

ADDENDUM NO. 1 - July 27, 2020

**Louise Avenue Pavement Rehabilitation
CIP PS 18-01**

This addendum amends the Contract Drawings and Specifications for this project as follows:

1. Add to the Contract Specifications in Appendix “A” - Attachment 1 - CalRecycle Form 168 and cover sheet. This form must be filled out, signed and submitted with the Contractor’s bid.
2. Replace in the Contract Specifications the Bid Item List on pages 0300-1, 0300-2 and 0300-3 with Attachment 2 – Revised Bid Item List
3. Add to the Contract Specifications Attachment 3 – *Pavement Exploration and Recommendations*
4. Replace the Water Transmission Main Plans with Attachment 4 -- Louise Avenue Water Transmission Main Plans – Revision 1.

The following Requests for Information (RFI) have been received by the City, and are followed by the City’s response (R):

RFI 1: Has a soils report been prepared for the project and can it be shared with the contractors?

A 1: See Attachment 3 - *Pavement Exploration and Recommendations*.

RFI 2: Can the full coring data report be provided to allow the Contractor to determine which locations have fabric? Does the City know if fabric is in the existing roadway? Can fabric be left in the material that is to receive soil treatment?

A 2a: See Attachment 3 - *PAVEMENT EXPLORATION AND RECOMMENDATIONS*.

A 2b: It is not known if reinforcement fabric is in the existing pavement.

A 2c: Fabric can be left in the material that is to receive soil treatment.

RFI 3: Section M – 3.02 (General Traffic Control Requirements) states: “No closure of any lane will be permitted during 7 a.m. to 9 a.m. and 4p.m. to 6 p.m.” Is it the intent of the City to allow cars to drive on a pulverized surface during the above-stated time frames? This would be the only way to complete the project without drastically increasing the total bod amount.

A 3: The intent is to have 2-way traffic open both ways during commute hours, i.e. single lane traffic on the north side while working on the south side, etc.

RFI 4: The project will construct the RHMA course in Spring, 2021, requiring the temporary striping to left in place for months. What are the requirements for temporary striping and under which bid item will this work be paid for?

A 4: The temp striping will be single-coat paint and floppies, where needed and a bid item for this work has been added to the Revised Bid Item List, Attachment 2.

RFI 5: There is an existing AC Dike on the south side of Louise from Station 42+00 to 50+00. Pulverizing 18" of material against the existing Dike will cause the dike to break and collapse into the work area. Can the City add a bid item to replace the existing AC Dike? If not, under which bid item will replacement of AC Dike be paid for?

A 5: A bid item for this work has been added to the Revised Bid Item List, Attachment 2.

RFI 6: Some of the existing utilities shown on the plans are shallow in depth. Can the contractor plan on normal working conditions over the shallow utilities shown on the plans? How will The City address existing utilities that are found to be in the proposed roadway section during construction?

A 6a: The Contractor will need to verify the depths of existing utilities before the pulverization operation begins. The City is potholing the gas lines on July 28, and will supply data therefor on July 29 in Addendum 2.

A 6b: If the existing utilities are too high to allow for a correct pulverization operation, City will determine the best course of action.

RFI 7: The RHMA Course for the project is scheduled for Spring 2021. To account for oil price fluctuation, please confirm if this project will use the California Statewide Crude Oil Price Index per Caltrans Standards?

A 7: The City will use the California Statewide Crude Oil Price Index per Caltrans 2018 Standard Specifications Section 9-1.07 to determine if a cost increase or decrease for the RHMA is warranted. If a cost adjustment is warranted, it will be applied via Contract Change Order per Caltrans 2018 Standard Specifications Section 9-1.07.

RFI 8 Bid items 16-18 are for the various curb ramps. Does the required concrete removal needed to install the new ramps get paid for in the curb ramp bid items?

A 8: Yes, all concrete work requiring concrete removal and disposal will be considered as paid for in each concrete bid item, as more specifically addressed in 10-1.06 of Division 2 - Site Work "Measurement & Payment" of the Contract Specifications.

RFI 9: At Station 33+00 to 34+00 the new water line is shown crossing an existing valley gutter, bus stop and signal pole. Can the water line alignment be adjusted in this location to avoid these existing facilities? If not, under which bid item will replacement of existing valley gutters and bus stops be paid for?

A 9: Yes, the water line alignment can be adjusted in this location to avoid the existing facilities.

