonia UND-2-96HO or approved equal.

The yard light shall be a 50W fluorescent weathertight fixture with a rapid-start ballast.

2.04 Heating Equipment

A. General - All equipment used for space heating shall be resistive element type with fan forced heating where specified. The unit heater shall be UL or CSA listed and approved for locations indicated. Heater shall be installed according to manufacturer's recommendations.

B. Unit Heater shall be 7.5 kW, 480 VAC, 3-phase fan forced unit heater. The unit heater shall be constructed of 20 gauge high quality steel, chemically treated with baked on finish. Heating element shall be spiral finned, totally enclosed sheath-type, with non-oxidizing heat resistant finish. Unit heater shall be equipped with internal factory installed contactor and thermal overload. Louvers shall be adjustable so that discharge air may be directed up or down. Unit Heaters shall be equipped with a summer-winter switch to allow fan operation only.

C. Exhaust fan and unit heater will be controlled with signals from the RTU. The Contractor shall provide conduit, wiring, and connections for the control signal from the RTU to the fan and unit heater.

2.05 Ventilation Equipment

A. General – All new equipment used for ventilation shall be bladed style exhaust fans. Fan blades shall be guarded within an OSHA approved guard. Exhaust fans shall be U.L. or C.S.A. approved.

B. Exhaust fan shall be a shutter mounted exhaust fan to provide a minimum of 2500 CFM at 0.125" static pressure. The unit shall have shutters with an OSHA approved guard. The fan shall have a 1/4 HP, 1075 RPM, enclosed ball bearing type motor and shall draw no more than 5 amps at rated load. Exhaust fan shall be Dayton model 1HLB2 or approved equal.

C. Installed intake and exhaust louvers shall be installed to comply with the design drawings.

2.06 Generator Receptacle

A. The 200A generator receptacle shall be a UL certified, 3 phase, 480 VAC, 4W receptacle. Receptacle shall be capable of being locked out from the exterior. Arktite or equivalent.

PART 3: SPECIAL SPECIFICATIONS AND PROJECT CLOSE-OUT

3.01 Special Specifications

A. The Electrical Contractor shall provide and install all electrical equipment listed herein including, but not limited to:

1. Metering equipment, including: Pull box, secondary conduit, and meter base.

2. All lighting, heating, and ventilation equipment

3. All conduit, receptacles, wire, wireways, fixtures and accessory items, including underground conduits.

In addition, the Contractor shall fully coordinate, provide and install conduit and wire runs and connect equipment supplied by others, including but not limited to:

1. Flowmeter analog signal.
2. Pressure transmitter signals
3. Intrusion alarms
4. Smoke detector
5. Flood sensor

3.02 Testing and Project Close Out

A. The Contractor shall furnish all labor and equipment to perform all required testing. Testing shall be performed in the presence of the Owner. Required tests shall include (at a minimum):

1. Rotation of all motors

2. Resistance to ground system

3. Testing and verification of all control systems

4. Start-up and failure testing of all systems

5. Lighting system and controls

B. Full test reports shall be submitted at the end of the project with the O & M manuals. The Contractor, at the end of the project shall remove all debris and refuse from the site. He shall remove oil, grease, and dirt from all enclosures. The Contractor shall make provisions in his bid to return to the project at a one month and six month interval after project acceptance to check the operation of all equipment and verify all connections and re-secure where necessary. All return trips to be coordinated with the Owner.

3.03. Operation and Maintenance Manuals

Three full sets of Operation and Maintenance Manuals including As-Built drawings shall be submitted to the Engineer at the end of the project for each site. These manuals shall be for the specific equipment and model furnished. A written eighteen (18) month guarantee shall also be provided at the final acceptance of the work.

PART 4: MEASUREMENT AND PAYMENT

4.01. Payment for work covered in this section shall be included in the lump sum price named in the proposal, no additional payment will be made. Payment to include full compensation for all materials, equipment, and labor to as shown on the plans.

END OF SECTION 16000

SECTION 17000
INSTRUMENTATION/CONTROL AND TELEMETRY SYSTEMS

PART 1 - GENERAL

1.01 SUMMARY

A. This section covers all work necessary for furnishing, installing, adjusting, testing, documenting, and starting-up the Instrumentation and Control (I&C) and Telemetry System.

B. Major elements of this system include, but are not limited to, all materials, equipment, and work required to implement a complete and operating system as described herein. The system shall include primary elements for process variable measurements, analog display, control elements, Motor Control Center and all hardware and software required for the Programmable Logic Controller (PLC) and Graphical User Interface (GUI).

The I&C and Telemetry System is an addition and modification to the CITY's existing system, which has been designed and furnished by S&B Inc. For compatibility with their comprehensive system, I&C design and system integration is provided by the City's I&C Consultant/Integrator, S&B Inc. Contractor shall include cost of instrumentation and control system efforts in bid price.

Electrical and Mechanical installation of the control system is provided by the Contractor. Refer to Section 16000 Electrical Work for the electrical installation requirements. Field Sensors with wetted process connections shall be installed by the Contractor and wired by the Electrical Contractor.

1.02 DEFINITION OF TERMS

A. System Integrator: A single firm, pre-selected by the Owner, who shall design and furnish the system, assemble and test the MCC and the RTU panel, and program PLCs, computers, and other instrument components and provide start-up and training services. The System Integrator is S&B Inc.

B. Contractor: The Contractor, as distinct from the System Integrator, shall install the panel, MCC, and other materials furnished by the System Integrator and provide all additional materials and work necessary and thereby, satisfy all requirements that are within the scope of the subject project.

1.03 SPECIAL REQUIREMENTS

A. The Contractor shall install components including those assembled and programmed by the System Integrator at the locations shown in the plans.

B. The Contractor shall provide conduit, wiring and wire terminations per the Project plan drawings. Contractor will provide conduit entry for telephone service as identified by electrical sheets.

C. The City has existing telephone service for this site at the adjacent reservoir control panel. The new booster pump station will connect to the existing telephone facilities via conduit and conductors run to the existing control panel. The System Integrator shall coordinate changeover from the existing control panel to the new station control system prior to startup and testing in coordination with the Contractor.

D. Constrained within the scope of supply of equipment provided in this Section, the System Integrator shall provide instructions for wire termination and energization of equipment supplied in this Section. See Paragraph 3.02 for additional information.

1.04 SUBMITTALS

A. Hardware Submittals
The System Integrator shall prepare a complete hardware submittal in digital format. The submittal shall include fully detailed shop drawings, catalog cuts, wiring connections, and such other descriptive matter and documentation as may be required to fully describe the equipment and to demonstrate its conformity to these Specifications. Catalog information shall be submitted for all components and equipment, regardless of whether or not it is of the same manufacture as that listed in the Specifications.

B. System Drawing Submittals
The System Integrator shall prepare complete system interconnect wiring diagrams and panel layout drawings for approval. Thirty (30) days shall be allowed for this purpose.

1.05 DOCUMENTATION

A. The System Integrator shall provide documentation for the complete Instrumentation and Control and Telemetry System. This documentation shall include Operation and Maintenance Manuals and Record Drawings:

1. Operating and Maintenance Manuals
    a. Provide a preliminary Operation and Maintenance Manual in digital format for review by the City and Engineer prior to delivery of equipment to jobsite.
    b. Following approval of the O&M content by the Engineer, supply manuals in accordance to the project general specifications. These manuals shall not only include descriptive material, but also drawings and figures bound in appropriate places.
    c. The manuals shall include operating and maintenance literature for all components provided in this section. The submitted literature shall be in sufficient detail to facilitate the operation, removal, installation, adjustment, calibration, and maintenance of each component provided under this section.

2. Record Drawings
    a. Block Diagrams: These diagrams shall be in the same format and style as those provided in these Contract Documents.

    b. Schematic and Interconnecting Wiring Diagrams: Diagrams shall show all equipment (panels, field elements, etc.) and all terminations provided under this section. Wiring diagrams shall clearly show all terminal block number designations and wire numbers. Diagrams, device designations, and symbols shall be in accordance with the Owner's Telemetry System record drawings.

PART 2 - PRODUCTS

2.01 GENERAL

A. The Instrumentation and Control and Telemetry System is designed to function as an integral part of the Owner's comprehensive Water Telemetry and Control System in place at other City facilities. This system is designed to work as an integral part of the City's existing control system. All design and equipment are therefore selected to be fully compatible and when possible, to match existing systems.

B. At the City Shops facility, the Master Control Panel and Graphical User Interface Systems shall be modified by S&B Inc. to accommodate the new facilities specified and indicated in the drawings.

C. The System Integrator shall furnish the following equipment for installation by the Contractor at the Pump Station.

D. One Siemens Motor Control Center (MCC) fully integrated using Profibus communications.

E. One S&B Model 6000-P71 PLC Based Control Panel in a Nema 12 rated Enclosure sized 36x30x10.

F. Individual instruments and components not part of the above assemblies and to be installed separately by the Contractor as follows:

Tag	Description	Drawing References
PIT-901	Suction Pressure Transmitter	IC-1, E-1
PIT-961	Discharge Pressure Transmitter	IC-1, E-1
FE-962	10" Magmeter Sensor	IC-1, E-1
FIT-962	Magmeter Remote Transmitter	IC-1, E-1
LSH-982	Pump Room Flood Sensor	IC-2, E-1
ZS-981	Pump Room Door Ajar Switch	IC-2, E-1
GAH-987	Smoke Detector	IC-2, E-1

2.02 SYSTEM DESCRIPTION

General

A. The Instrumentation, Control and Telemetry system is designed to provide overall control for the pump station. The control scheme includes features for closed loop discharge pressure control and fixed rate pumping.

B. The block diagrams illustrate each of the instrument loops and the major instrument components involved. The System Integrator shall be responsible for the design of the system and developing all software for the PLCs, MCC's and GUI Systems.

C. Any equipment or devices shown on the "IC-1" and "IC-2" block diagram drawings as 'future' or 'by others' are shown for information purposes. No future hardware is included as part of this contract, "by others" hardware identifies materials supplied as part of the overall project and specified outside of this Section, and not included in the scope of work provided by S&B.

D. Software shall be provided for each RTU, MCC and for the Headquarters system. At the RTU Panel, the PLC shall be programmed to provide local automatic as well as supervisory control of the station provided by the Headquarters PLC via the communications system. Software is also provided for the Operator Interface Module (OIM) at the RTU Panel. All alarm and control functions are monitored locally on the OIM as well as transmitted to Headquarters. Fail safe features shall be included for all operations.

E. At the Headquarters, software shall be provided for the Master PLC and the Graphic User Interface (GUI) computer. The Master PLC software shall provide the remote control and monitor the pumping stations and reservoir. The GUI computer shall be used to monitor the station and to provide instructions for the Master PLC to control the system. Software for this system addition shall be consistent with the System Integrator's and the CITY's comprehensive telemetry system.

Pump Control Strategies

F. The software is included for local automatic control for the three VFD operated pumps. The RTU will ramp up and ramp down pump speed to provide smooth pressure transitions between pumping and non-pumping conditions.

G. Remote automatic control shall include individual start and stop setpoints for the pumps, based upon the level of the zone reservoirs and additionally to operate as a closed loop pressure control system. Setpoints shall be entered using the GUI computer at the Headquarters System at the City Shops location.

H. In the event communications is lost from the Headquarters System, local backup control shall be provided using the discharge pressure signal and calculated pump time supplied by the Master PLC at its last update.

I. Fail safe logic shall include protection against low suction pressure, too many starts, coincidental start, and fail to run conditions.

J. Supervisory control is provided by the GUI to override any automatic controls.

PART 3 - EXECUTION

3.01 GENERAL

A. Construct panels and integrate equipment in a workman-like manner utilizing craftsmen skilled in the particular trade. Provide work that has a neat and finished appearance.

B. Coordinate Instrumentation and Control work with the Engineer, Owner, Contractor and work of other trades to avoid conflicts, errors, delays and unnecessary interference with system operations during construction.

3.02 COORDINATION WITH SYSTEM INTEGRATOR

A. The Contractor shall coordinate directly with the System Integrator to insure all requirements within the scope of this Section are satisfied.

B. Submittal Information

Three sets of Control System submittals are provided within two weeks of the notice to proceed. Submittal information will include installation mounting requirements, panel layouts and catalog information for field sensors and panel equipment.
Three sets of the control system Operating Description will be submitted to the City and Engineer for review a minimum of two weeks prior to the system simulation and demonstration.

C. System Simulation

1. To the degree possible, the complete MCC, I&C, and Telemetry Systems shall be simulated at the System Integrator's facility. The Engineer, Contractor and Owner personnel shall be invited to witness simulation and approve test results prior to shipment to the project site.
2. Discrepancies and/or deficiencies identified during the system simulation shall be resolved and re-tested within ten working days.

D. Communication Testing and Simulation

1. Prior to start-up of the system, all communication facilities shall be tested by System Integrator. Signals shall be simulated and circuit performance verified prior to system start-up. The Contractor shall be responsible for installing cables and wires for connecting the equipment as shown on the drawings.

E. Coordinate delivery of equipment to jobsite. The Contractor shall provide the System Integrator a schedule for requested delivery of the equipment in Paragraph 2.01 within four weeks from the formal notice to proceed.

F. Project Site Coordination and Power up

1. The System Integrator shall make up to three visits to jobsite to assist the Contractor in reading equipment schematics and with sequenced power up of equipment. The Contractor shall schedule these site visits with a minimum of five working day notice.
2. The first visit will include review of installation requirements for all field equipment connected to the MCC and station's control panel. Two hours are reserved for this purpose.
3. The second visit will follow installation of the MCC, pump motors and control panel. The System Integrator shall verify power terminations of connected equipment, commission the VFD units with the pump motors and confirm control panel network connections to the MCC and local telephone utility. Following completion of these tasks, the pump supplier will be notified the power systems are ready for their use in testing pump operation. One day is reserved for these functions.
4. The third visit will provide startup and testing of the overall control system. Field sensors are checked for proper wiring terminations prior to energization. One day is reserved for these functions. The system integrator shall provide notice to the Contractor that the system is ready for startup and testing activities or identify any deficiencies with the system that prevent startup.
5. The System Integrator shall configure/secure the internal components within the control panel to allow for the electrician to terminate wiring between the control panel and field equipment without risk of damage to the panel.

G. Field Acceptance Test

1. S&B shall conduct acceptance tests and provide operator training for the MCC, I&C and Telemetry Systems. Functional Acceptance Testing may begin following startup and commissioning of the control system. Owner training is an integral part of the field acceptance testing such that the City will observe how the system performs for each operating condition. The System Integrator shall modify software as needed to conform to actual operating conditions if deficiencies are observed.

3.03 PROTECTION DURING CONSTRUCTION

A. The System Integrator will provide insurance and protection for equipment and panels while in production and during storage prior to shipment. Equipment in transit will be insured for damage. All equipment is quoted freight-on-board, the Contractor will assume responsibility for all goods upon delivery to jobsite.

3.04 MATERIAL AND EQUIPMENT INSTALLATION

A. The Contractor shall follow manufacturer's installation instructions explicitly, unless otherwise indicated. Wherever any conflict arises between manufacturer's instructions and these Contract Documents, the Contractor shall provide a written "Request For Information" (RFI) to the System Integrator. The System Integrator shall supply a response within one business day. Keep a copy of each manufacturer's installation instructions on the jobsite, available for review at all times.

3.05 TESTS

A. A witnessed FUNCTIONAL ACCEPTANCE TEST shall be performed on the complete system of Instrumentation and Controls. Each function shall be demonstrated to the satisfaction of the City and its Engineer on a loop-by-loop basis. The actual testing program shall be conducted in accordance with the prior approved procedures, and shall be certified by our Field Engineer and forwarded to the City as a record document. Interim reports of progress shall be provided if equipment and or instruments fail or are unavailable.

B. All special testing materials and equipment shall be provided under the SCOPE of this Section. Where it is not practical to test with real process variables, provide suitable means of simulation. These simulation techniques shall be subject to the approval of the Engineer.

C. S&B will coordinate all testing with the Contractor. The Contractor shall provide overall coordination of pump station testing and demonstration.

S&B will notify the Engineer at least one week prior to the date of the initial functional acceptance test, and two business days prior to any retesting.

3.06 PAYMENT

Payment for work covered in this section shall be included in the price named in the proposal, no additional payment will be made. Payment to include full compensation for all materials, equipment, and labor to as shown on the plans.

END OF SECTION 17000

Appendix E

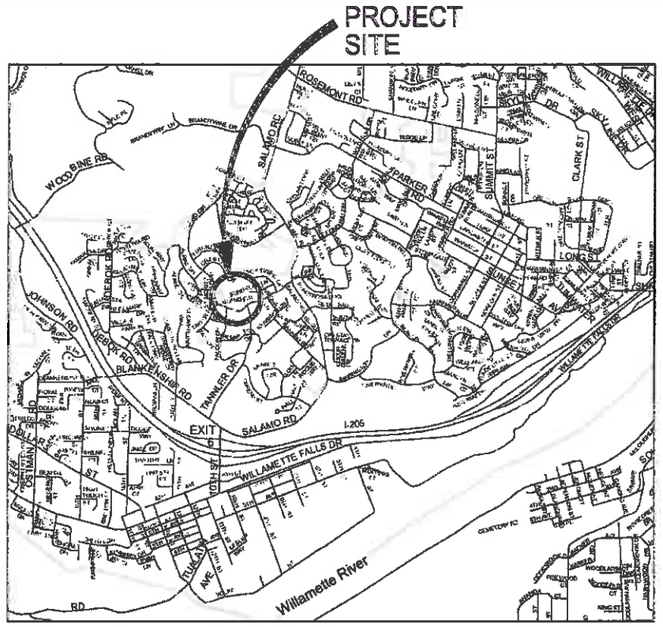
PLANS

City of West Linn

BLAND CIRCLE INTERTIE PUMP STATION
PROJECT NUMBER: PW1014
MARCH, 2014

DESIGN ENGINEER:
4B ENGINEERING
EDWARD BUTTS, PE
ADAM BUTTS, E.I.
BROOKE SALTARELLO
3700 RIVER ROAD N
SUITE 2
KEIZER, OREGON 97303

OWNER:
CITY OF WEST LINN
ERICH LAIS, P.E.
ASSISTANT CITY ENGINEER
22500 SALAMO ROAD
WEST LINN, OREGON 97068

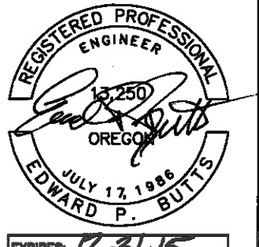


WEST LINN, OREGON
VICINITY MAP
NOT TO SCALE

SHEET INDEX

DESIGN CRITERIA

ADDRESS: 23120 SW BLAND CIRCLE WEST LINN, OREGON 97068
TYPE OF FACILITY: POTABLE WATER BOOSTER PUMPING STATION
OCCUPANCY CATEGORY: IV
OCCUPANCY CLASS: F1
CONSTRUCTION TYPE: V-B (ACCEPTABLE FOR SINGLE STORY STRUCTURES UP TO 5,500 FT^2)
BUILDING AREA: 352 SQUARE FEET (16' X 22')
< 5,500 FT^2 ALLOWED
NUMBER OF STORIES: 1
DESIGN CATEGORY: CATEGORY IV (ESSENTIAL FACILITIES)
WALL CONSTRUCTION FRAMING: 8" X 8" X 16" HOLLOW CORE MEDIUM WEIGHT CONCRETE MASONRY UNITS; COLOR: DARK GREEN
ROOF CONSTRUCTION: PREFABRICATED TRUSSES @ 24" O.C. SPACING WITH 3/4" EXTERIOR GRADE PLYWOOD SHEATHING, AND STANDING SEAM METAL ROOF.
FLOOR CONSTRUCTION: 6" CAST-IN-PLACE CONCRETE
SEISMIC SITE CLASS: CLASS "D"
NEAREST SETBACK TO PROPERTY LINE: 20' FROM SOUTH PROPERTY LINE



EXPIRES: 12-31-15

4B ENGINEERING & CONSULTING, LLC
3700 RIVER ROAD N, SUITE 2
KEIZER, OREGON 97303
(503) 589-1115

CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
COVER SHEET

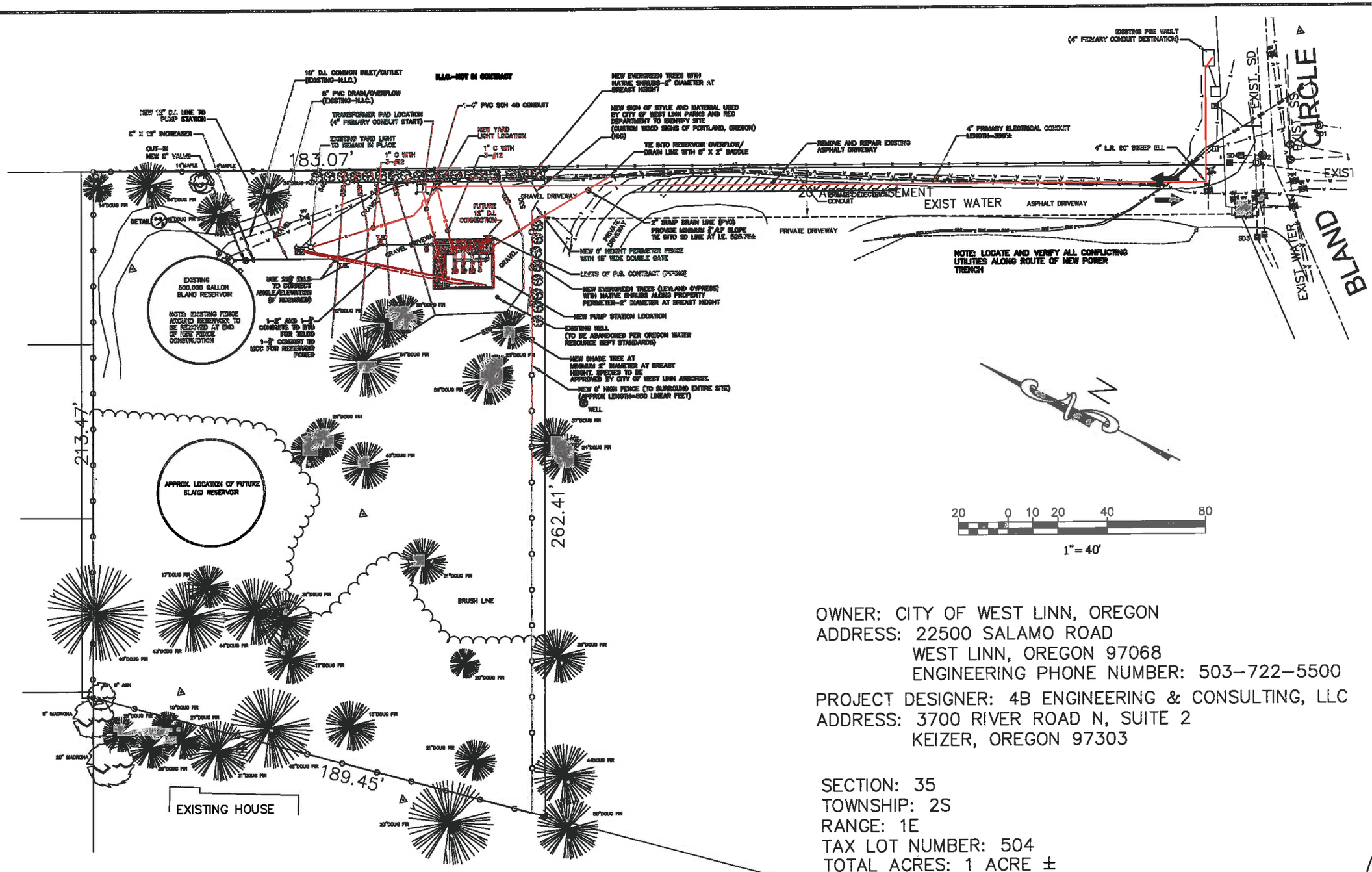
PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657-0331

DESIGN: EDWARD P. BUTTS, P.E. ADAM BUTTS, E.I.
DRAWN: BROOKE SALTARELLO
DATE: AUGUST 19, 2013
DRAWING:
SCALE: AS SHOWN

REVISIONS:

No.	Date	By
1	JAN 27, 2014	BS

SHEET: C-1



OWNER: CITY OF WEST LINN, OREGON
ADDRESS: 22500 SALAMO ROAD
WEST LINN, OREGON 97068
ENGINEERING PHONE NUMBER: 503-722-5500

PROJECT DESIGNER: 4B ENGINEERING & CONSULTING, LLC
ADDRESS: 3700 RIVER ROAD N, SUITE 2
KEIZER, OREGON 97303

SECTION: 35
TOWNSHIP: 2S
RANGE: 1E
TAX LOT NUMBER: 504
TOTAL ACRES: 1 ACRE ±

REGISTERED PROFESSIONAL ENGINEER
13250
OREGON
JULY 17, 1986
EDWARD P. BUTTS
EXPIRES: 12-31-15

4B ENGINEERING & CONSULTING, LLC
3700 RIVER ROAD N, SUITE 2
KEIZER, OREGON 97303
(503) 589-1115

CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
SITE PLAN

PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657-0331

DESIGN: EDWARD P. BUTTS, P.E. ADAM E. BUTTS, EI
DRAWN: SINCERE SALTARELLO
DATE: JUNE 4, 2013
DRAWING:
SCALE: AS SHOWN

REVISIONS:

No.	Date	By
1	JAN 27, 2014	SS

SHEET: S-1A

N.I.C.–NOT IN CONTRACT

10" D.I. COMMON INLET/OUTLET (EXISTING–N.I.C.)

8" PVC DRAIN/OVERFLOW (EXISTING–N.I.C.)

NEW 12" D.I. LINE TO PUMP STATION

8" X 12" INCREASER

CUT–IN NEW 8" VALVE

TRANSFORMER PAD LOCATION (4" PRIMARY CONDUIT START)

1–4" PVC SCH 40 CONDUIT

NEW YARD LIGHT LOCATION

EXISTING YARD LIGHT TO REMAIN IN PLACE

1" C WITH 3–#12

1" C WITH 3–#12

NEW EVERGREEN TREES WITH NATIVE SHRUBS–2" DIAMETER AT BREAST HEIGHT

NEW SIGN OF STYLE AND MATERIAL USED BY CITY OF WEST LINN PARKS AND REC DEPARTMENT TO IDENTIFY SITE (CUSTOM WOOD SIGNS OF PORTLAND, OREGON) (NIC)

TIE INTO RESERVOIR OVERFLOW/ DRAIN LINE WITH 8" X 2" SADDLE

183.07'

14"MAPLE

14"MAPLE

34"DOUG FIR

14"DOUG FIR

34"DOUG FIR

48"DOUG FIR

DETAIL S-2/B

GRAVEL

GRAVEL

GRAVEL DRIVEWAY

GRAVEL DRIVEWAY

GRAVEL

FUTURE 12" D.I. CONNECTION

GRAVEL DRIVEWAY

PRIVATE DRIVEWAY

2" SUMP DRAIN LINE (PVC) PROVIDE MINIMUM ¼"/LF SLOPE TIE INTO SD LINE AT I.E. 525.75±

NEW 6' HEIGHT PERIMETER FENCE WITH 15' WIDE DOUBLE GATE

LIMITS OF P.S. CONTRACT (PIPING)

NEW EVERGREEN TREES (LEYLAND CYPRESS) WITH NATIVE SHRUBS ALONG PROPERTY PERIMETER–2" DIAMETER AT BREAST HEIGHT

NEW PUMP STATION LOCATION

EXISTING WELL (TO BE ABANDONED PER OREGON WATER RESOURCE DEPT STANDARDS)

NEW SHADE TREE AT MINIMUM 2" DIAMETER AT BREAST HEIGHT. SPECIES TO BE APPROVED BY CITY OF WEST LINN ARBORIST.

NEW 6' HIGH FENCE (TO SURROUND ENTIRE SITE) (APPROX LENGTH=850 LINEAR FEET)

W WELL

PM

T.B.

T.B.

EXISTING 500,000 GALLON BLAND RESERVOIR

NOTE: EXISTING FENCE AROUND RESERVOIR TO BE REMOVED AT END OF NEW FENCE CONSTRUCTION

USE 22½° ELLS TO CORRECT ANGLE/ELEVATION (IF REQUIRED)

1–2" AND 1–¾" CONDUITS TO RTU FOR TELCO

1–¾" CONDUIT TO MCC FOR RESERVOIR POWER

32"DOUG FIR

28"DOUG FIR

54"DOUG FIR

56"DOUG FIR

23"DOUG FIR

530

540

538

536

534

532

530

213.47'

29"DOUG FIR

43"DOUG FIR

APPROX. LOCATION OF FUTURE BLAND RESERVOIR

N

20 0 10 20 40 80

1"=20'

OWNER: CITY OF WEST LINN, OREGON
ADDRESS: 22500 SALAMO ROAD
WEST LINN, OREGON 97068
ENGINEERING PHONE NUMBER: 503–722–5500

PROJECT DESIGNER: 4B ENGINEERING & CONSULTING, LLC
ADDRESS: 3700 RIVER ROAD N, SUITE 2
KEIZER, OREGON 97303

SECTION: 35
TOWNSHIP: 2S
RANGE: 1E
TAX LOT NUMBER: 504
TOTAL ACRES: 1 ACRE ±

REGISTERED PROFESSIONAL ENGINEER
13,250
OREGON
JULY 17, 1986
EDWARD P. BUTTS
EXPIRES: 12-31-15

4B ENGINEERING & CONSULTING, LLC
3700 RIVER ROAD N, SUITE 2
KEIZER, OREGON 97303
(503) 589–1115

CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
SITE PLAN

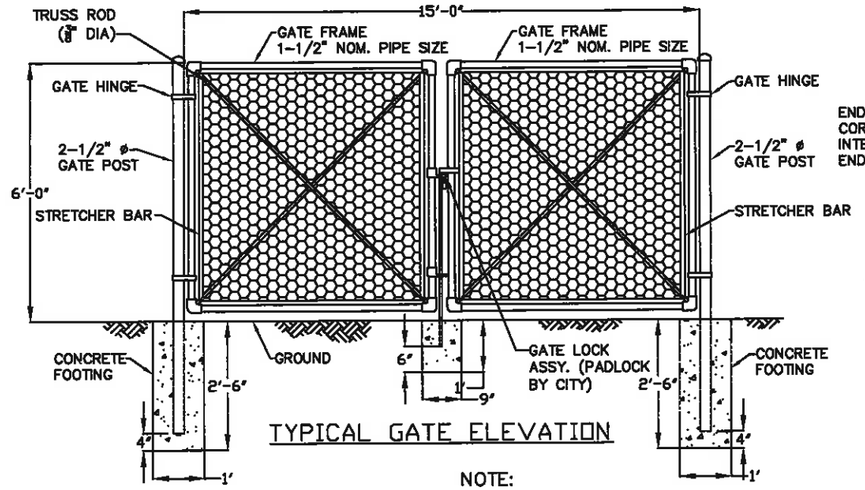
PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657–0331

DESIGN:	EDWARD P. BUTTS, P.E. ADAM E. BUTTS, E.I.
DRAWN:	BROOKE BALTARELLO
DATE:	JUNE 4, 2013
DRAWING:	
SCALE:	AS SHOWN

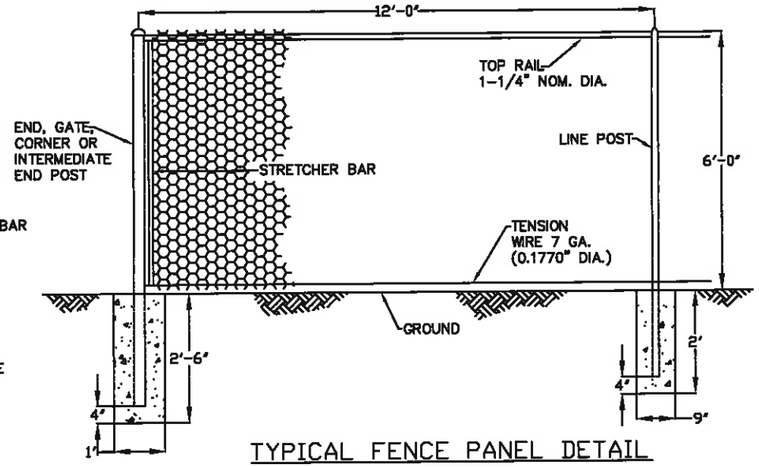
REVISIONS:

No.	Date	By
1	JAN 27, 2014	BS

SHEET: S–1B



TYPICAL GATE ELEVATION

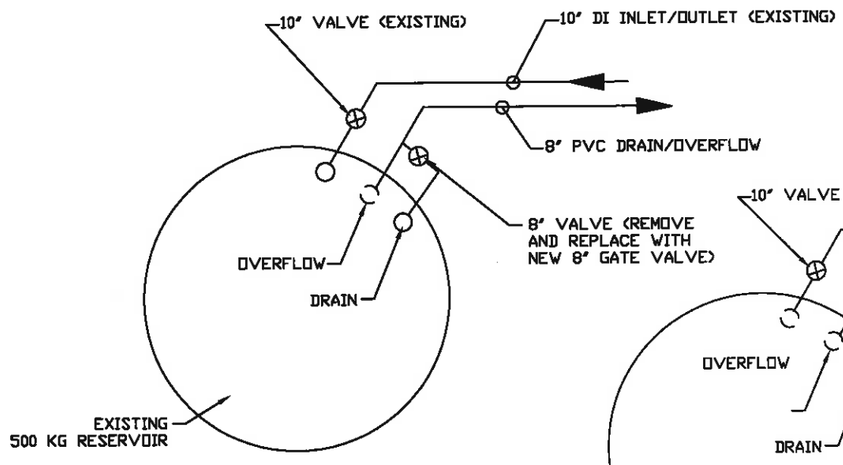


TYPICAL FENCE PANEL DETAIL

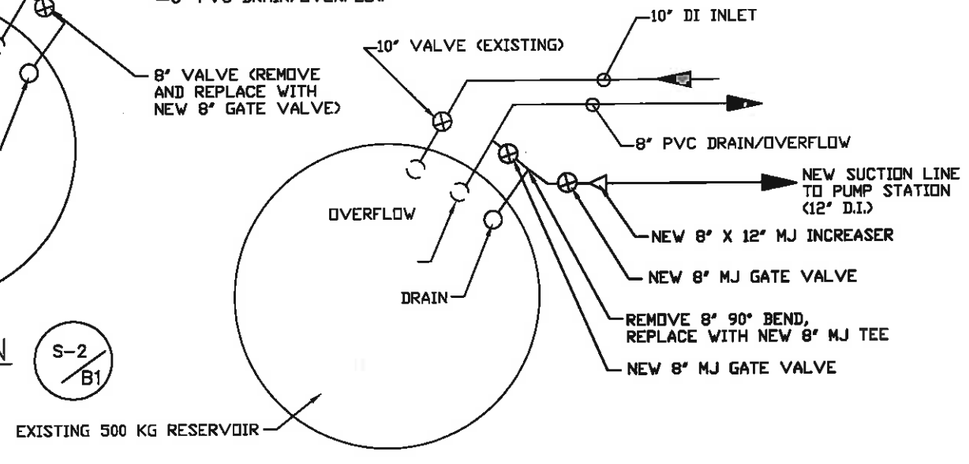
NOTE:

1. BLACK POWDER COATING ON ALL HARDWARE AND ACCESSORIES IS REQUIRED.
2. ALL MATERIAL AND WORKMANSHIP SHALL BE IN

TYPICAL FENCE DETAILS (S-2/A)
SCALE: NTS



EXISTING PIPING CONFIGURATION (S-2/B1)
SCALE: NTS



NEW REVISED PIPING LAYOUT (S-2/B2)
SCALE: NTS

PIPING CONNECTION SCHEMATIC AT RESERVOIR (S-2/B)
SCALE: NTS

4B ENGINEERING & CONSULTING, LLC
3700 RIVER ROAD N, SUITE 2
KEIZER, OREGON 97303
(503) 589-1115

CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
SITE DETAILS

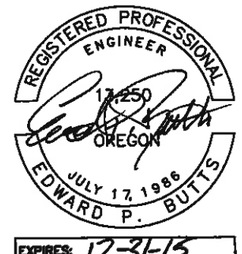
PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657-0331

DESIGN: EDWARD P. BUTTS, P.E. / ADAM E. BUTTS, E.I.
DRAWN: BROOKE SALTARELLO
DATE: AUGUST 16, 2013
DRAWING:
SCALE: AS SHOWN

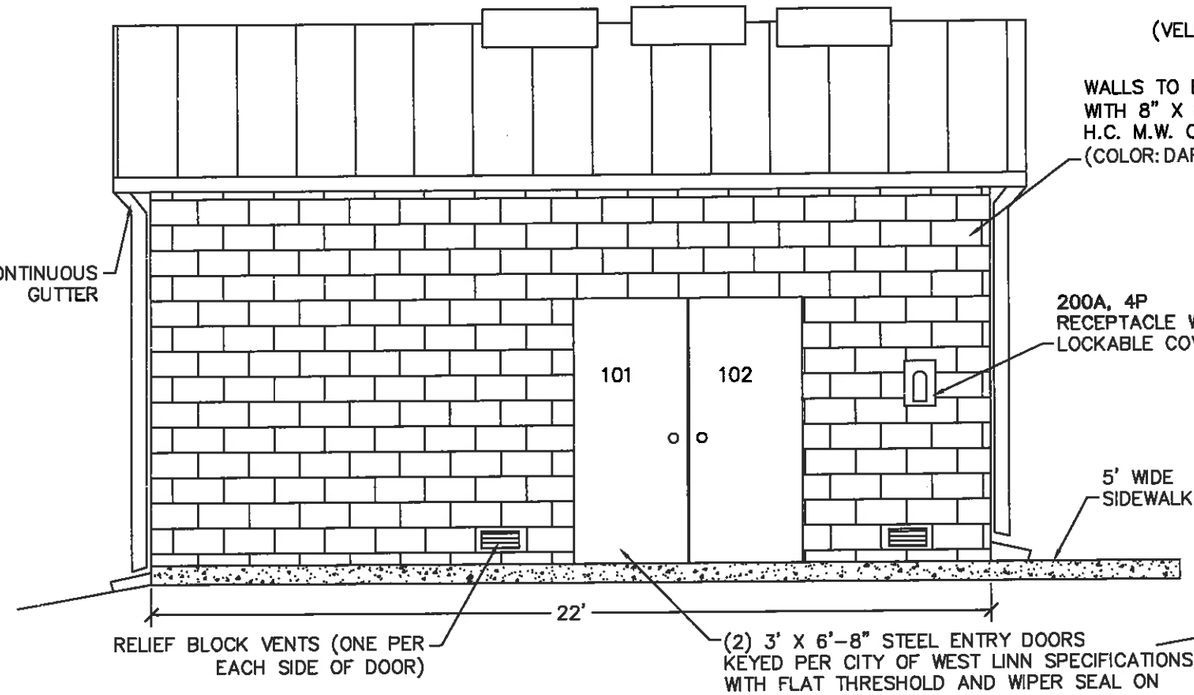
REVISIONS:

No.	Date	By

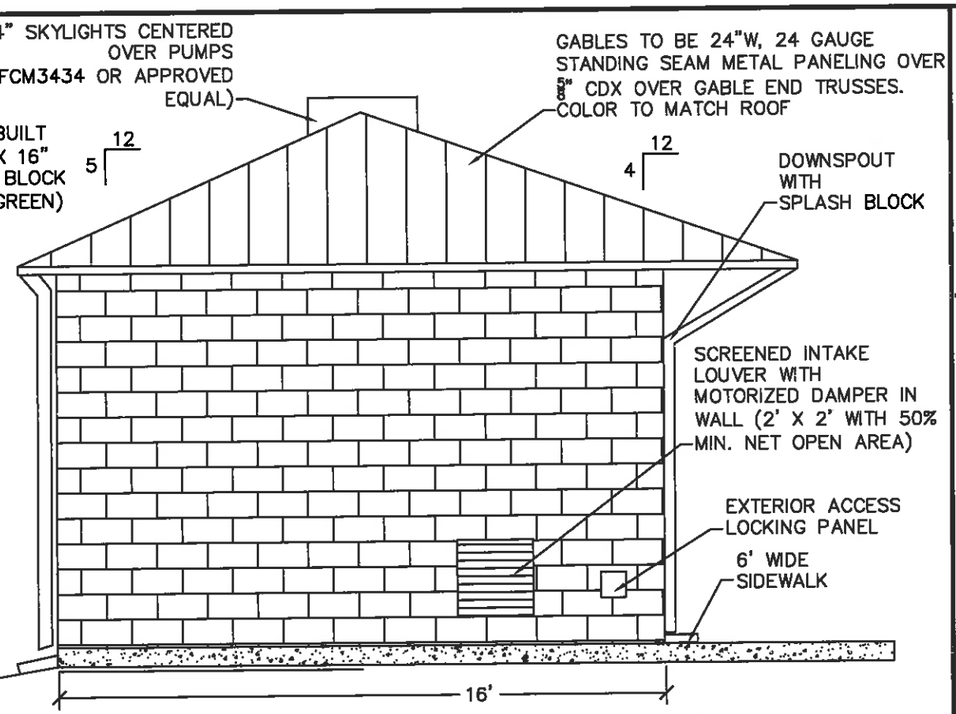
SHEET: S-2



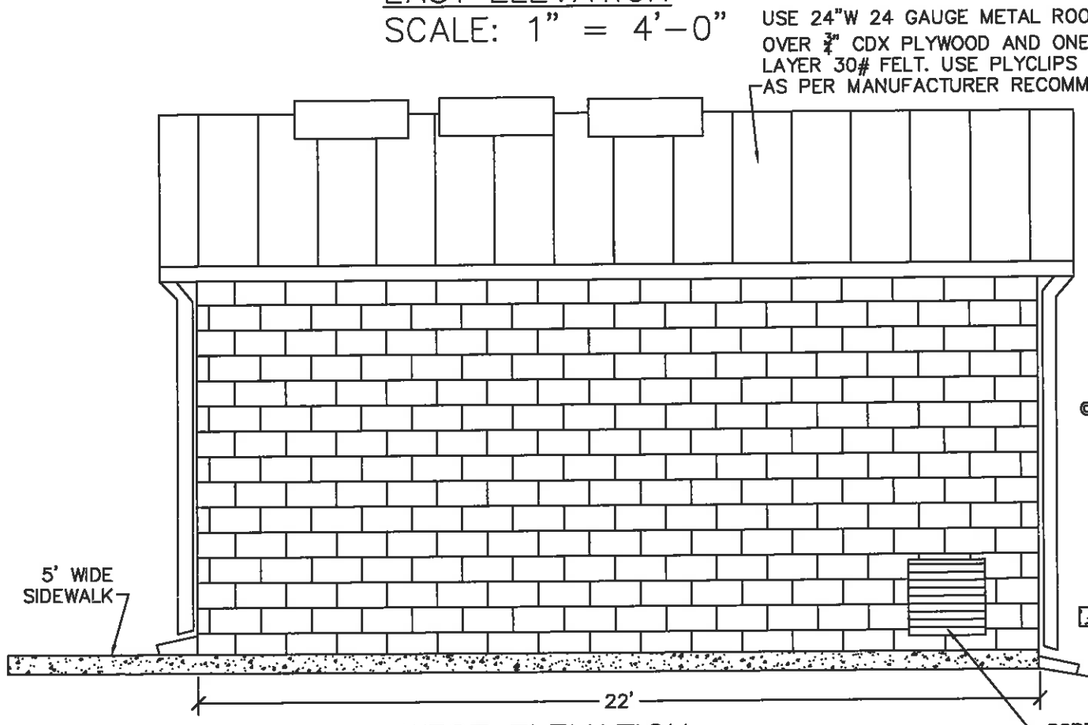
EXPIRES: 12-31-15



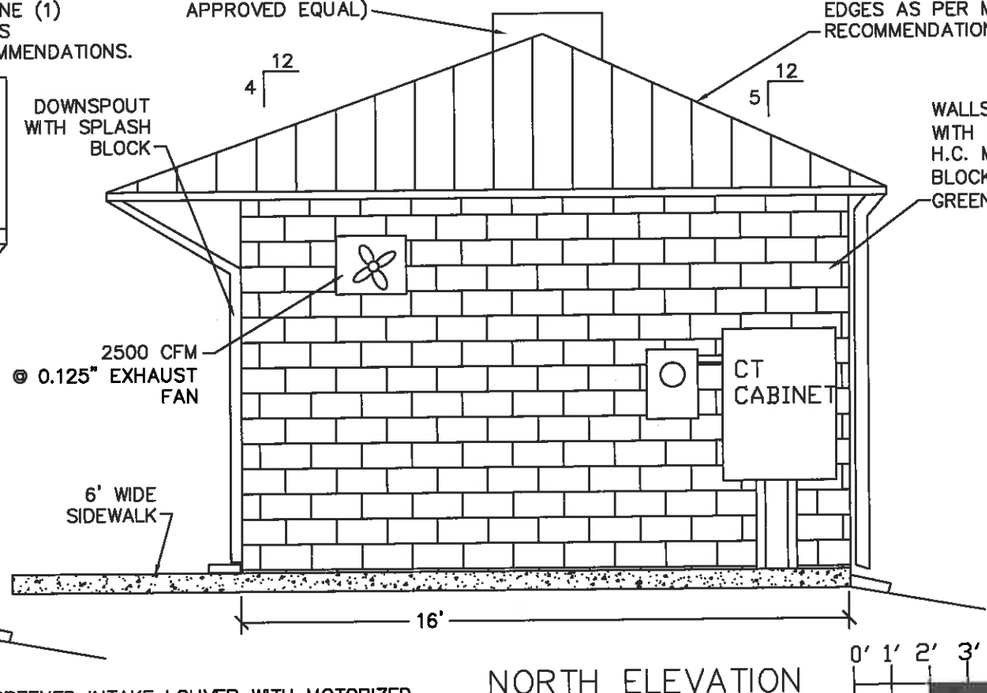
EAST ELEVATION
SCALE: 1" = 4'-0"