RFI 10: Typical Section No. 1 shown on plan sheet P-13 shows the proposed cross slope of the roadway to "match existing". However, the cross sections shown from plan sheet P-8 to P-12 shows elevations at the crown of the roadway and the ETW at the center of the roadway. Is the intent of the project to keep the existing crown of the road and the existing cross slope? Or, is the contractor to grade the roadway to the proposed elevations shown on the cross sections on plan sheets P-8 - P-12?

A 10: The intent of the work described in the Base Bid and Bid Alternate 1 is to match the existing crown and edge of pavement elevations, and straight grade the cross slope of the road between these points, effectively removing any existing undulations in the roadway's cross-slope. Bid Alternate 2 has the same intent, except between stations 32+59.36 thru 36+96.29, where the crown of the road will be shifted away from the centerline in order to address drainage concerns, and minor regrading of the new roadway will be necessary.

RFI 11: Does the city have pothole information for the gas main and if so can you share it with us?

A 11: No information on the gas line is available at this time. The City is potholing the gas lines on July 28, and will supply data therefor in Addendum 2 on July 29.

RFI 12: What are the restrictions for the gas main as far as weight restrictions, working clearance with equipment, vibration restrictions, minimum cover from bottom of FDR to top of gas main?

A12: This will be addressed in Addendum 2 on July 29.

RFI 13: Instruction to bidders page 00100-3 Completion of Work states "complete all work within 75 working days after NTP". According to the specifications there will be 2 NTP's issued. Does this 75 working days include both NTP's? 75 working days is a very aggressive working day schedule based on the phasing of the project.

A 13: Phase 1 is 75 working days. Phase 2 (including the RHMA work) has not yet been identified, but will be a short duration process for which additional working days will be allotted.

RFI 14: Specification section 1570 Item I states "provide one lane of traffic in each direction at all times". Item M states "No closure of any lanes between 7:00 a.m. and 9:00 a.m. and 4 p.m. to 6 p.m.". Due to the type of construction being performed on this project lanes will need to be closed for multiple days to complete the proposed work. Please clarify the lane closure requirements.

A 14: The "no closure" reference only pertains to maintaining at least one open lane of traffic in each direction during commute hours, but not necessarily using all of the lanes.

RFI 15: Instruction to Bidders page 00100-2 Description of Work second paragraph states "Notice to proceed for the RHMA work in spring, 2021". Is it the intent of the City to complete the cement treatment and base course asphalt paving this year? If so, who is responsible to maintain the SWPPP and roadway access during the shut down period? The roadway will have 2.5" drop offs

at all driveway and cross streets which would require temporary ramps. Who is responsible for maintaining these temporary ramps during the shut-down period?

A 15a: The City intends to complete the cement treatment and base course asphalt paving this year.

A 15b: The City will maintain the SWPPP while the work is suspended.

A 15c: The City expects that the ramps will be constructed of asphalt and will need little to no maintenance. If maintenance to any of the ramps is necessary while the work is suspended, the City will provide the maintenance.

RFI 16: Bid Item 50 - Irrigation Sleeves, has a quantity of 238 LF for the base bid. The sleeves are shown on the Bid Alternate Plan Sheets. Will this entire quantity be installed if the Alternates are not awarded?

A 16: Yes, entire quantity will be installed irrespective of Alt awards.

RFI 17: Bid Item 54 - 3" Conduit with Mule Tape for Future Interconnect. On what plan sheets are the future interconnect conduits shown? What call out number is used on the plan sheets?

A 17: This is not shown on the plan sheets, but the trench and conduit will be constructed along the north side of Louise Ave. and will provide a future interconnection from the traffic signal on the northeast corner of the Louise Ave. / Harlan Rd. to the traffic signal on the northwest corner of Louise Ave. / 5th Street. Note the quantity increase of this bid item in the Revised Bid List, Attachment 2 from that included in the original bid solicitation. Provide a B-12 pull box at 600' max intervals.

RFI 18: Spec Section 01410 states the CONTRACTOR is responsible for all independent testing, but it's very vague on what testing will be required of us. Does this mean soils testing, compaction testing, asphalt testing? Can the City elaborate on what testing will be required of the contractor?

A 18: No testing will be required of the Contractor.

RFI 19: Spec Section 01510 provides a list of items required for the mobilization item. Included in these items is providing a construction trailer. Is the City really going to require this?