SOUTH ELEVATION
SCALE: 1" = 4'-0"



WEST ELEVATION
SCALE: 1" = 4'-0"



NORTH ELEVATION
SCALE: 1" = 4'-0"

0' 1' 2' 3' 4' 5'

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(503) 589-1115

CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
EXTERIOR DETAILS

PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657-0331

DESIGN: EDWARD P. BUTTS, P.E.
ADAM E. BUTTS, EI
DRAWN: BROOKE SALTARELLO
DATE: AUGUST 16, 2013
DRAWING:
SCALE: AS SHOWN

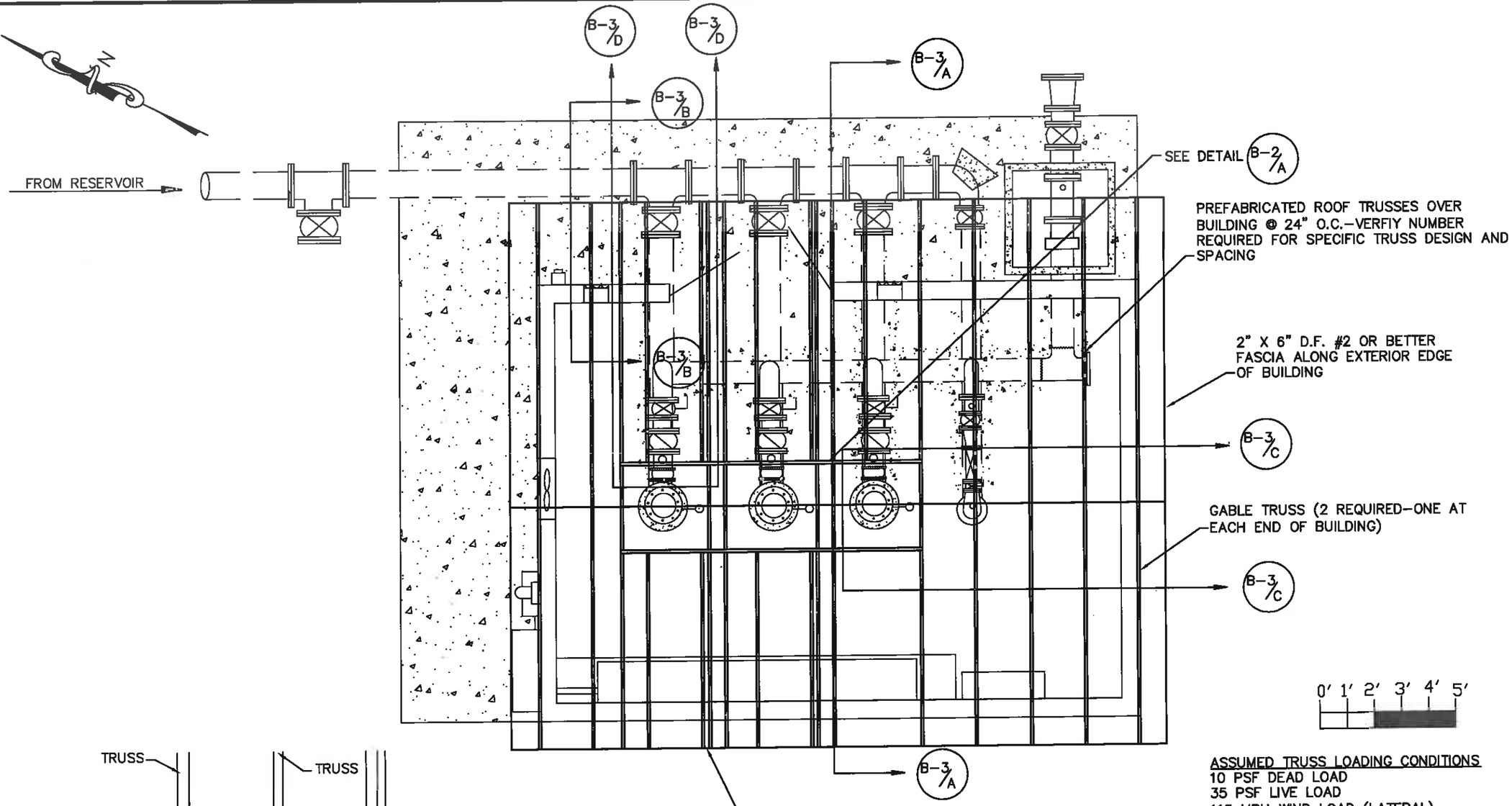
REVISIONS:

No.	Date	By
1	JAN 27, 2014	BS

SHEET: B-1

REGISTERED PROFESSIONAL ENGINEER
15,250
OREGON
JULY 17, 1986
EDWARD P. BUTTS

EXPIRES: 12-31-15

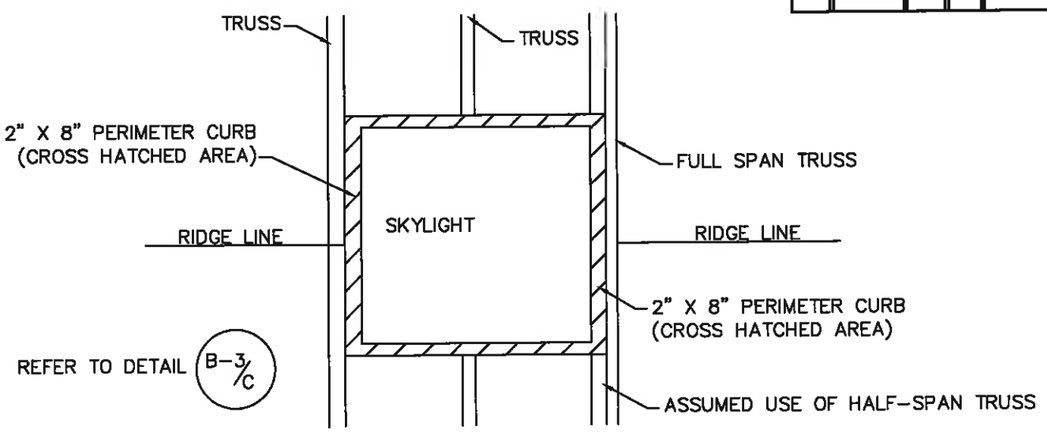


ROOF FRAMING PLAN (TYPICAL)
SCALE: 1" = 4'–0"

0' 1' 2' 3' 4' 5'

ASSUMED TRUSS LOADING CONDITIONS
10 PSF DEAD LOAD
35 PSF LIVE LOAD
115 MPH WIND LOAD (LATERAL)

NOTE: TRUSS SUPPLIER SHALL VERIFY THE NUMBER AND DESIGN OF TRUSSES AND SUPPORTING MEMBERS REQUIRED TO FACILITATE THE BUILDING DIMENSIONS WITH SKYLIGHTS.



SKYLIGHT DETAIL (TYPICAL) B-2/A
SCALE: N.T.S.

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CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
ROOF PLAN AND DETAILS

PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657-0331

DESIGN: EDWARD P. BUTTS, P.E. ADAM E. BUTTS, E
DRAWN: BROOKE SALTARELLO
DATE: AUGUST 19, 2013
DRAWING:
SCALE: AS SHOWN

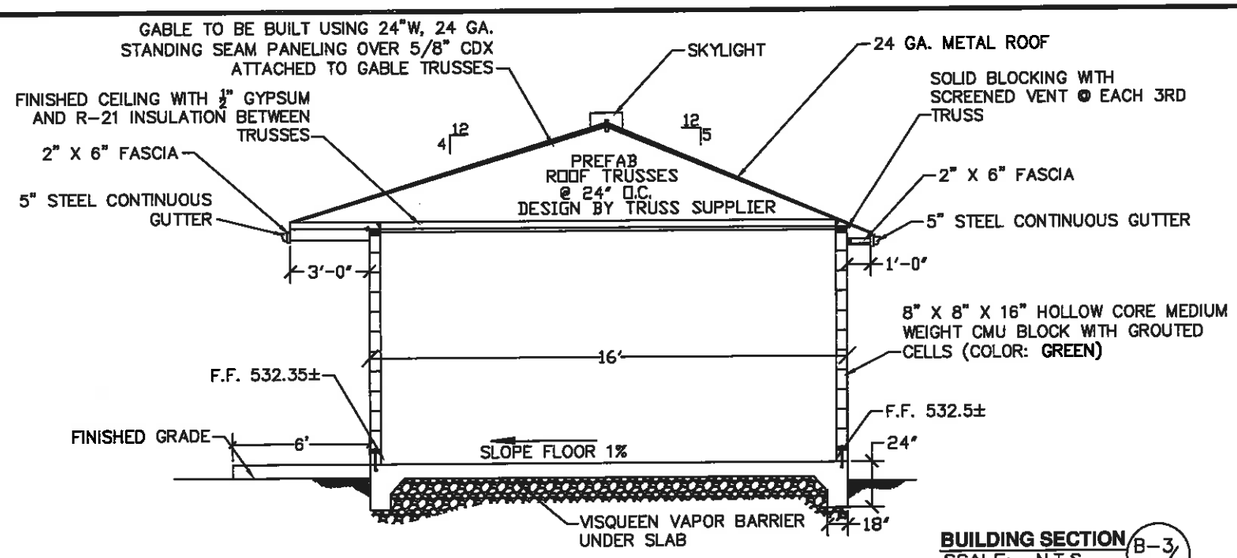
REVISIONS:

No.	Date	By

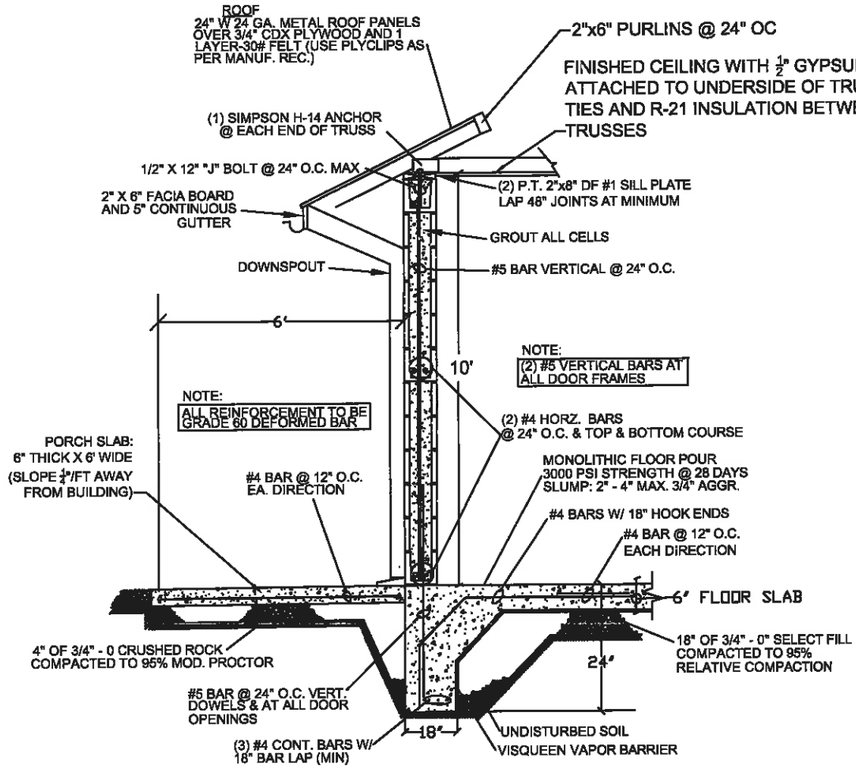
SHEET: B–2

REGISTERED PROFESSIONAL ENGINEER
13,250
OREGON
JULY 17, 1986
EDWARD P. BUTTS

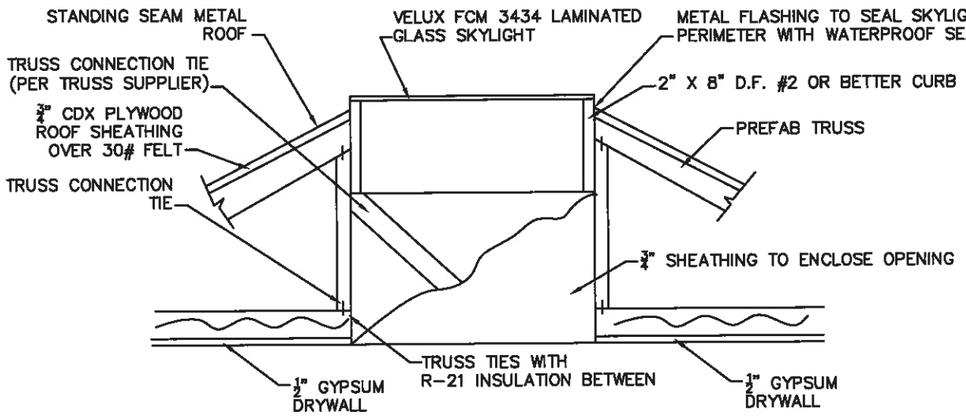
EXPIRES: 12-31-15



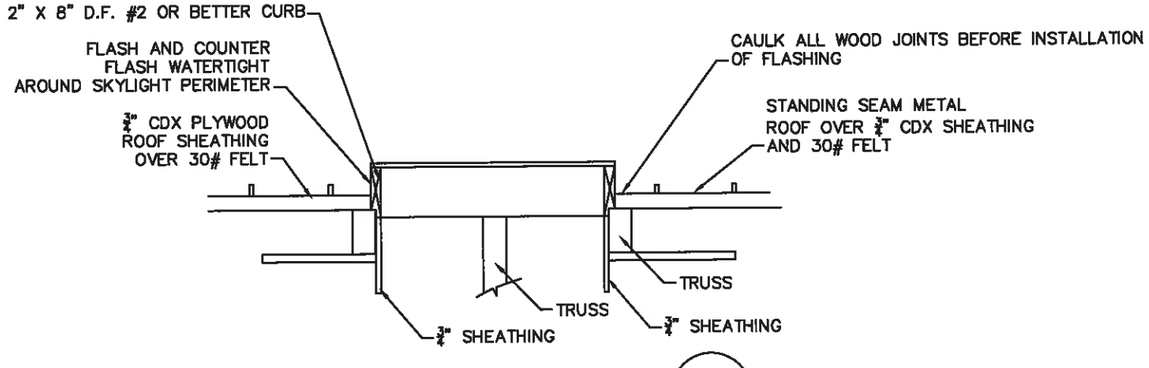
BUILDING SECTION B-3/A
SCALE: N.T.S.



TYPICAL BUILDING SECTION B-3/B
SCALE: N.T.S.



ROOF SECTION AT SKYLIGHT DETAIL (SOUTH VIEW-TYPICAL) B-3/C
SCALE: N.T.S.



ROOF SECTION AT SKYLIGHT DETAIL (EAST VIEW-TYPICAL) B-3/D
SCALE: N.T.S.

DOOR TYPES

1. " " SHOWN ON SCHEDULE INDICATES TYPICAL
2. DOOR TYPES
3. CONSTRUCTION
   - TYPICAL - SOLID CORE
   - HC - HOLLOW CORE
   - HM - HOLLOW METAL
   - MC - MINERAL CORE
   - RU - ROLL UP/COIL
   - AL - ALUMINUM & GLASS
4. MATERIAL/FINISH
   - TYPICAL - WOOD TRANSPARIENT
   - WF - WOOD FACTORY
   - PL - PLASTIC LAMINATE
   - ME - METAL ENAMEL
   - WE - WOOD ENAMEL
   - FF - FACTORY FINISH
5. GLASS
   - TYPICAL - CLEAR WIRE
   - TP - TEMPERED PLATE
   - SF - SAFETY GLASS
6. 20, 45, 60, 90, INDICATES RATING IN MINUTES FOR OPENING
7. TYPICAL FRAMES SHOWN " " NUMBER INDICATES DETAIL SHOWN ON SHEET.
8. NUMBER REFERS TO HARDWARE GROUP OF HARDWARE SCHEDULE
   - 1=LEVER HANDLE AND DEADBOLT
   - 2=NONE (2ND DOOR OF PAIR)
   - 3=DEADBOLT ONLY

NOTE: LOCKS KEYED TO CITY OF WEST LINN STANDARD
NOTE: ALL DOORS TO HAVE LEVER TYPE HARDWARE

A.

DOOR SCHEDULE

NO.	SIZE	TYPE NOTE 1	CONST(3)	FINISH(4)	GLASS(5)	RATING(6)	FRAME(7)	HDWR(8)
101	3'-0"x6'-8"x13/4"	A	HM	ME	-	-	1	1
102	3'-0"X6'-8"X13/4"	A	HM	ME	-	-	-	2

DOOR SCHEDULE B-3/E
SCALE: N.T.S.

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CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
RIDGE AND SKYLIGHT
DETAILS

PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657-0331

DESIGN: EDWARD P. BUTTS, P.E. ROBERT E. BUTTS, P.E.
DRAWN: BROOKE SALTARELLO
DATE: AUGUST 19, 2015
DRAWING:
SCALE: AS SHOWN

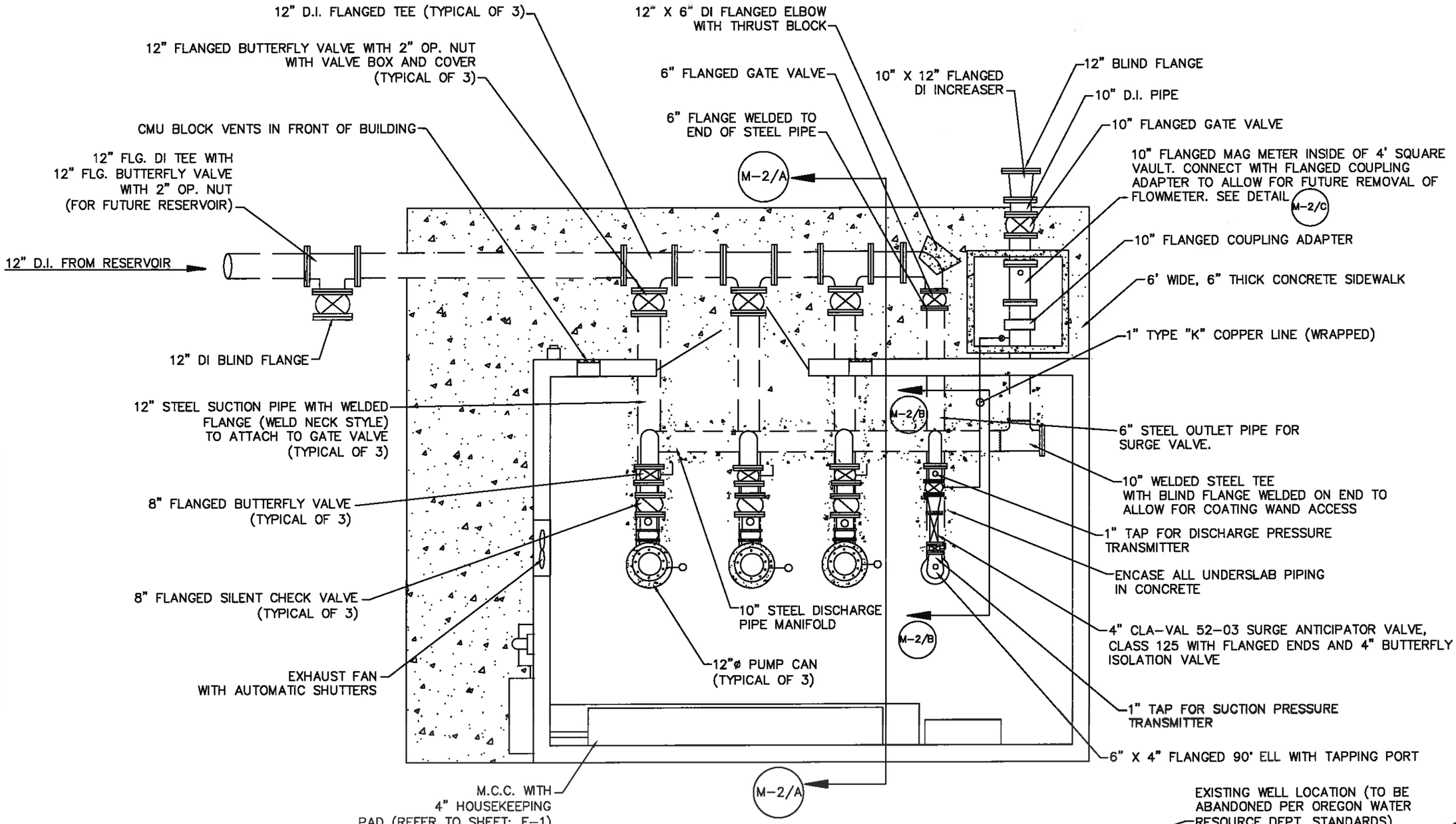
REVISIONS:

No.	Date	By

SHEET: B-3

REGISTERED PROFESSIONAL ENGINEER
13,250
OREGON
JULY 17, 1986
EDWARD P. BUTTS

EXPIRES: 12-31-15



MECHANICAL PIPING
SCALE: 1" = 4'-0"

4B ENGINEERING & CONSULTING, LLC
3700 RIVER ROAD N, SUITE 2
KEIZER, OREGON 97303
(503) 589-1115

CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
MECHANICAL PLAN VIEW

PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657-0331

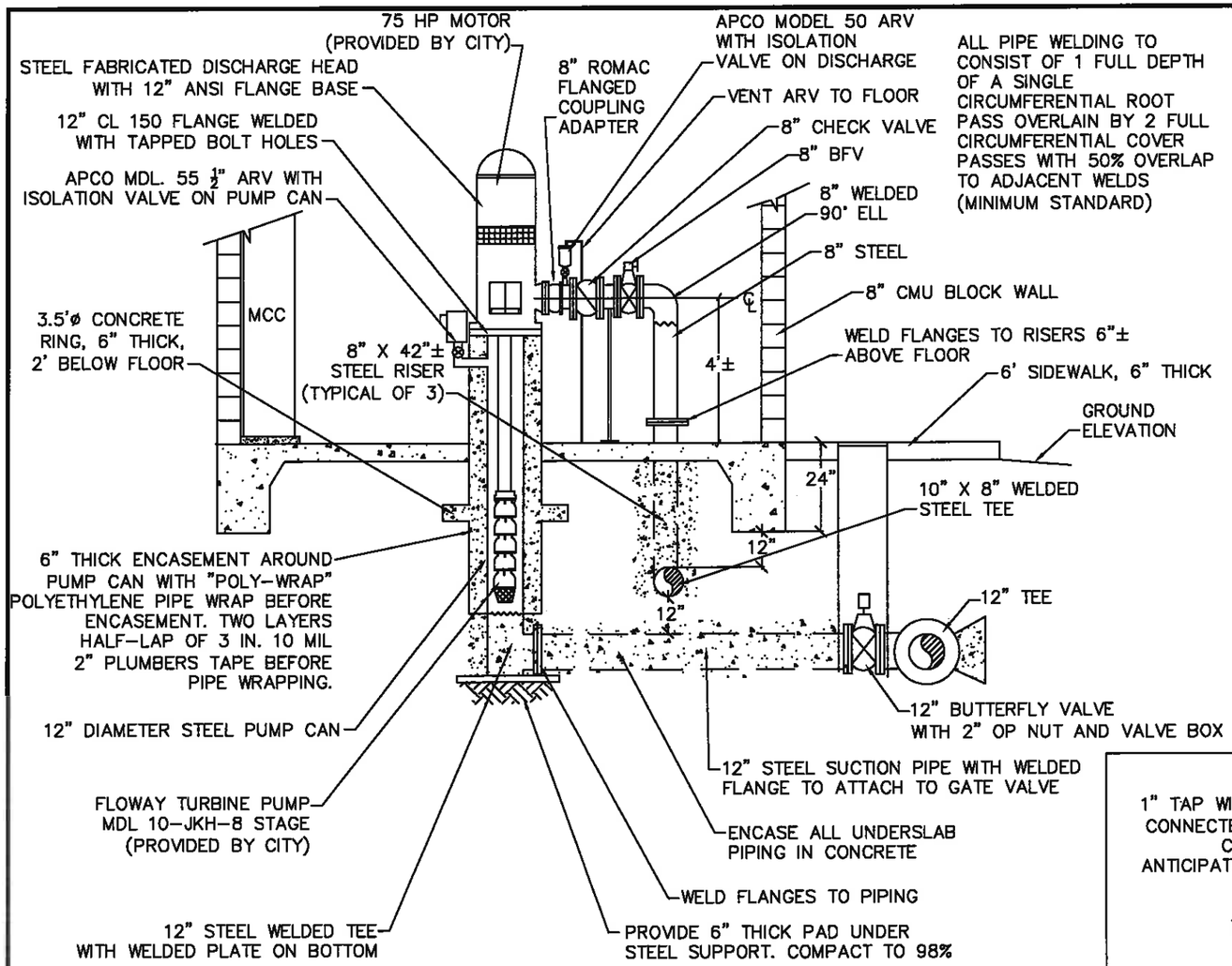
DESIGN: EDWARD P. BUTTS, P.E.
DRAWN: BROOKE SALTARELLO
DATE: AUGUST 19, 2013
DRAWING:
SCALE: AS SHOWN

REVISIONS:

No.	Date	By
1	JAN 27, 2014	BS

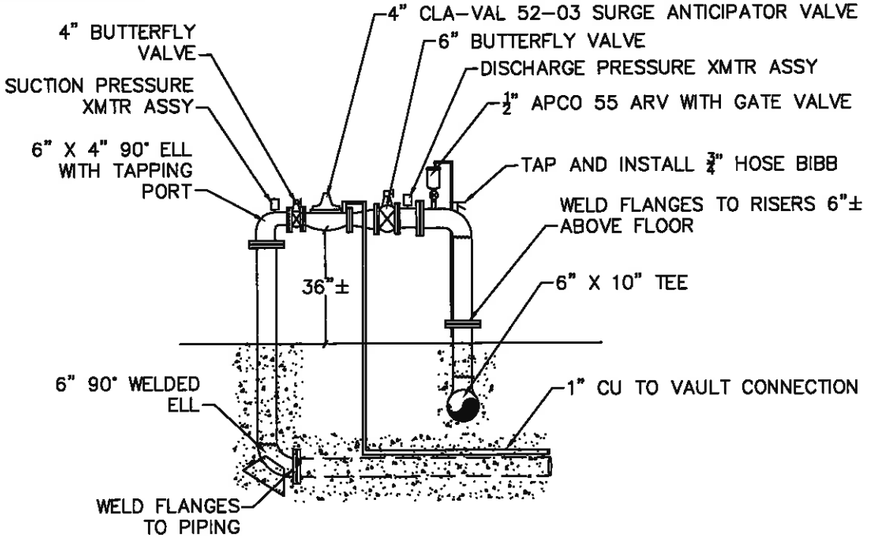
SHEET: M-1

REGISTERED PROFESSIONAL ENGINEER
17250
OREGON
JULY 17, 1986
EDWARD P. BUTTS
EXPIRES: 12-31-15

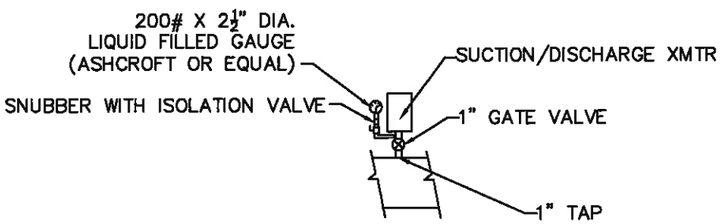


BOOSTER PUMP SECTION PIPING (M-2/A)
SCALE: 1" = 4'-0"

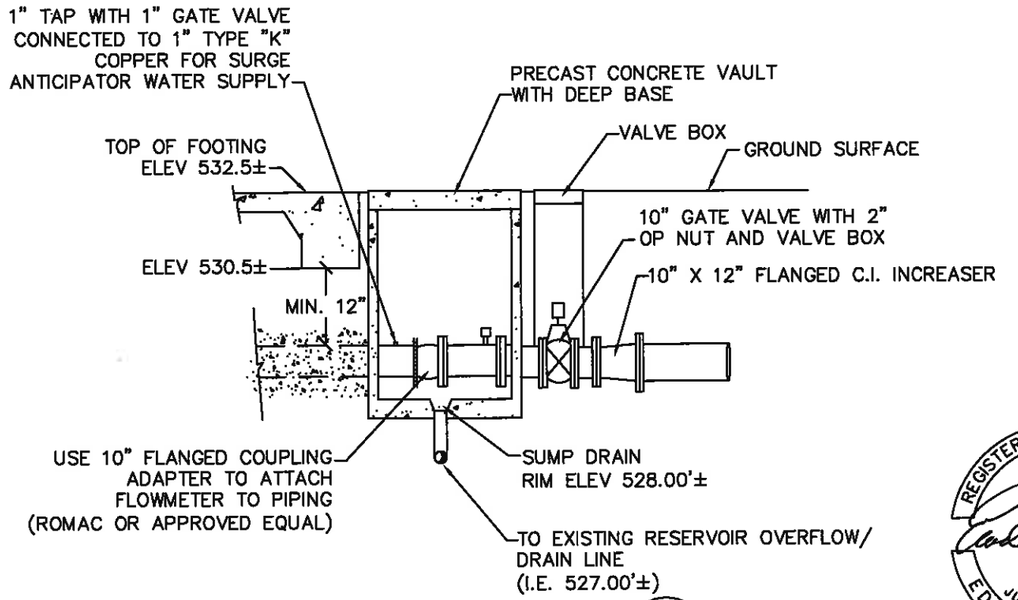
0' 1' 2' 3' 4' 5'



MECHANICAL PIPING (M-2/B)
SCALE: 1" = 4'-0"



TYPICAL GAUGE ASSY. (M-2/D)
SCALE: NTS



VAULT DETAIL (M-2/C)
SCALE: 1" = 4'-0"

4B ENGINEERING & CONSULTING, LLC
3700 RIVER ROAD N, SUITE 2
KEIZER, OREGON 97303
(503) 589-1115

CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
MECHANICAL ELEV. VIEW

PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657-0331

DESIGN:	EDWARD P. BUTTS, P.E. ADAM E. BUTTS, EI
DRAWN:	BROOKE SALTARELLO
DATE:	AUGUST 19, 2013
DRAWING:	
SCALE:	AS SHOWN

REVISIONS:

No.	Date	By
1	JAN 27, 2014	BS

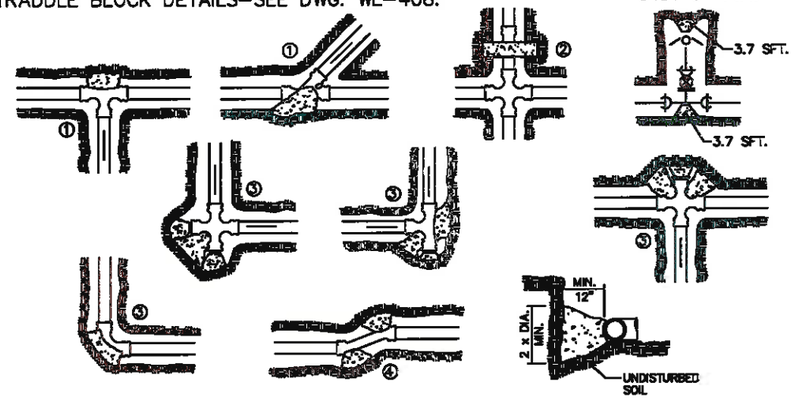
SHEET: M-2

REGISTERED PROFESSIONAL ENGINEER
13,250
OREGON
JULY 17, 1986
EDWARD P. BUTTS

EXPIRES: 12-31-15

FITTING SIZE (Inches)	TEE, WYE, & ① HYDRANTS	STRADDLE BLOCK ②	90° BEND ③ PLUGGED CROSS TEE PLUGGED–RUNS	45° BEND ④	22 1/2° BEND ④	11 1/2° BEND ④
2	*	*	*	*	*	*
4	1.7	2.1	2.4	1.3	*	*
6	3.7	4.9	5.3	2.9	1.5	*
8	6.7	8.7	9.5	5.1	2.7	1.3
10	10.5	13.6	14.8	8	4.1	2
12	15.1	19.6	21.3	11.6	5.9	2.9
14						
16	26.8	34.8	37.9	20.5	10.4	5.2
18	33.9	44	47.9	25.9	12.8	6.7
LARGER	**	**	**	**	**	**
BEARING AREA OF THRUST BLOCKS (sq. ft.)						

1. ALL VALUES ARE BASED ON THE FOLLOWING ASSUMPTIONS: AVG. PRESSURE = 100 PSI X 2 (safety factor); 1500 PSF SOIL BEARING CAPACITY; NORMAL DISTRIBUTION DESIGN VELOCITY NOT TO EXCEED 5 F/S.
2. ALL FITTINGS SHALL BE WRAPPED IN 8 MM PLASTIC PRIOR TO PLACEMENT OF CONCRETE.
3. BEARING SURFACE OF THRUST BLOCKING SHALL BE AGAINST UNDISTURBED SOIL
4. ALL CONCRETE MIX SHALL HAVE A MIN. 28 DAY STRENGTH OF 3000 PSI.
5. ALL PIPE ZONES SHALL BE GRAVEL FILLED AND COMPACTED.
6. THRUST BLOCKS FOR PLUGGED CROSS AND PLUGGED TEE SHALL HAVE #4 REBAR LIFTING LOOPS INSTALLED AS SHOWN.
7. VERTICAL THRUST DETAILS–SEE DWG. WL–407.
8. STRADDLE BLOCK DETAILS–SEE DWG. WL–408.



* BLOCK TO UNDISTURBED TRENCH WALLS.

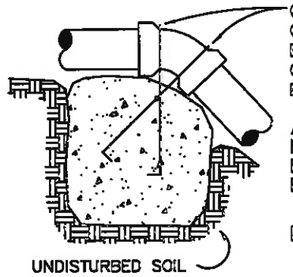
** THRUST BLOCKS FOR PIPES LARGER THAN 18" WILL BE INDIVIDUALLY DESIGNED BY THE ENGINEER.

VERTICAL THRUST BLOCK DETAIL
NTS

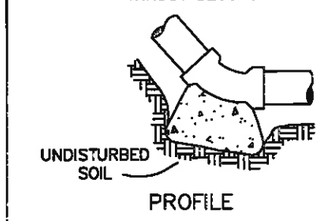
M-3/A

NOTE:

1. GRAVITY VERTICAL THRUST BLOCKS SHALL BE DESIGNED BY THE ENGINEER.
2. KEEP CONCRETE CLEAR OF JOINT AND JOINT ACCESSORIES. FITTINGS SHALL BE WRAPPED IN 8MM PLASTIC PRIOR TO PLACEMENT OF CONCRETE.
3. CONCRETE THRUST BLOCKING SHALL BE POURED AGAINST UNDISTURBED EARTH.
4. CONCRETE MIX SHALL HAVE A MIN. 28 DAY STRENGTH OF 3300 P.S.I.
5. THRUST BLOCK VOLUMES FOR VERTICAL BENDS HAVING UPWARD RESULTANT THRUSTS SHALL BE BASED ON TEST PRESSURE OF 180 PSI AND THE WEIGHT OF CONCRETE = 4050 LBS./CU.YD.
6. VERTICAL BENDS THAT REQUIRE A THRUST BLOCK VOLUME EXCEEDING 5 CUBIC YARDS REQUIRE SPECIAL BLOCKING DETAILS. SEE PLANS FOR VOLUMES SHOWN INSIDE HEAVY LINE IN TABLE BELOW.
7. PAYMENT SHALL BE THE SAME AS FOR HORIZONTAL THRUST BLOCKS.
8. ALL REBAR SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM–123 (MIN. 3.4 MIL). REBAR SHALL BE BENT BEFORE GALVANIZATION, AND LAST 4" OF BAR SHALL BE BENT 90 DEGREES WITH A 1/2" RADIUS BEND. REBAR SHALL BE TIGHTLY FIT TO RESTRAINED FITTING.
9. FOR HORIZONTAL THRUST BLOCK DETAILS SEE DWG NO. WL–406.



GRAVITY VERTICAL THRUST BLOCK



NORMAL VERTICAL THRUST BLOCK

FITTING SIZE	ROD SIZE	EMBEDMENT
12" AND LESS	#6	30"
14" – 16"	#8	36"

VOLUME OF THRUST BLOCK IN CUBIC YARDS (VERTICAL BENDS)			
FITTING SIZE	BEND ANGLE		
	45°	22 1/2°	11 1/4°
4	1.1	0.4	0.2
6	2.7	1.0	0.4
8	4.0	1.5	0.6
10	6.0	2.3	0.9
12	8.5	3.2	1.3
14	11.5	4.3	1.8
16	14.8	5.6	2.3

THRUST BLOCK DETAIL
NTS

M-3/B

4B ENGINEERING & CONSULTING, LLC
3700 RIVER ROAD N, SUITE 2
KEIZER, OREGON 97303
(503) 589–1115

CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
THRUST BLOCK DETAILS

PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657–0331

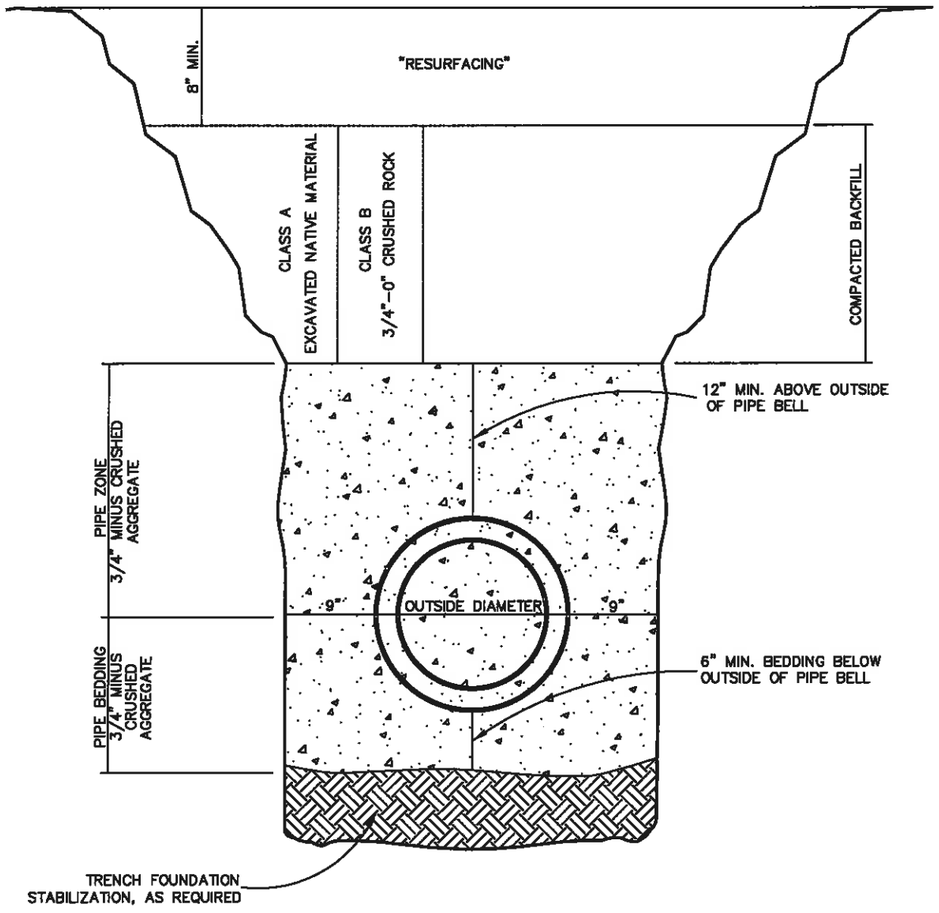
DESIGN: EDWARD P. BUTTS, P.E.
DRAWN: BROOKE SALTARELLO
DATE: AUGUST 19, 2013
DRAWING:
SCALE: AS SHOWN

REVISIONS:

No.	Date	By

SHEET: M–3

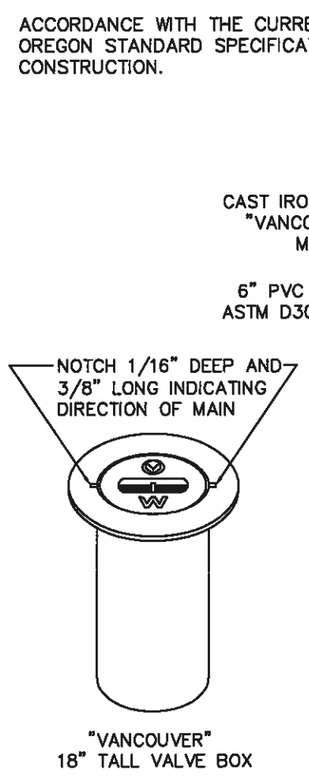
EXPIRES: 12-31-15



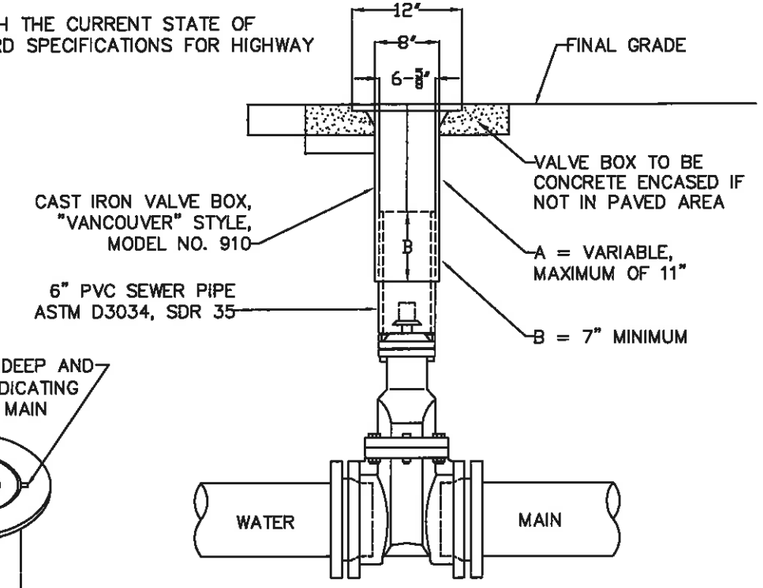
TRENCH BACKFILL BEDDING AND PIPE ZONE
SCALE: NTS

M-4/A

ACCORDANCE WITH THE CURRENT STATE OF OREGON STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.