A 19: A trailer will not be needed

RFI 20: Spec Section 10-1.11 states the contractor is required to compact the pulverized material to 95%. Is this necessary since this material is going to be lime/cement treated and compacted after that operation?

A 20: Omit compaction prior to mixing.

RFI 21: Spec Section 10-1.11 also provides gradation and test requirements for the pulverized material.
How is the contractor supposed to guarantee the pulverized material meets these specification?

A 21: The intent is to not have excessively large pieces of pulverized asphalt in the subgrade, and not to have a specific gradation. The Contractor will not be required to provide a gradation.

RFI 22: Spec Section 10-1.12 states the quicklime/cement content is to be determined by the CONTRACTOR. How can this be determined without being able to sample the soil prior to bidding? Can a cement/lime content be provided for bidding purposes?

A 22: The quicklime/cement content will be determined by the City.

RFI 23: Plan Sheet P-13, Typical Section No. 1, shows the sequence of FDR Work. If there is a mutual benefit to The City and The Contractor, can the listed sequence change? Can the excess material (sequence #2) be removed prior to pulverizing (sequence #1)?

A 23: Yes.

RFI 24: During the day we know the minimum number of lanes is one in both direction, same requirement at night?

A 24: Nighttime can shift to alternating 2-directional traffic in one lane with appropriate traffic control.

RFI 25: Section 01570 3.02 M states that no closure of any lane will be permitted during 7am to 9am & 4pm to 6pm, based on conversation at meeting about shifting traffic I'm assuming the spec requirement does not apply to project?

A 25: Correct.

RFI 26: What is the minimum surface that we can place traffic on?

A 26: 12' width.

RFI 27: What is maximum amount of time that we will be allowed to have traffic shifted?

A 27: This time will be determined between the Contractor and the Senior Construction Manager as the need arises.

RFI 28: Would like to install the waterline after that section of roadway has been pulverized. Cement Treat and Paving days may run longer than the specified project work time of 6pm, in those cases can the project exceed the 6pm time?

A 28: Yes

RFI 29: Some work may need to take place at night, such as Grinding/Paving the intersection. Is working at Night an Option?

A 29: Yes

RFI 30: Assuming night work is acceptable for the intersection, can we close the intersection and detour traffic around?

A 30: Yes, with an approved traffic handling submittal.

RFI 31: Will we be able to close down side streets and detour them around the construction project?

A 31: Yes, for short durations to as needed to complete the work.

RFI 32: Is it acceptable at the other 2 Intersections (Louise Ave/Cambridge Dr & Louise Ave/5th) to do a similar full depth paving section as Louise Ave and Harlan Road?

A32: Contractor to submit a proposal for a change in conditions / approach for consideration.

RFI 33: PG&E has a 2' vertical and horizontal Zone of influence around their pipelines that cannot be penetrated by construction equipment. Is this zone of influence for their gas below the cement treat?

A 33: The City is potholing the gas lines on July 28, and will supply data therefor on July 29 in Addendum 2.

RFI 34: Are the valves shown at the tie-in locations supposed to be included with Bid Item #58 – Connect to Existing? Bid Item #57 for Butterfly Valves only has a quantity of 4 EA and there are more valves than that shown. Also, at the easterly tie-in... does that get 4 new valves? It appears to be new valves on Sheet 10, but the detail on Sheet 3 shows 3 of them as existing.

A 34: These quantities have been revised, see Revised Bid Item List, Attachment 2 and Revised Water Line Plan Sheets, Attachment 4.

RFI 35: In the Utility Work Section 2.2 I states that type of pipe for a 12" Water will be WSP, later in the specification it gives a break-down of C900 pipe. Which piping material / DR rating is required for the project?

A 35: See Revised bid item list, C-905 pipe will be used.

When submitting the bid for the project, the Contractor must acknowledge receipt of the addendum.

Recommended by: Ken Reed 7-27-2020
Ken Reed Date
Senior Construction Manager

Approved by: Michael King 7-27-2020
Michael King Date
Public Works Director

ATTACHMENT 1

APPENDIX A

CalRecycle Form 168 – Reliable Contactor

NOTE: This form must be filled out completely, signed and submitted with bidder's bid package.