"VANCOUVER"
18" TALL VALVE BOX

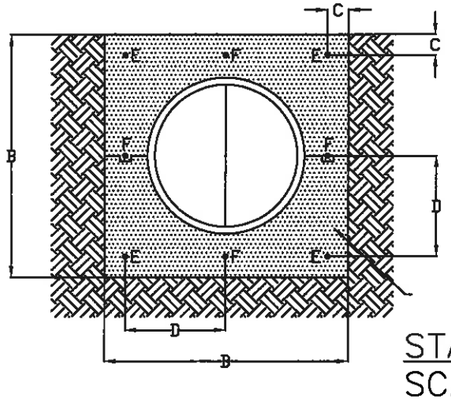


NOTE:

1. VALVE BOXES SHALL BE CENTERED DIRECTLY OVER THE VALVE NUT IN A VERTICAL POSITION.
2. VALVE BOX TOP SHALL BE ADJUSTED TO MEET FINISHED GRADE.
3. PVC SHALL BE ONE CONTINUOUS PIECE-NO BELLS OR COUPLERS.
4. ON VALVES 8" AND LARGER, PVC SHALL BE NOTCHED OVER VALVE PACKING BOLTS SO PVC SITS ON BONNET.

VALVE BOX DETAIL
SCALE: NTS

M-4/B



NOTE:
CONCRETE SHALL BE 3000 PSI
2" TO 4" SLUMP

ALL REINFORCING STEEL SHALL BE NO. 5 DEFORMED BARS WITH 18" LAP SPLICES AND 3" CLEAR COVER.

STANDARD PIPE ENCASEMENT
SCALE: NTS

M-4/C

PLACE CONCRETE IN TWO LIFTS. DO NOT PLACE THE TOP SECTION UNTIL THE BOTTOM SECTION HAS SET FOR 24 HOURS. PROVIDE THE KEY AS SHOWN.

	DIMENSION (INCHES)				BARS REQ'D	C.Y. CONC. PER LIN. FT.	LBS. STEEL PER LIN. FT.
	A	B	C	D			
BELL & SPIGOT AND TONGUE & GROOVE STD. STRENGTH	6	16	3-1/2	–	E	0.055	4.17
	8	18	3-1/2	–	E	0.070	4.17
	10	20	3-1/2	–	E	0.080	4.17
	12	22-1/2	3-1/2	–	E	0.090	4.17
	15	26	3-1/2	–	E	0.100	4.17
	18	30	3-1/2	–	E	0.140	4.17
BELL & SPIGOT STD. STRENGTH	21	38	3-1/2	15-1/2	E, F	0.250	8.34
	24	42	3-1/2	17-1/2	E, F	0.260	8.34
	27	50	3-1/2	21-1/2	E, F	0.400	8.34
TONGUE & GROOVE STD. STRENGTH	21	36	3-1/2	14-1/2	E, F	0.190	8.34
	24	41	3-1/2	17-1/2	E, F	0.250	8.34
	27	46	3-1/2	19-1/2	E, F	0.320	8.34

4B ENGINEERING & CONSULTING, LLC
3700 RIVER ROAD N, SUITE 2
KEIZER, OREGON 97303
(503) 589-1115

CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
MECHANICAL DETAILS

PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657-0331

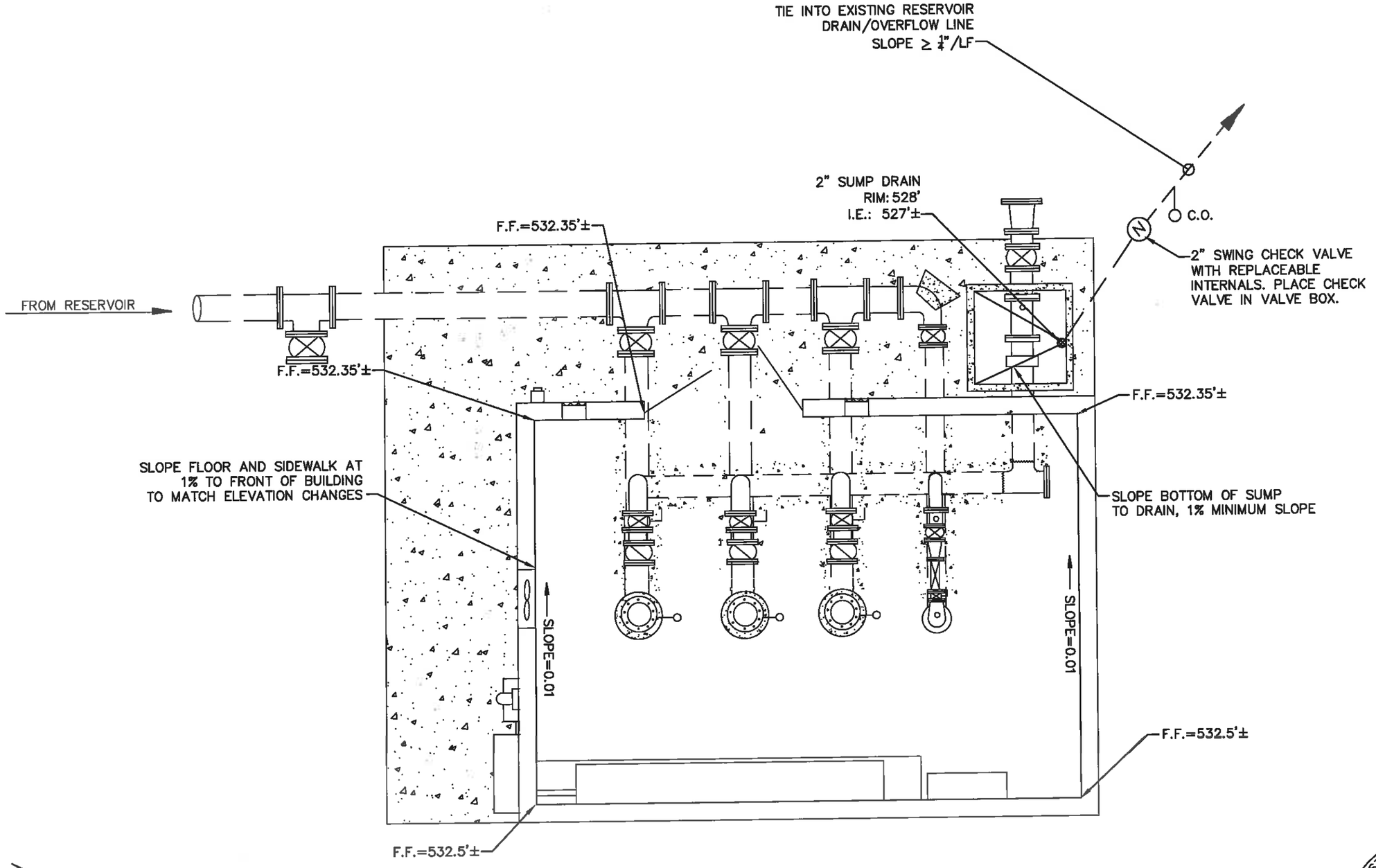
DESIGN: EDWARD P. BUTTS, P.E.
ADAM E. BUTTS, E.I.
DRAWN: BROOKE SALTARELLO
DATE: AUGUST 19, 2013
DRAWING:
SCALE: AS SHOWN

REVISIONS:

No.	Date	By

SHEET: M-4

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 17, 1986
EDWARD P. BUTTS
EXPIRES: 12-31-15



DRAIN DETAILS
SCALE: 1" = 4'-0"

4B ENGINEERING & CONSULTING, LLC
3700 RIVER ROAD N, SUITE 2
KEIZER, OREGON 97303
(503) 589-1115

CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
DRAIN PLAN VIEW

PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657-0331

DESIGN: EDWARD P. BUTTS, P.E. / ADAM E. BUTTS, E.I.
DRAWN: BROOKE SALTARELLO
DATE: AUGUST 18, 2015
DRAWING:
SCALE: AS SHOWN

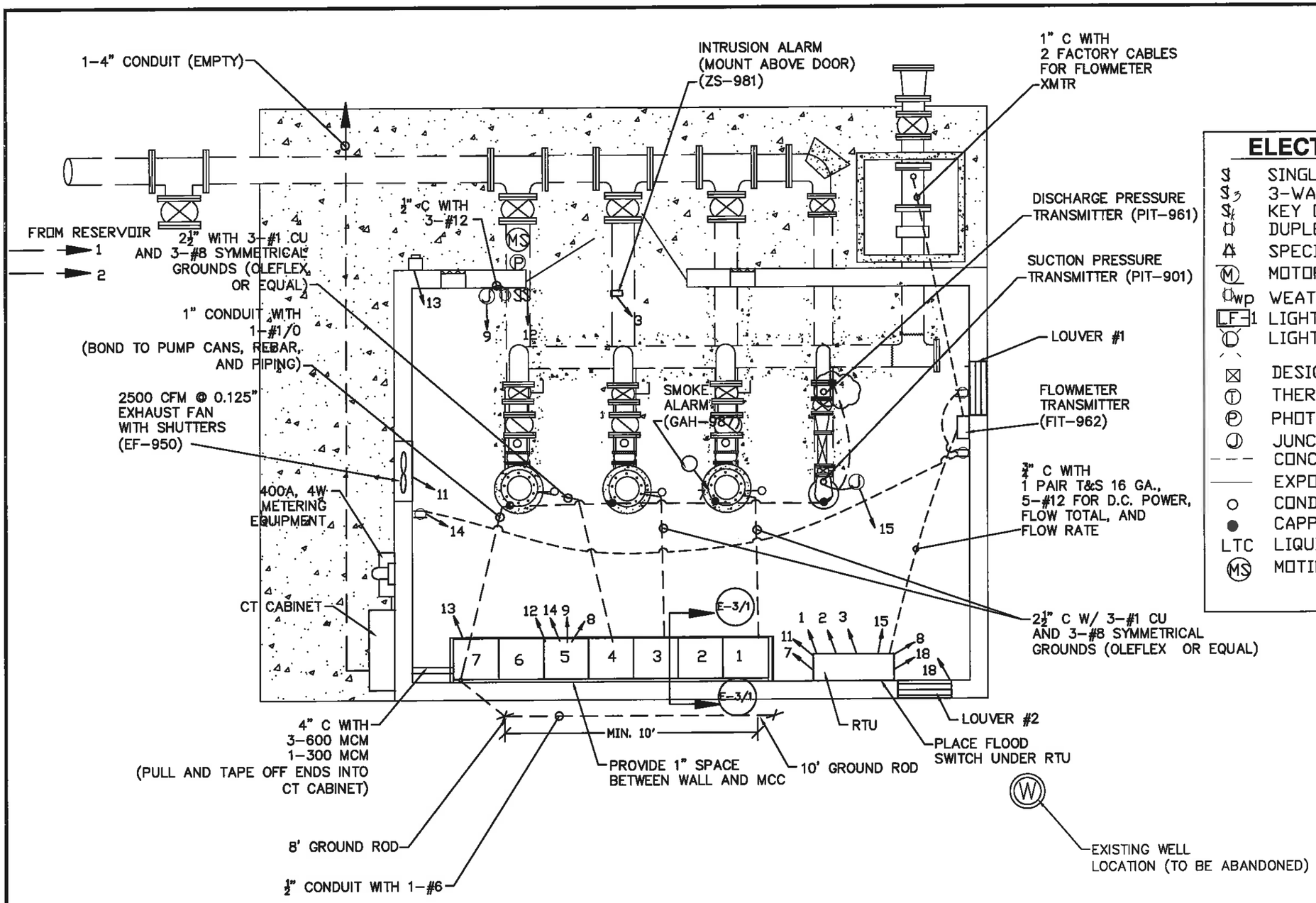
REVISIONS:

No.	Date	By

SHEET: D-1

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 17, 1986
EDWARD P. BUTTS
11250

EXPIRES: 12-31-15



ELECTRICAL LEGEND:

- SINGLE POLE SWITCH
- 3-WAY SWITCH
- KEY OPER. SWITCH
- DUPLEX RECEPTACLE
- SPECIAL RECEPTACLE
- (M) MOTOR
- WP WEATHERPROOF RECEPTACLE
- LF-1 LIGHTING FIXTURE
- LIGHT
- ⊠ DESIGNATES SEAL-OFF
- (T) THERMOSTAT
- (P) PHOTOCELL
- (J) JUNCTION BOX
- CONCEALED/UNDER SLAB COND.
- EXPOSED COND.
- ○ CONDUIT UP INTO EQUIP.
- ● CAPPED CONDUIT END
- LTC LIQUITITE FLEXIBLE COND.
- (MS) MOTION SENSOR

ELECTRICAL DETAILS
SCALE: 1" = 4'-0"

0' 1' 2' 3' 4' 5'

4B ENGINEERING & CONSULTING, LLC
3700 RIVER ROAD N, SUITE 2
KEIZER, OREGON 97303
(503) 589-1115

CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
ELECTRICAL PLAN VIEW

PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657-0331

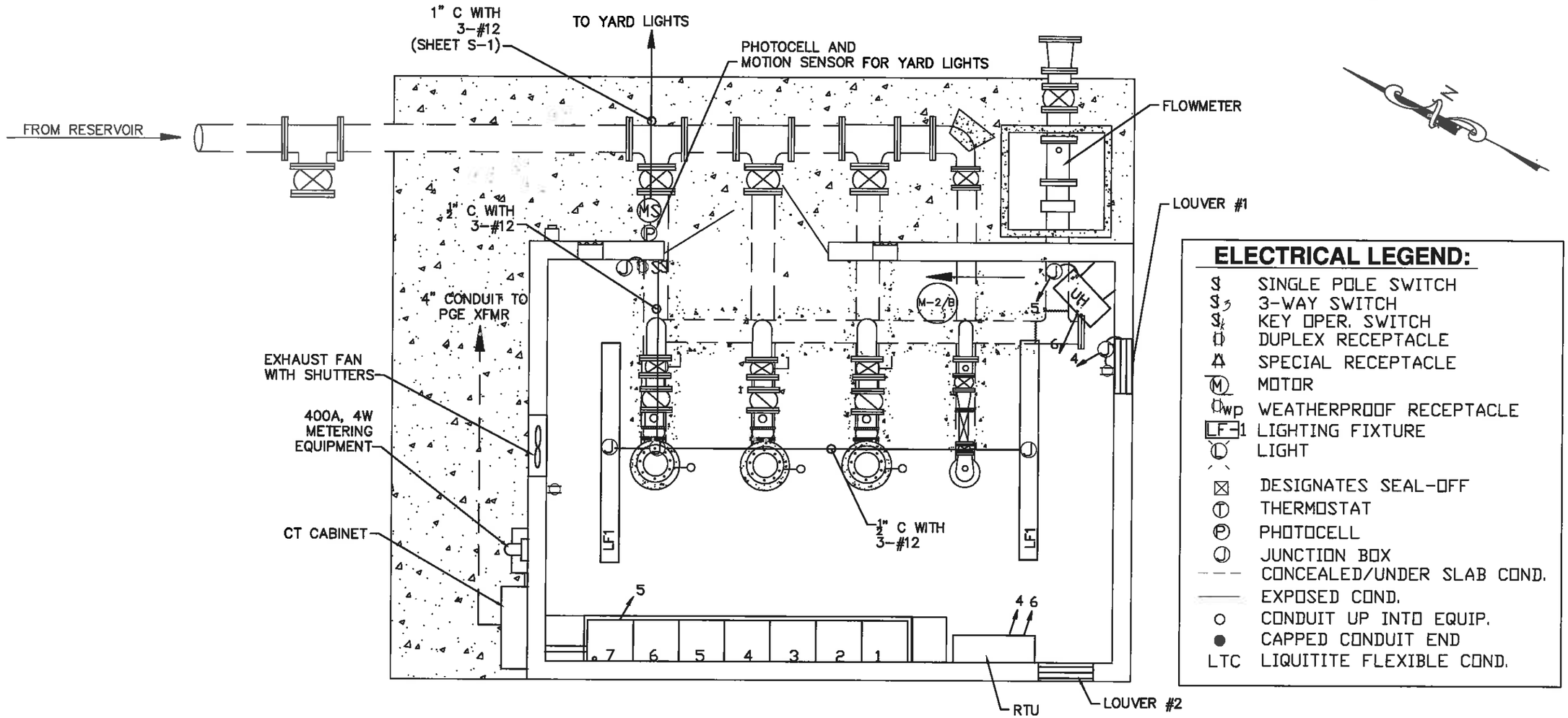
DESIGN: EDWARD B. BUTTS, P.E.
JOHN C. BUTTS, D
DRAWN: BROOKE SALTARELLO
DATE: JANUARY 29, 2012
DRAWING:
SCALE: AS SHOWN

REVISIONS:

No.	Date	By
1	JAN 27, 2014	BS

SHEET: E-1

REGISTERED PROFESSIONAL ENGINEER
13250
OREGON
JULY 17, 1986
EDWARD P. BUTTS
EXPIRES: 12-31-15



ELECTRICAL LEGEND:

- SINGLE POLE SWITCH
- 3-WAY SWITCH
- KEY OPER. SWITCH
- DUPLEX RECEPTACLE
- SPECIAL RECEPTACLE
- (M) MOTOR
- WP WEATHERPROOF RECEPTACLE
- LF-1 LIGHTING FIXTURE
- LIGHT
- DESIGNATES SEAL-OFF
- THERMOSTAT
- PHOTOCELL
- JUNCTION BOX
- CONCEALED/UNDER SLAB COND.
- EXPOSED COND.
- CONDUIT UP INTO EQUIP.
- CAPPED CONDUIT END
- LTC LIQUITITE FLEXIBLE COND.

LF1: LITHONIA UND-2-96HO
TWO 110W, T12 FIXTURES
8' LINEAR FLUORESCENT

UH: 7.5KW, 3ø, 480 VAC RESISTANCE HEATER

NOTE: REFER TO SHEET E-3 FOR CONDUIT DESCRIPTIONS

LIGHTING DETAILS
SCALE: 1" = 4'-0"

0' 1' 2' 3' 4' 5'

4B ENGINEERING & CONSULTING, LLC
3700 RIVER ROAD N, SUITE 2
KEIZER, OREGON 97303
(503) 589-1115

CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
LIGHTING PLAN

PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657-0331

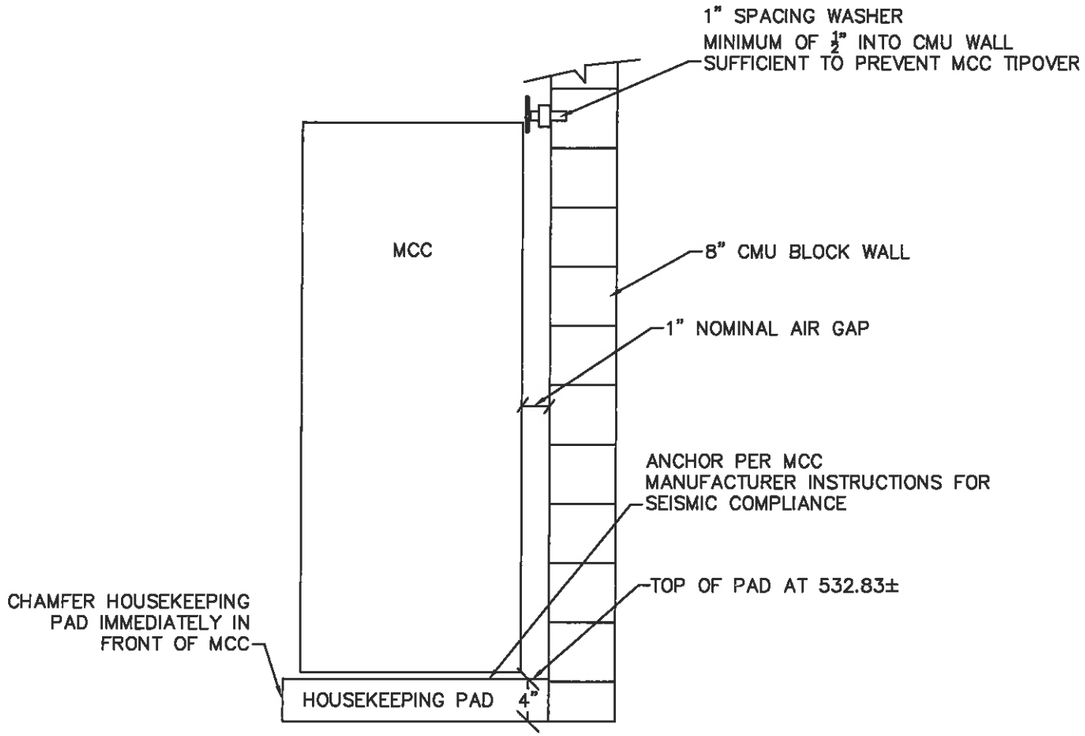
DESIGN: EDWARD P. BUTTS, P.E.
DRAWN: BRODIE SALTARELLO
DATE: JANUARY 28, 2012
DRAWING:
SCALE: AS SHOWN

REVISIONS:

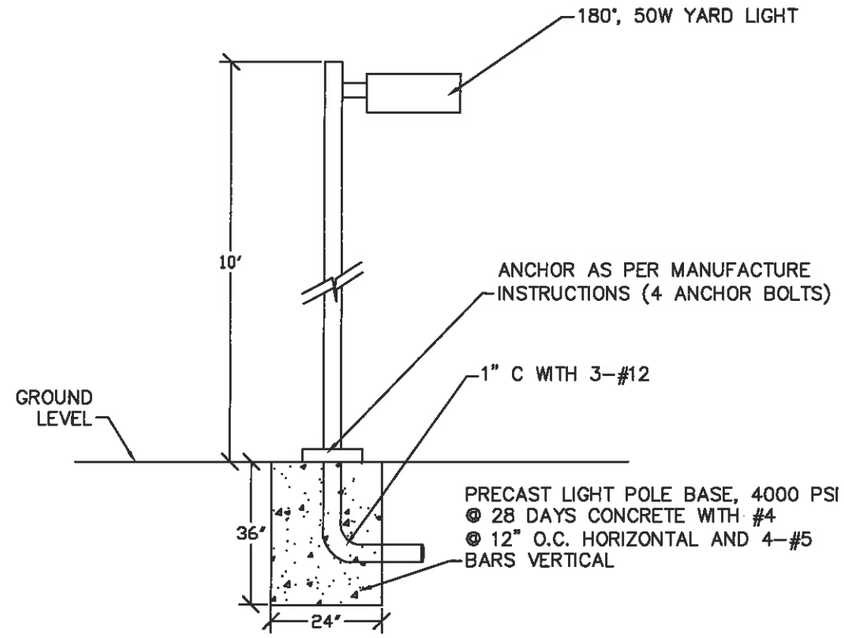
No.	Date	By
1	JAN 27, 2014	BS

SHEET: E-2

REGISTERED PROFESSIONAL ENGINEER
53250
OREGON
JULY 17, 1986
EDWARD P. BUTTS
EXPIRES: 12-31-15



PUMP STATION ELECTRICAL ELEVATIONS (E-3/A)
SCALE: N.T.S.



YARD LIGHT DETAIL (E-3/B)
SCALE: N.T.S.

RACEWAY NUMBER	ORIGIN	DESTINATION	CONDUIT SIZE	NO. & SIZE OF CONDUCTORS	LOAD DESCRIPTION
1	RTU	RESERVOIR	3/4"	4-#12; 2 PAIR 16 GA. T&S	RESERVOIR OVERFLOW, HATCH, LEVEL
2	MCC SEC. 5 (PB)	NEW TERMINAL JUNCTION BOX	3/4"	5-#12	POWER FOR CATHODIC PROTECTION/OUTLET
3	RTU	FRONT DOOR INTRUSION	1/2"	1 PAIR 16 GA. T&S	INTRUSION ALARM
4	RTU	LOUVER 1	1/2"	3-#12	LOUVER POWER AND CONTROL
5	MCC SEC. 7 (CB)	JUNCTION BOX (UH)	1/2"	4-#12	HEATER POWER
6	UH	RTU	1/2"	3-#12	HEATING CONTROL
7	RTU	SMOKE ALARM	1/2"	3-#12	SMOKE ALARM
8	RTU	FIT-962 (FLOWMETER XMTR)	1/2"	1 PAIR 16 GA. T&S	DISCHARGE PRESSURE
9	MCC SEC 5 (PB)	JUNCTION BOX AT FRONT DOOR	1/2"	3-#12	LIGHTING SWITCH AND FRONT DOOR OUTLET
10	MCC SEC 5 (PB)	RTU	1/2"	5-#12	RTU POWER
11	RTU	FAN	1/2"	3-#12	FAN POWER AND CONTROL
12	MCC SEC 5 (PB)	SITE LIGHTING	1"	3-#12	SITE LIGHTING
13	GENERATOR RECPT.	MCC SECTION 7	2-1/2"	3-3/0, 1-#4 GRD, 1-#1 NEU	GENERATOR CONNECTION (200A)
14	MCC SEC 5 (PB)	OUTLETS	1/2"	3-#12	OUTLET POWER
15	RTU	PRESSURE GAUGES	1/2"	2 PAIR 16 GA. T&S	PRESSURE GAUGES
16	RTU	MCC CONTROL	3/4"	PROFIBUS	MCC CONTROL (FACTORY SUPPLIED CABLE)
17	RTU	FLOW SWITCH (LSH-982)	1/2"	2-#12	STATION FLOOD DETECTION
18	RTU	LOUVER 2	1/2"	3-#12	LOUVER POWER AND CONTROL

CONDUIT AND LOAD DESCRIPTIONS (E-3/C)
SCALE: N.T.S.

48 ENGINEERING & CONSULTING, LLC
3700 RIVER ROAD N, SUITE 2
KEIZER, OREGON 97303
(503) 589-1115

CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
ELECTRICAL DETAILS

PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657-0331

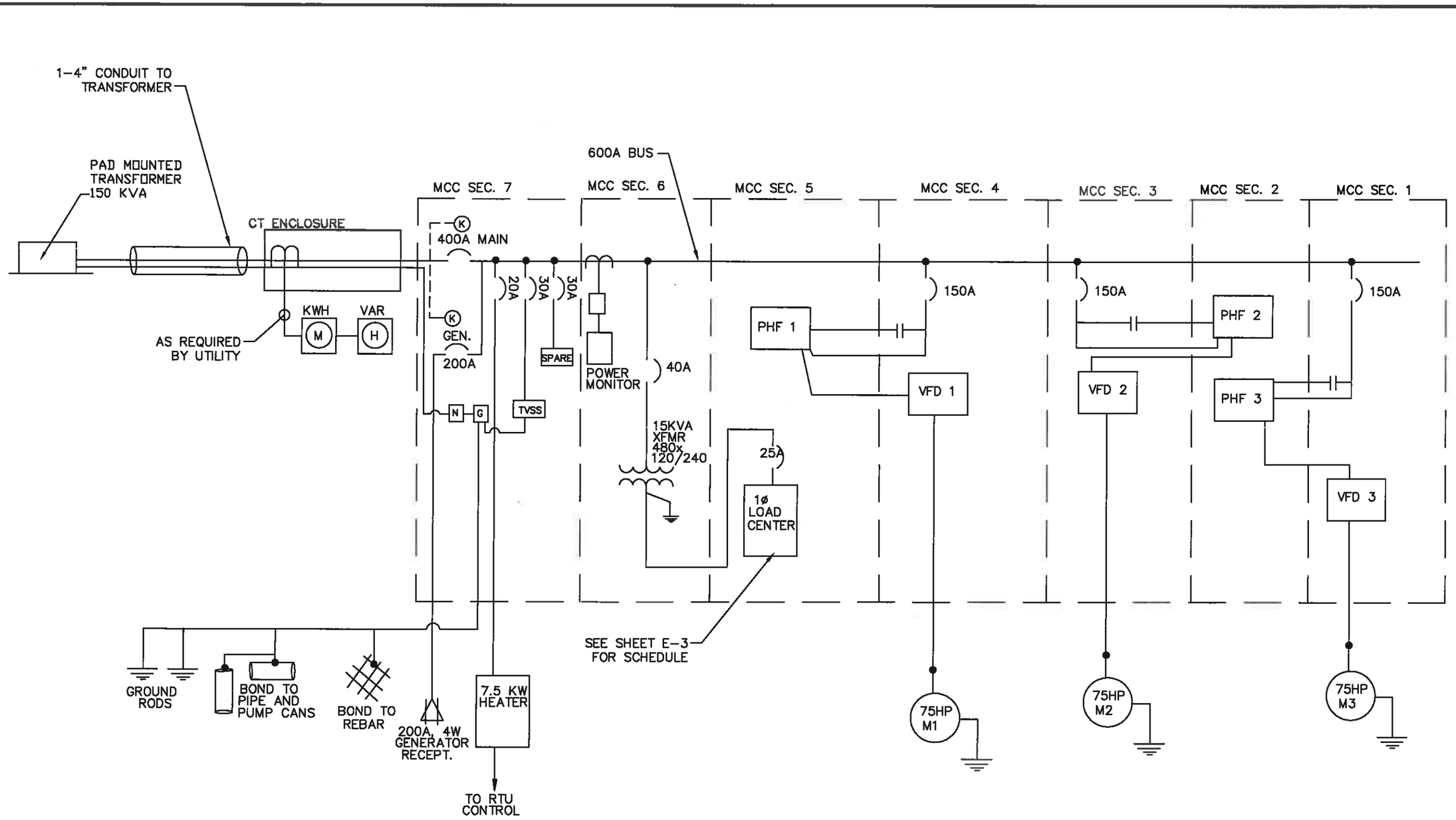
DESIGN: EDWARD P. BUTTS, P.E.
DRAWN: BROOKE SALTARELLO
DATE: JANUARY 28, 2014
DRAWING:
SCALE: AS SHOWN

REVISIONS:

No.	Date	By
1	JAN 27, 2014	BS

SHEET: E-3

EXPIRES: 12-31-15



ONE-LINE POWER DIAGRAM: 277/480VAC, 400A, 3 PHASE, 4W; 120/240VAC, 25A, 1 PHASE, 3W

48 ENGINEERING & CONSULTING, LLC
3700 RIVER ROAD N, SUITE 2
KEIZER, OREGON 97303
(503) 589–1115

CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
ONE LINE POWER DIAGRAM

PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657–0331

DESIGN:	EDWARD P. BUTTS, P.E. & ANNE E. BUTTS, P.E.
DRAWN:	BROOKE BALTARELLO
DATE:	JANUARY 28, 2012
DRAWING:	
SCALE:	AS SHOWN

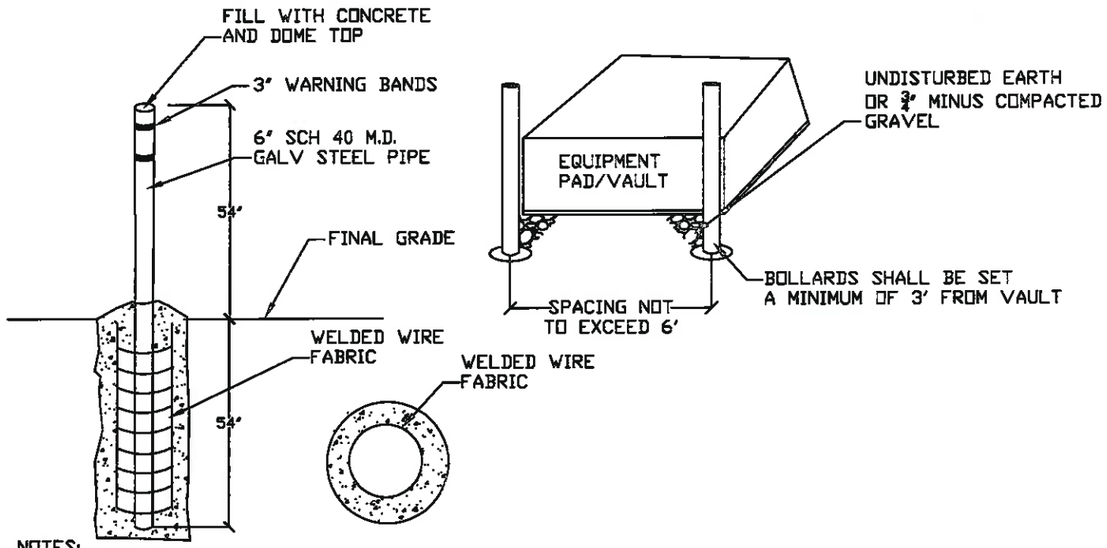
REVISIONS:

No.	Date	By
1	JAN 27, 2014	BS

SHEET: E–4

REGISTERED PROFESSIONAL ENGINEER
13,250
OREGON
JULY 17, 1986
EDWARD P. BUTTS

EXPIRES: 12-31-15



NOTES:

1. PLACE 6" SCHEDULE 40 MD. GALVANIZED STEEL POST FILLED WITH CONCRETE A MAXIMUM OF SIX FEET APART ON ALL SIDES EXPOSED TO VEHICLES.

2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AFTER 28 DAYS.

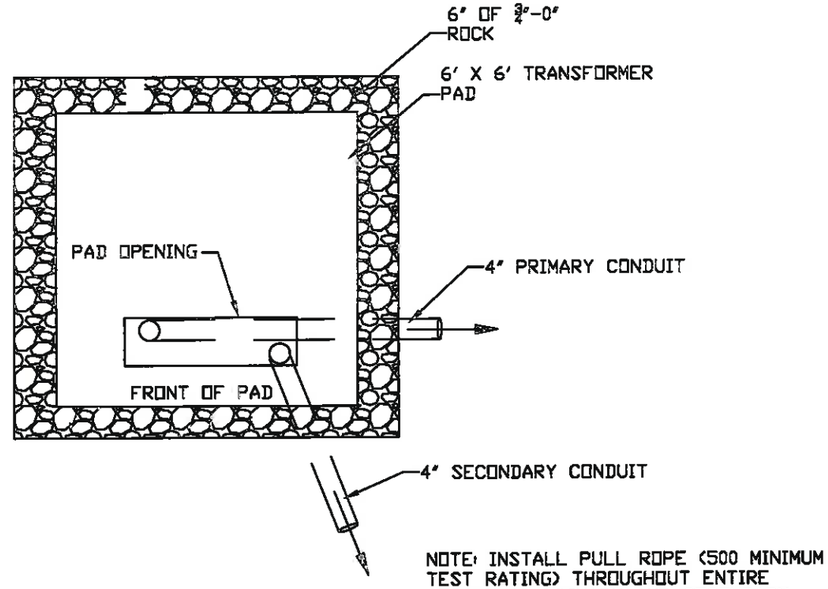
3. BARRIER POST INSTALLATION SHALL BE IN UNDISTURBED EARTH. HOWEVER, THE AREA BETWEEN THE VAULT WALL AND BARRIER HOLE MAY BE FILLED WITH ¾"-0" MINUS COMPACTED GRAVEL IF THREE FEET OF UNDISTURBED AREA IS NOT AVAILABLE AFTER THE VAULT IS SET.

4. STEEL REINFORCEMENT SHALL BE WELDED WIRE FABRIC (WWF) 6" X 6" GRID OF $\frac{6}{00}$ ROUND, FORMED IN A CAGE AS SHOWN ABOVE. REINFORCEMENT NOT REQUIRED FOR AREAS HAVING ONLY CAR TRAFFIC.

5. POST SHALL BE PAINTED BRIGHT YELLOW. MARK TOP OF POST WITH TWO 3" WARNING BANDS OF CONTRASTING COLORS.

BOLLARD DETAIL FOR ELECTRICAL TRANSFORMER

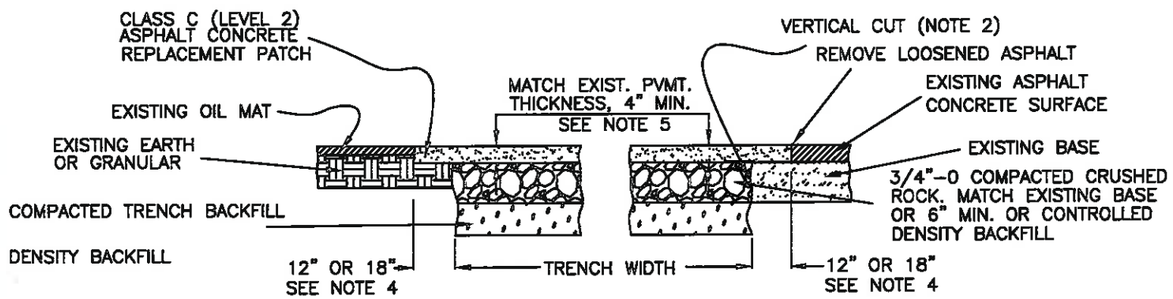
SCALE: NTS



NOTE: INSTALL PULL ROPE (500 MINIMUM TEST RATING) THROUGHOUT ENTIRE LENGTH OF PRIMARY AND SECONDARY CONDUITS.

PAD MOUNT TRANSFORMER DETAIL

SCALE: NTS



TYPICAL PATCH FOR FLEXIBLE PAVEMENT

NOTES

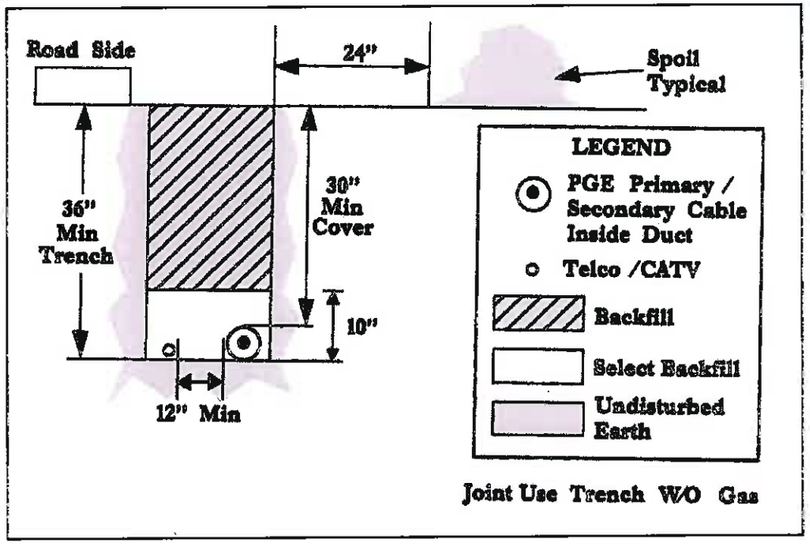
1. FINAL CUTS IN A.C. PAVEMENT SHALL BE MADE WITH A CONCRETE SAW, MORE THAN ONE CUT MAY BE REQUIRED IN AC PAVEMENTS.

2. CUTS IN P.C.C. PAVEMENT SHALL BE MADE WITH A CONCRETE SAW.

3. 1"-0 CRUSHED AGGREGATE MAY BE SUBSTITUTED FOR 3/4"-0.

4. PAVEMENT REPLACEMENT WIDTH SHALL BE: TRENCH WIDTH PLUS 12 INCHES ON EACH SIDE FOR CONTROLLED DENSITY BACKFILL, AND TRENCH WIDTH PLUS 18 INCHES ON EACH SIDE FOR ROCK BACKFILL.

5. PAVEMENT REPLACEMENT THICKNESS SHALL MATCH EXISTING OR BE AS SHOWN ABOVE FOR ROCK TRENCH BACKFILL.



ELECTRICAL TRENCH DETAIL

SCALE: NTS

4B ENGINEERING & CONSULTING, LLC
3700 RIVER ROAD N, SUITE 2
KEIZER, OREGON 97303
(503) 589-1115

CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
ELECTRICAL DETAILS

PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657-0331

DESIGN: EDWARD P. BUTTS, P.E.
DRAWN: BROOKE BALTAZELLO
DATE: JANUARY 27, 2014
DRAWING:
SCALE: AS SHOWN

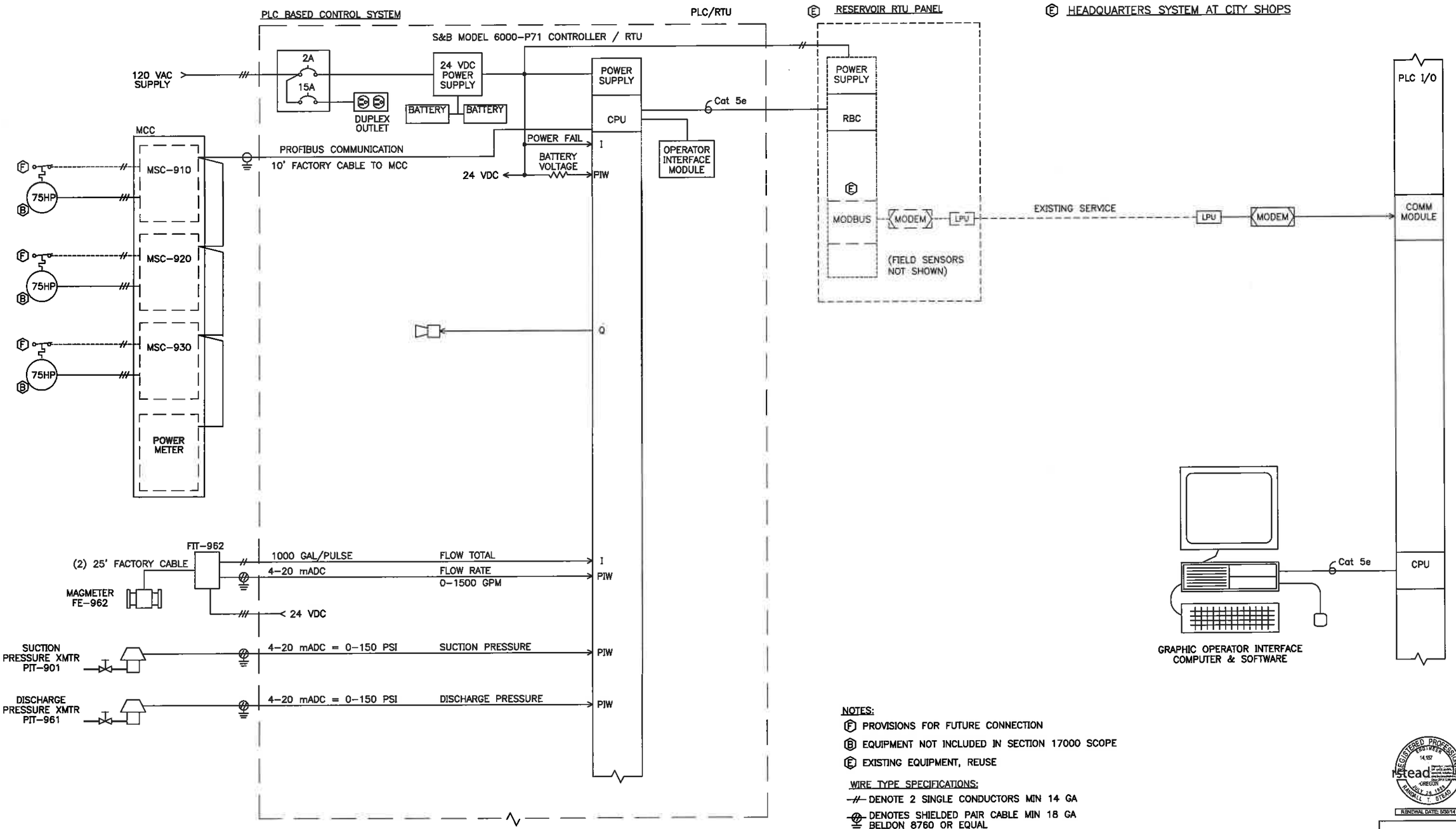
REVISIONS:

No.	Date	By

SHEET: E-5

REGISTERED PROFESSIONAL ENGINEER
12,250
OREGON
JULY 17, 1986
EDWARD P. BUTTS

EXPIRES: 12-31-15



NOTES:

(F) PROVISIONS FOR FUTURE CONNECTION

(B) EQUIPMENT NOT INCLUDED IN SECTION 17000 SCOPE

(E) EXISTING EQUIPMENT, REUSE

WIRE TYPE SPECIFICATIONS:

-//- DENOTE 2 SINGLE CONDUCTORS MIN 14 GA

DENOTES SHIELDED PAIR CABLE MIN 18 GA BELDON 8760 OR EQUAL

REGISTERED PROFESSIONAL ENGINEER 14,157 Stead OREGON JULY 29, 1994 RANDALL T. STEAD

RENEWAL DATE: 6/30/14

PROJECT SHEET: IC - 1

REV.	REVISION DESCRIPTION				APP	DATE
DRWN	RTS	1-24-13	ASMB	ENGR	SCALE	NONE

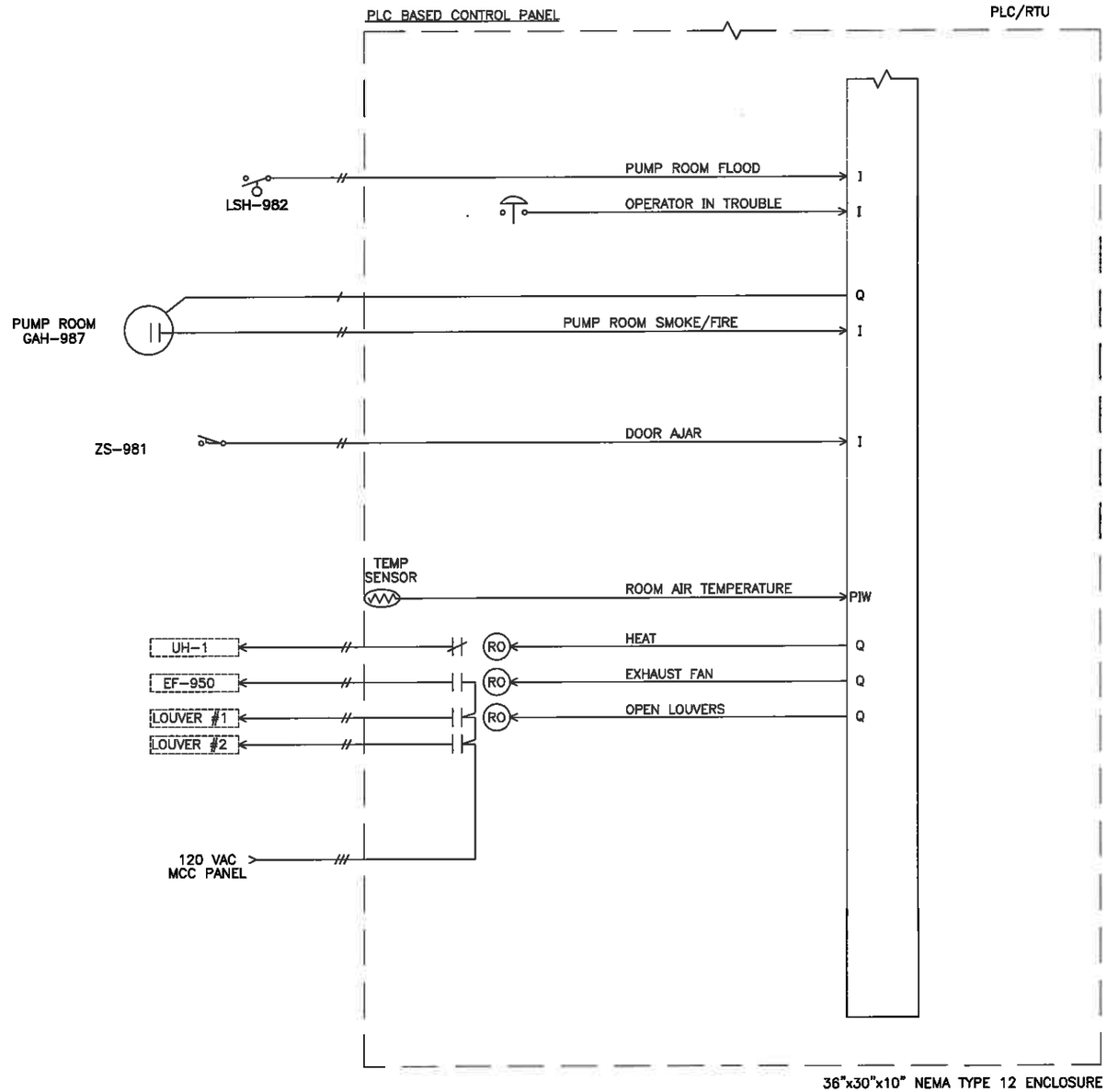
S&B System Specialists
13200 S.E. 30th St.
Bellevue, Washington 98005
S&B inc. (425)644-1700 Fax: (425)746-9312

PROJECT: CITY OF WEST LINN, OR
BLAND CIRCLE BOOSTER STATION

TITLE: BLOCK DIAGRAM PUMPING SYSTEMS

DRAWING NUMBER

FILE: 12023-012-01	SIZE	JOB NUMBER	KEY	SHEET	REV
LAST MODIFIED: 12/08/13 1:20 PM	D	12023	012	1 OF 7	



OPERATIONAL FEATURES:

1. PUMP CONTROL AND MONITORING FEATURES: CONTROL PANEL DESIGNED FOR INTERFACE WITH NETWORK CONTROLLED VARIABLE FREQUENCY DRIVE MOTOR STARTERS, WITH MOTOR CONTROL PANEL HOA SWITCH IN AUTO POSITION, RTU CONTROL PANEL WILL COMMAND START AND STOP OF MOTOR / PUMP OPERATION. FAIL LOGIC IN PLC UNIT MONITORS TIME FROM COMMAND TO RUN REPORTBACK CONFIRMATION AND PROVIDES OPERATOR ADJUSTABLE TIME ENTRIES FOR FAIL TO START, FAIL TO STOP AND TOO MANY STARTS. SMART MOTOR CONTROLLERS WILL INCLUDE TRENDS FOR AC POWER INFORMATION FROM THE SIMOCODE MOTOR OVERLOAD DEVICE, PUMP EFFICIENCY AND TRENDING. TRENDING WINDOW INCLUDES 900 SAMPLES / SCREEN RESOLUTION OF AC POWER DATA (kW, VOLTS, AMPS), PUMP DATA (FLOW, DISCHARGE, SUCTION), EFFICIENCY (TDH, FLOW, HP, EFF%). ALARMS ARE DISPLAYED ON OPERATOR INTERFACE MODULE ON PANEL FACE AND TRANSMITTER TO MASTER SCADA SYSTEM.
2. SCADA CONTROL FROM MTU LOCATION, VIA EXISTING RESERVOIR RTU PANEL ADJACENT TO PUMP STATION, ALLOWS FOR OPERATOR TO SELECT LEAD PUMP STATION AND HAVE LEAD PUMP STATION ALTERNATE EACH PUMP CYCLE. PUMP STATIONS INCLUDED IN CYCLE INCLUDE HORTON, VIEW DRIVE AND BLAND CIRCLE.
3. 9" TOUCH PANEL INCLUDES SCREEN DEPICTION FOR STATION OVERVIEW, PUMP OPERATION, ALARM/EVENT, TRENDING WINDOW INCLUDES VALUES RECORDED ON 10 SEC INCREMENTS WITH ONE MONTH OF DATA STORED ONBOARD SD MEMORY CARD. RTU STATUS (VOLTS DC, TEMPERATURE) MONITORED AND TRENDED. FILTER CONTROL OVERVIEW, BACKWASH SUPERVISORY COMMAND AND ALARM STATUS FROM TREATMENT PANEL ARE SHOWN ON WELL ROOM TOUCH PANEL.
4. PRESSURES, FLOWS, AND DESTINATION RESERVOIR LEVEL ARE DISPLAYED AND TRENDED. HIGH AND LOW SETTINGS FOR LEVEL PROVIDE ALARM NOTIFICATION, HIGH-HIGH ALARM ON FLOW DISCHARGE OR LOW-LOW SUCTION INITIATES PUMP SHUTDOWN SEQUENCE. SMOKE AND STATION FLOOD STOP AUTOMATIC CONTROL OF PUMPS AND REQUIRE RESET PRIOR TO SUBSEQUENT OPERATION.
5. FLOW TOTAL IS ACCUMULATED AND ARCHIVED DAILY AT THE MASTER SCADA UNIT.
6. LEASED PHONE LINE FROM CENTURYLINK COMMUNICATIONS FOR DEDICATED SCADA UTILIZATION. CONTRACTOR TO MOVE DEMARC LOCATION FROM EXISTING RESERVOIR RTU TO NEW PUMP STATION. PROVIDE CONDUIT SIZE REQUIRED BY CENTURYLINK, (2" PVC MINIMUM WITH PULL STRING.)
7. RTU BASED ON SIEMENS ET200S FORM FACTOR PLC AND I/O EQUIPMENT. SPACE PROVIDED IN RACK FOR 20% EXPANSION.
8. FIELD SENSORS ARE INCLUDED IN THE SCOPE OF WORK UNLESS LABELED WITH A 'B' FOR "EQUIPMENT NOT INCLUDED IN SECTION 17000 SCOPE". EQUIPMENT MARKED FUTURE IS NOT INCLUDED IN SCOPE OF DELIVERY OR PRICING.
9. PUMPS START AND STOP BASED ON RESERVOIR LEVEL AND SPEED CONTROLLED TO MAINTAIN SUCTION AND DISCHARGE PRESSURES WITHIN OPERATOR SELECTED BANDWIDTH. CONTROL REVERTS TO PRESSURE CONTROL AT TIME OF LOSS OF COMMUNICATION WITH MASTER SCADA SYSTEM.
10. RTU SENSED AIR TEMPERATURE USED FOR OCCUPIED / UNOCCUPIED CONTROL OF HEATING UNITS. TEMPERATURE SETPOINTS FOR OCCUPIED / UNOCCUPIED ARE PROVIDED FOR OPERATOR ENTRY VIA TOUCH PANEL. UNOCCUPIED TEMPERATURE SETPOINT ADJUSTED FOR FREEZE PROTECTION, INITIALLY SET FOR 40degF. OCCUPIED TIME PERIOD DEFINED BY INTRUSION SYSTEM IN DISARMED STATUS. RTU LOGIC ALLOWS FOR OPERATOR TO REQUEST OCCUPIED TEMPERATURE SETPOINT FROM MASTER TELEMETRY UNIT TO BRING STATION UP TO TEMPERATURE PRIOR TO THE OPERATOR ARRIVING. RTU RETURNS TO UNOCCUPIED TEMPERATURE SETPOINT ONE HOUR AFTER RECEIVING COMMAND OR FOLLOWING TRANSITION COMMAND FROM INTRUSION STATUS. RTU PROVIDES HIGH AND LOW ROOM TEMPERATURE ALARMS TO MTU FOR OPERATOR RESPONSE.
11. STATION LOUVERS OPEN UPON RISING TEMPERATURE WHEN PUMP IS RUNNING. LOUVERS ALSO OPEN WHEN INTERIOR TEMPERATURE RISES ABOVE SETTING AND CLOSE WHEN TEMPERATURE BELOW CLOSE SETPOINT.
12. STATION EXHAUST FAN STARTS ON RISING TEMPERATURE AND STOPS ON LOW TEMPERATURE OR AFTER MINIMUM RUNTIME AFTER PUMP STOPS AND TEMPERATURE BELOW START SETPOINT. LOUVERS ARE OPEN WHEN EXHAUST FAN IS IN OPERATION. EXHAUST FAN CONTACTOR IN RTU IS RATED FOR 1/2HP LOAD.

REGISTERED PROFESSIONAL ENGINEER 14,157 Stead OREGON JULY 26, 1994 RANDALL T. STEAD
RENEWAL DATE: 6/30/14

PROJECT SHEET:
IC – 2

REV.	REVISION DESCRIPTION					APP	DATE
DRWN	RTS	1-24-13	ASMB		ENGR	RTS	11-14-13

SCALE NONE

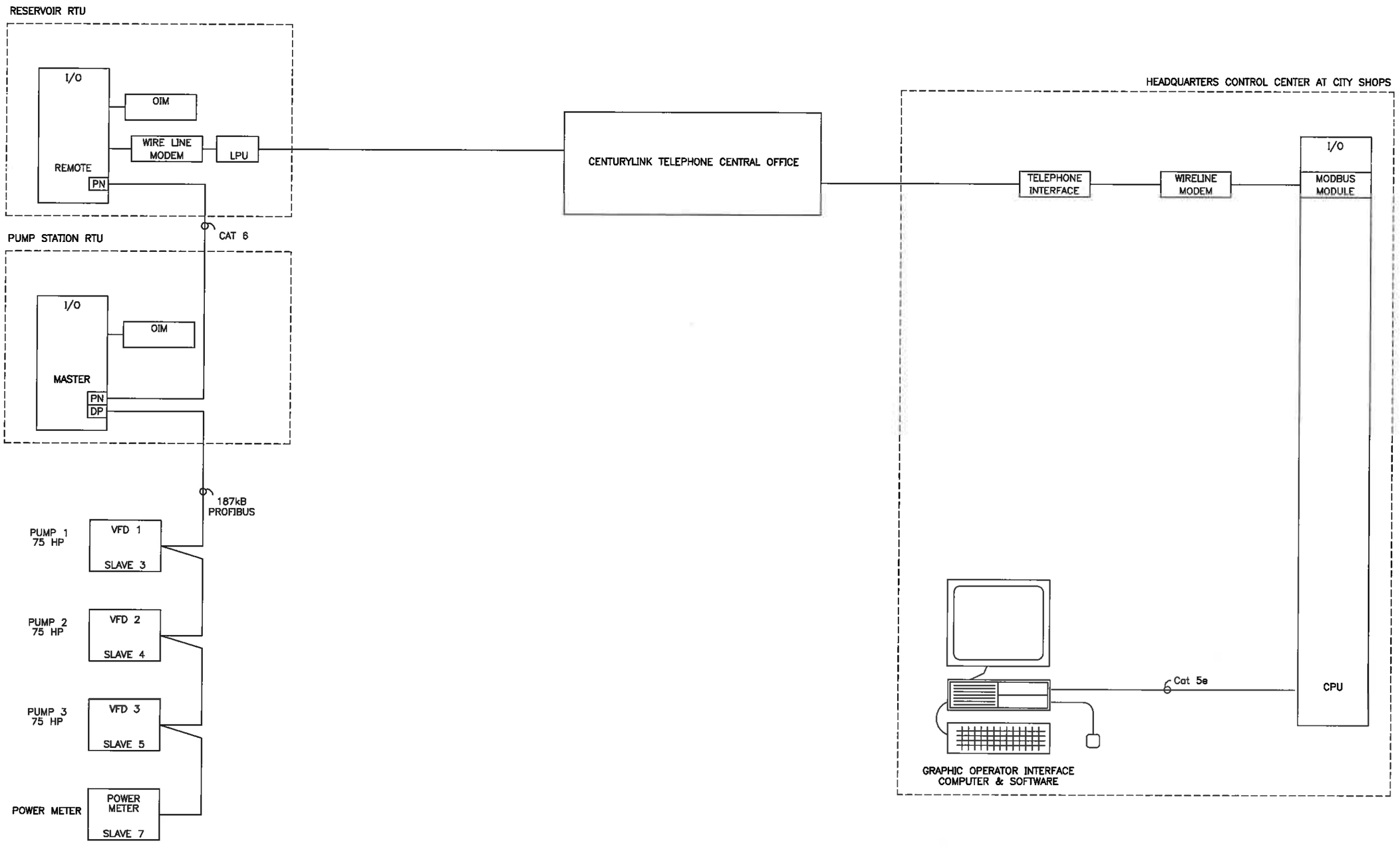
S&B System Specialists
13200 S.E. 30th St.
Bellevue, Washington 98005
S&B Inc. (425)644-1700 Fax: (425)746-9312

PROJECT
CITY OF WEST LINN, OR
BLAND CIRCLE BOOSTER STATION

TITLE
BLOCK DIAGRAM
ANCILLARY SYSTEMS

DRAWING NUMBER

FILE: 12023-012-02				
LAST MODIFIED: 12/08/13 1:20 PM	D	12023	012	2 OF 7
	SIZE	JOB NUMBER	KEY	SHEET REV



REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 26, 1994
RANDALL T. STEAD
RENEWAL DATE: 6/30/14

PROJECT SHEET:
IC – 3

FILE: 12023-012-03
LAST MODIFIED: 12/08/13 1:25 PM

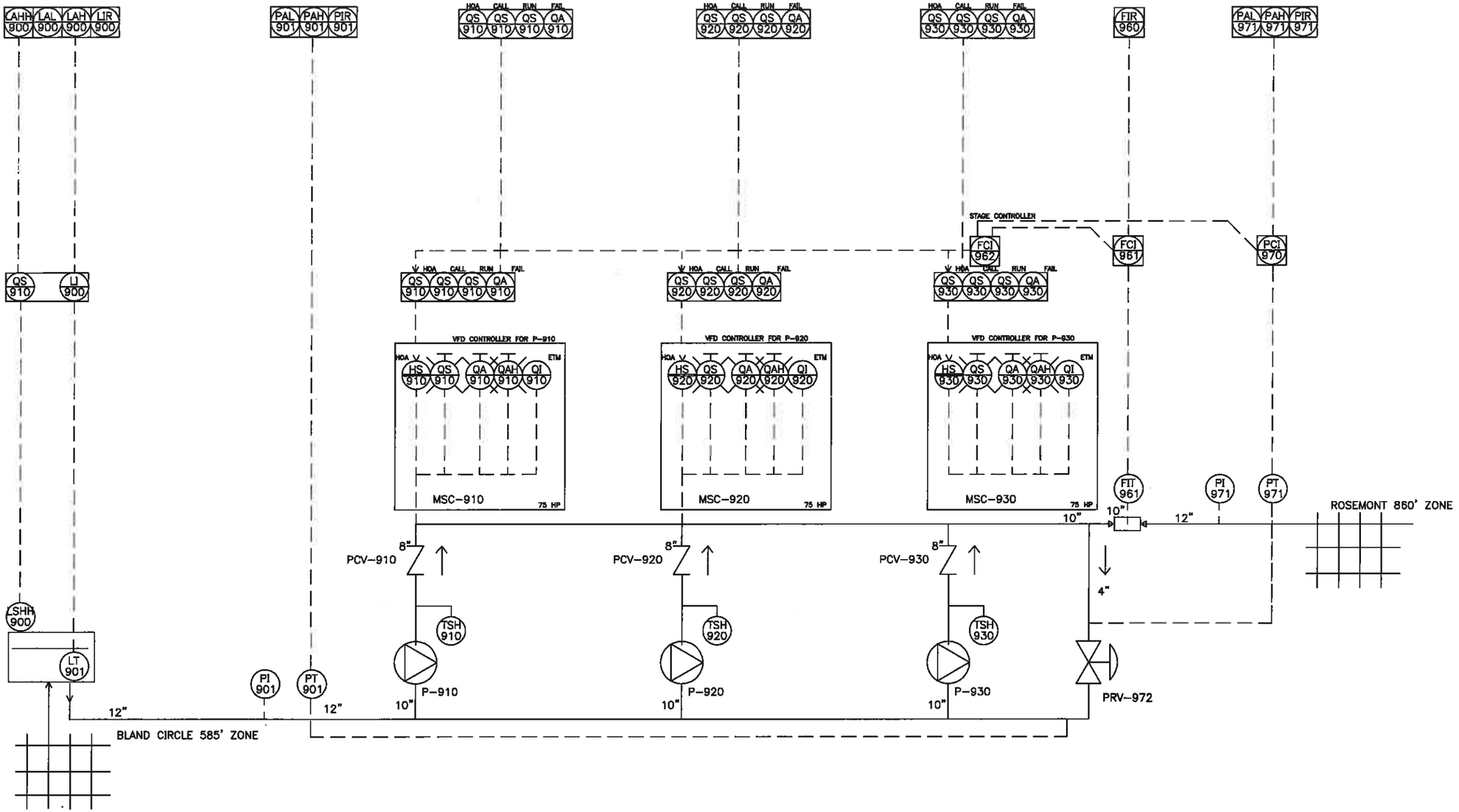
REV.	REVISION DESCRIPTION						APP	DATE
DRWN	RTS	1-24-13	ASMB			ENGR		SCALE NONE

S&B System Specialists
S&B inc.
13200 S.E. 30th St.
Bellevue, Washington 98005
(425)644-1700 Fax: (425)746-9312

PROJECT
CITY OF WEST LINN, OR
BLAND CIRCLE BOOSTER STATION

TITLE
NETWORK DIAGRAM
LOCAL AND WIDE AREA
CONNECTIONS

DRAWING NUMBER				
SIZE	JOB NUMBER	KEY	SHEET	REV
D	12023	012	3 OF 7	



ASH	ALARM SWITCH HIGH
ASHH	ALARM SWITCH HIGH HIGH
HS	HAND SWITCH
LAHH	LEVEL ALARM HIGH HIGH
LCR	LEVEL CONTROL RECORDER
LIC	LEVEL INDICATOR CONTROLLER
LIR	LEVEL INDICATOR RECORDER
LSHH	LEVEL SWITCH HIGH HIGH
LT	LEVEL TRANSMITTER
MSC	MOTOR STARTER CONTROL
PAL	PRESSURE ALARM LOW
PAH	PRESSURE ALARM HIGH
PI	PRESSURE INDICATION
QA	QUANTITY AMP
QAH	QUANTITY ALARM
QI	QUANITY INDICATOR
QS	QUANTITY STATUS
SV	SOLENOID SWITCH
TSH	TEMPERATURE SWITCH HIGH
ZS	POSITION SWITCH

IN COMPUTER

AUXILLARY PANEL

LIGHT

FRONT OF PANEL

REGISTERED PROFESSIONAL ENGINEER — RANDALL T. STEAD — OREGON — JULY 28, 1989 — RENEWAL DATE: 6/30/14

PROJECT SHEET: IC – 4

REV.	REVISION DESCRIPTION				APP	DATE
DRWN	RTS	10-5-11	ASMB	ENGR	RTS	11-14-13

SCALE NONE

S&B System Specialists
13200 S.E. 30th St.
Bellevue, Washington 98005
S&B Inc. (425)644-1700 Fax: (425)746-9312

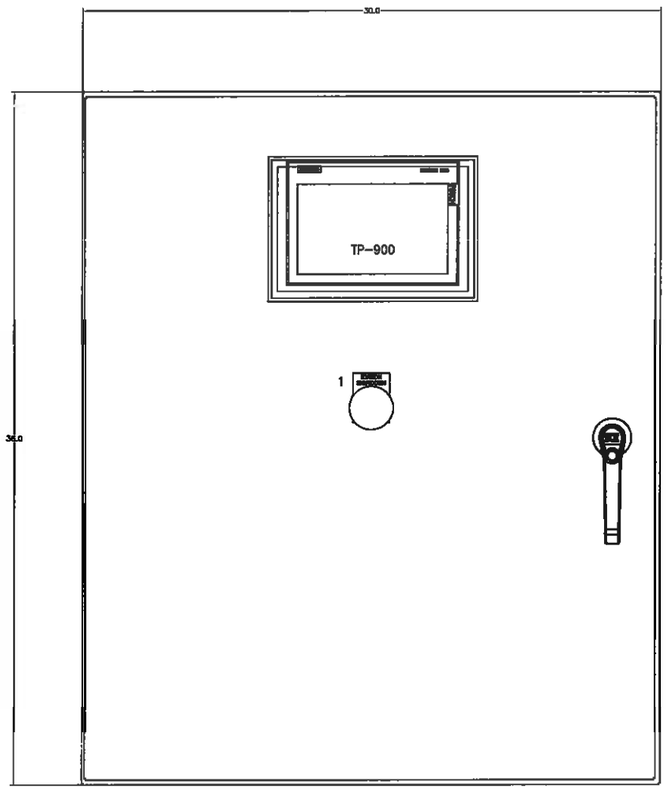
PROJECT
CITY OF WEST LINN, OR
BLAND CIRCLE BOOSTER STATION

TITLE
P&ID
PROCESS CONTROLS

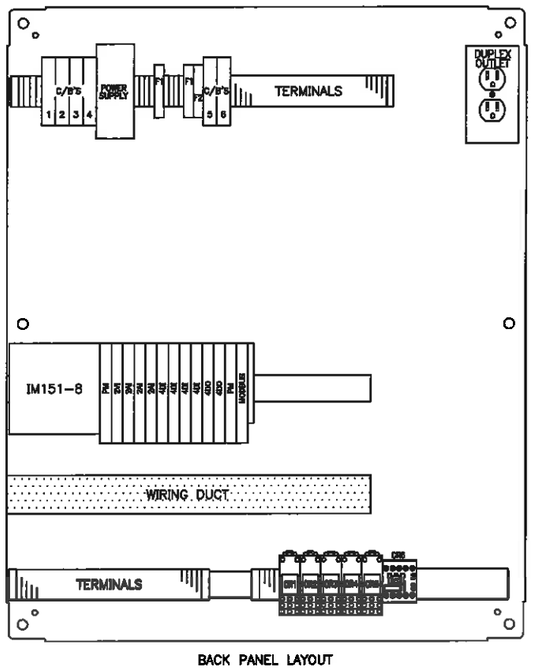
FILE: 12023-12-04
LAST MODIFIED: 11/14/13 9:50 AM

DRAWING NUMBER

SIZE	JOB NUMBER	KEY	SHEET	REV
D	12023	012	4 OF 7	



SAGINAW SBA3-36EL3010LP TYPE 12 ENCLOSURE
(INCLUDES 3 PT LATCH KIT AND HANDLE)
SAGINAW SCE-36P30 BACK PANEL



BACK PANEL LAYOUT

NAMEPLATE

1 STATION SHUTDOWN

REGISTERED PROFESSIONAL ENGINEER
14,157
OREGON
JULY 28, 1989
RANDALL T. STEAD
RENEWAL DATE: 6/30/14

PROJECT SHEET:
IC – 5

FILE: 12023-012-05
LAST MODIFIED: 12/08/13 1:28 PM

REV.	REVISION DESCRIPTION						APP	DATE
DRWN	RTS	1-24-13	ASMB			ENGR		SCALE NONE

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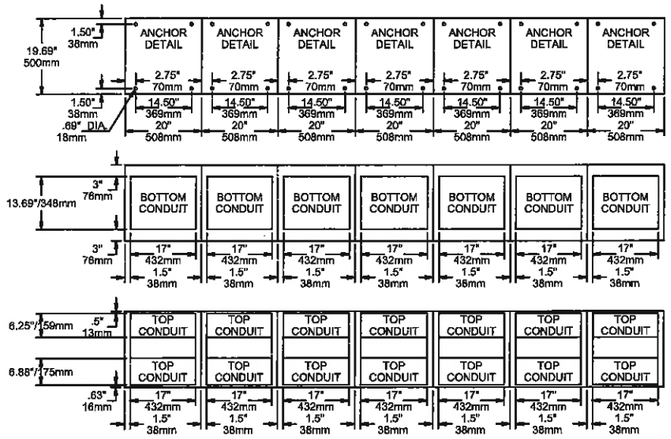
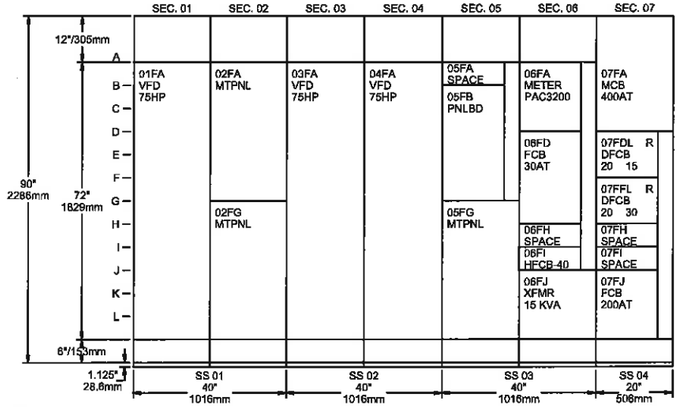
13200 S.E. 30th St.
Bellevue, Washington 98005
S&B inc. (425)644-1700 Fax: (425)746-9312

PROJECT
CITY OF WEST LINN, OR
BLAND CIRCLE BOOSTER STATION

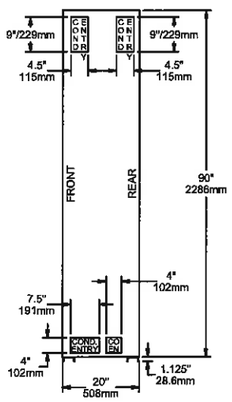
TITLE
PRESENTATION
REMOTE TELEMETRY UNIT

DRAWING NUMBER				
D	12023	012	5 OF 7	
SIZE	JOB NUMBER	KEY	SHEET	REV

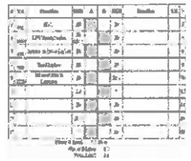




CUSTOMER SECT. ID	01	02	03	04	05	06	07
DEPTH (in/mm)	20/508	20/508	20/508	20/508	20/508	20/508	20/508
WIDTH (in/mm)	20/508	20/508	20/508	20/508	20/508	20/508	20/508
HORIZONTAL BUS	YES	YES	YES	YES	YES	YES	YES
VERTICAL BUS TYPE	NONE	NONE	NONE	NONE	300A FRONT	300A FRONT	600A FRONT
VB BARRIERS	-	-	-	-	ISOLATED	ISOLATED	ISOLATED
VB SHUTTERS	-	-	-	-	-	-	-
THERMOSTAT	NO	YES	NO	YES	NO	YES	YES
DOUBLE DEEP BUS-THRU	-	-	-	-	-	-	-
THERMOSTAT	-	YES	-	YES	-	YES	YES



LIGHTING PANEL IN MCC SECTION 05FB



GENERAL	
SERVICE	480Y/277 3Ø4W AC
SYSTEM GROUNDING	SOLIDLY GROUNDED
FREQUENCY	60 HZ
AVAIL FAULT CURR	42K AIC SYM
SERVICE ENTRANCE	YES
MCC TYPE	TIASTAR
LABELS	
UL	ALL UNITS/SECTIONS
CSA	WAIVED
REGIONAL CODES	-
ALTITUDE RATINGS	UP TO 3000FT / 915M
CUST INSPECT REQD	NONE
CERTIFIED TEST RPTS	-
GENERAL NOTES	-
	-
	P6
	-
SHOP NOTES	-
	-
	-
	-
	-

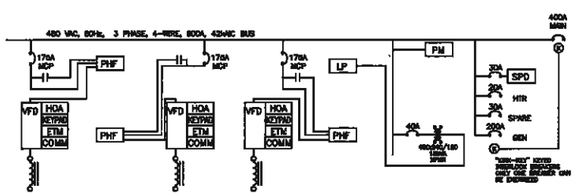
BUS	
BRACING	42K AIC SYM
BUS RATING	-
HORIZONTAL BUS	-
RATING	600A (3/16 X 2)
MATERIAL	COPPER
TEMP RATING	65 DEGREES C
PLATING	TIN
BARRIERS	STANDARD LEXAN
INSULATION	-
VERTICAL BUS	
RATING	SEE SECTION DETAILS
MATERIAL	COPPER
PLATING	TIN
STAB PLATING	TIN
NEUTRAL BUS	
RATING	600A
MATERIAL	COPPER
PLATING	TIN
LOCATION	INCOMING SECTION ONLY
LUGS	(2) 4-350 KCMIL
HORIZONTAL GROUND BUS	
RATING	300A (1/4 X 1)
MATERIAL	COPPER
PLATING	UNPLATED
LOCATION	FRONT BOTTOM
LUGS	(1) 6-300 KCMIL
LUG PAD	-
VERTICAL GROUND BUS	
RATING	-
MATERIAL	-
PLATING	-
MOTOR GND TERMINALS	-

STRUCTURE	
NEMA TYPE	1A
EXTERNAL	-
HEIGHT	91.125" / 2315MM
DEPTH	20" / 508M/M FRT ONLY
PAINT	GRAY ANSI 61
GENERAL OPTIONS	-
FISH-TAPE BARRIERS	-
REMOV BOT PLATES	-
BASE CHANNELS	-
SEISMIC	IBC LEVEL 4
TWO-PC BACKPLATE	-
FUNGUS PROOFING	-
SPACE HEATERS	-
SIZE	120V 150W
POWER SOURCE	EXTERNAL
BARRIER	-
THERMOSTAT	SEE SECTION DETAILS
SPECIAL DIAGRAMS	-
INTERCONNECTION	-
COMMUNICATION	-
SPACE HEATER	-
LIGHT/SWITCH/RECEP	-
VENTILATION	-
MISC 1	-
MISC 2	-
MISC 3	-

UNITS	
MIN WITHSTAND RATINGS	-
CB COMBINATION	42K AIC SYM
CB FEEDER	42K AIC SYM
FUSIBLE COMBINATION	-
FUSIBLE FEEDER	-
WIRING CLASS	I
TYPE	BD (CTRL TERM BLKS)
CTRL TERM BLOCKS	PULL-APART
EXTRA UNUSED PTS	-
POWER TERM BLOCKS	NOT APPLICABLE
CONTROL WIRE	16 AWG MTW
POWER WIRE	STANDARD
CONTROL TERMINALS	-
POWER TERMINALS	-
WIRE MARKERS	CONTROL ONLY
TYPE	HEAT SHRINK
GENERAL OPTIONS	NONE
UNIT DIAG ON DOOR	-
HEATER TBLS ON DOOR	-
UNIT SIDE BARRIER	-

NAMEPLATES	
UNIT	STANDARD
COLOR (FACE/TEXT)	BLACK/WHITE
TEXT SIZE	3/16
TEXT	SEE NAMEPLATE INFO
ATTACHMENT	STAINLESS SCREWS
COMPONENT	-
MASTER	-
COLOR (FACE/TEXT)	-
TEXT SIZE	-
SECTION	-
COLOR (FACE/TEXT)	-
TEXT SIZE	-
TEXT	-

INCOMING	
MAIN ENTRY TYPE	CABLE ENTRY UNIT
LOCATION	TOP
SECTION	07
UNIT	07FA
INCOMING CABLES	(2)500 KCMIL
-	-
-	-



480VAC 3 phase	HP Load	kVA Load	FLA	locked rotor	Breaker	conductor size
PUMP 1	75 HP		96	600	175	#1 SYM. SHIELDED
PUMP 2	75 HP		96	600	175	#1 SYM. SHIELDED
PUMP 3	75 HP		96	600	175	#1 SYM. SHIELDED
Low Volt Panel		15.0 kVA	19		40	8
Heater		7.5 kVA	9		15	12
			330		400	600 MCM
Max Load:		**274 kVA**				
Demand Load:		294 kVA	354 AMP			

240/120 VAC	kVA
RTU	0.50
120Vac Receptacles	1.08
Interior & Door Lights	0.48
Yard Lights	0.50
Exhaust Fan and louvers	1.23
Design kVA Load	3.8

REGISTERED PROFESSIONAL ENGINEER 14,157 OREGON JULY 28, 1995 RANDALL T. STEAD
RENEWAL DATE: 6/30/14

PROJECT SHEET: IC – 6

REV.	REVISION DESCRIPTION			APP	DATE
DRWN	RTS	1-24-13	ASMB		
ENGR	RTS	11-14-13	SCALE	NONE	

S&B System Specialists
S&B inc.
13200 S.E. 30th St.
Bellevue, Washington 98005
(425)644-1700 Fax: (425)746-9312

PROJECT
CITY OF WEST LINN, OR
BLAND CIRCLE BOOSTER STATION

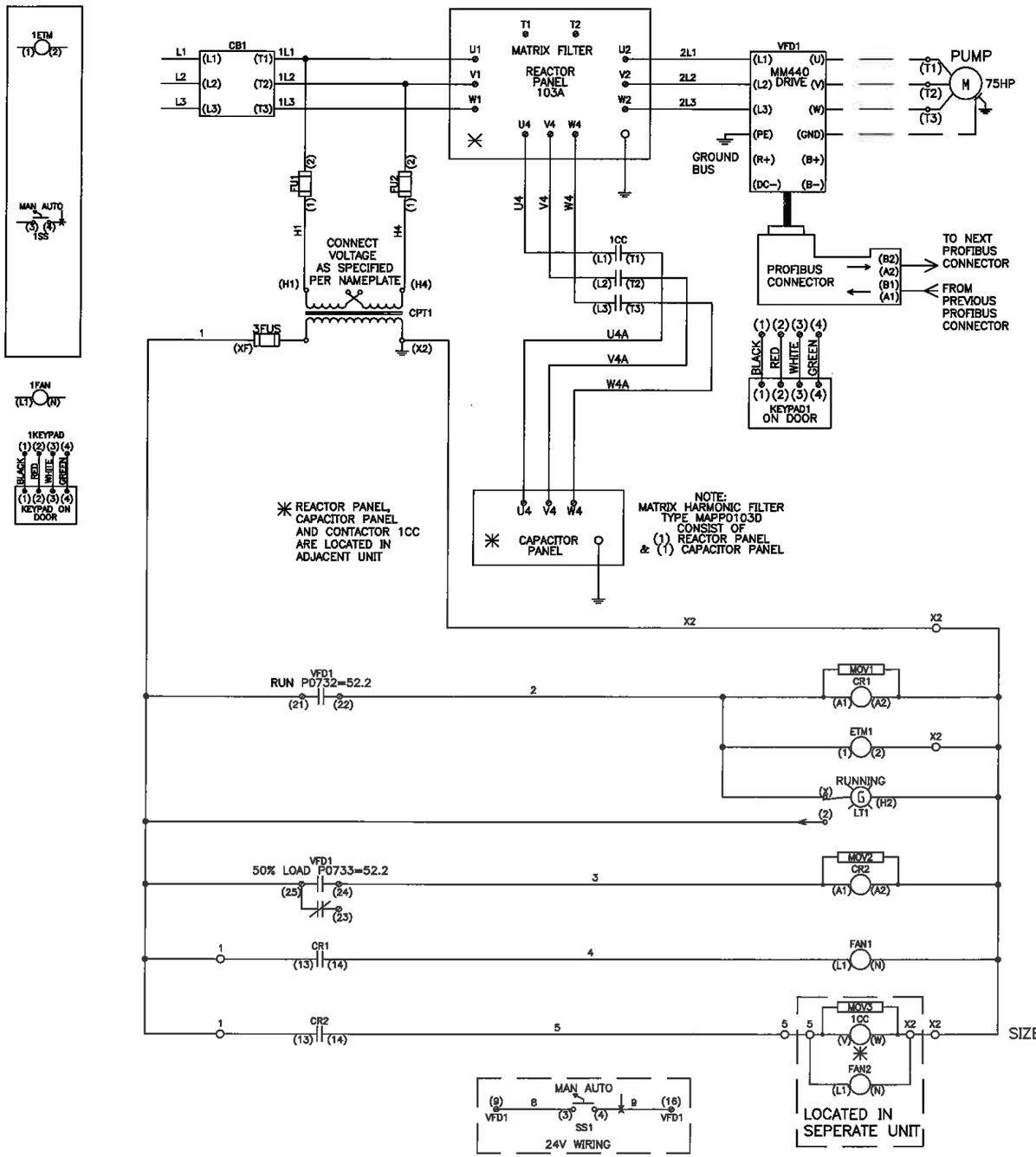
FILE: 12023-12-06
LAST MODIFIED: 11/14/13 2:42 PM

TITLE
MOTOR CONTROL CENTER PRESENTATION AND ONE LINE REPRESENTATION

DRAWING NUMBER				
SIZE	JOB NUMBER	KEY	SHEET	REV
D	12023	012	6 OF 7	

ELEMENTARY DIAGRAM – VFD PUMP UNIT

DOOR MOUNTED DEVICES



PROJECT SHEET:
IC – 7

FILE: 12023-12-07
LAST MODIFIED: 11/14/13 2:43 PM

REV.	REVISION DESCRIPTION					APP	DATE
DRWN	RTS	2-11-13	ASMB		ENGR	RTS	11-14-13	SCALE	NONE

S&B System Specialists
13200 S.E. 30th St.
Bellevue, Washington 98005
S&B inc. (425)644-1700 Fax: (425)746-9312

PROJECT: CITY OF WEST LINN, OR
BLAND CIRCLE BOOSTER STATION

TITLE: WIRING DIAGRAM
MOTOR CONTROL LOGIC

DRAWING NUMBER				
SIZE	JOB NUMBER	KEY	SHEET	REV
D	12023	012	7 OF 7	