RELIABLE CONTRACTOR DECLARATION

CalRecycle 168 (Revised 9/16)

This form must be completed and submitted to the Department of Resources Recycling and Recovery (CalRecycle) prior to authorizing a contractor(s) to commence work. Failure to provide this documentation in a timely manner may result in nonpayment of funds to the contractor(s).

This form is intended to help the CalRecycle's Grantees comply with the Reliable Contractor Declaration (formerly Unreliable List) requirement of their Terms and Conditions.

The Reliable Contractor Declaration (formerly Unreliable List) provision requires the following: Prior to authorizing a contractor(s) to commence work under the Grant, the Grantee shall submit to CalRecycle a declaration signed under penalty of perjury by the contractor(s) stating that within the preceding three (3) years, none of the events listed in Section 17050 of Title 14, California Code of Regulations, Natural Resources, Division 7, has occurred with respect to the contractor(s). Please see the reverse of this page, or refer to the [California Code of Regulations](http://www.calregs.com) (www.calregs.com).

If any of the events listed in Section 17050 have occurred, disclosure is required but will not necessarily result in CalRecycle refusing to approve the contractor. A signed statement explaining the facts and circumstances of the events must be attached to and submitted with this form.

Contractor: Complete the form and send original to the Grantee.

Grantee: Scan the form and upload it to the grant in CalRecycle's Grant Management System. For further instruction about logging into the Grant Management System and uploading this form, reference the Procedures and Requirements. Retain the original form in your grant file.

GRANTEE INFORMATION	
GRANTEE NAME:	GRANT NUMBER:
PRIMARY CONTACT NAME:	
CONTRACTOR INFORMATION	
CONTRACTOR NAME:	
AUTHORIZED CONTRACTOR REPRESENTATIVE NAME:	
MAILING ADDRESS:	
As the authorized representative of the above identified contractor, I declare under penalty of perjury under the laws of the State of California that within the preceding three (3) years, none of the events listed in Section 17050 of Title 14, California Code of Regulations, Natural Resources, Division 7, has occurred with respect to the above identified contractor.	
Alternatively , as the authorized representative of the above identified contractor, I declare under penalty of perjury under the laws of the State of California that within the preceding three (3) years, if any of the events listed in Section 17050 of Title 14, California Code of Regulations, Natural Resources, Division 7, has occurred with respect to the above identified contractor, I have disclosed all such occurrences in an attached signed statement that explains the facts and circumstances of the listed events.	
Signature	Date

RELIABLE CONTRACTOR DECLARATION

CalRecycle 168 (Revised 9/16)

Title 14 CCR, Division 7, Chapter 1**Article 5. Unreliable Contractors, Subcontractors, Borrowers and Grantees****Section 17050. Grounds for Placement on Unreliable List**

The following are grounds for a finding that a contractor, any subcontractor that provides services for a CalRecycle agreement, grantee or borrower is unreliable and should be placed on the CalRecycle Unreliable Contractor, Subcontractor, Grantee or Borrower List ("[Unreliable List](#)"). The presence of one of these grounds shall not automatically result in placement on the Unreliable List. A finding must be made by the Executive Director in accordance with section 17054, and there must be a final decision on any appeal that may be filed in accordance with section 17055 et seq.

- (a) Disallowance of any and/or all claim(s) to CalRecycle due to fraudulent claims or reporting; or
- (b) The filing of a civil action by the Attorney General for a violation of the False Claims Act, Government Code section 12650 et. seq; or
- (c) Default on a CalRecycle loan, as evidenced by written notice from CalRecycle staff provided to the borrower of the default; or
- (d) Foreclosure upon real property loan collateral or repossession of personal property loan collateral by CalRecycle; or
- (e) Filing voluntary or involuntary bankruptcy, where there is a finding based on substantial evidence, that the bankruptcy interfered with the CalRecycle contract, subcontract, grant or loan; or
- (f) Breach of the terms and conditions of a previous CalRecycle contract, any subcontract for a CalRecycle agreement, grant, or loan, resulting in termination of the CalRecycle contract, subcontract, grant or loan by the CalRecycle or prime contractor; or
- (g) Placement on the CalRecycle's chronic violator inventory established pursuant to Public Resources Code section 44104 for any owner or operator of a solid waste facility; or
- (h) The person, or any partner, member, officer, director, responsible managing officer, or responsible managing employee of an entity has been convicted by a court of competent jurisdiction of any charge of fraud, bribery, collusion, conspiracy, or any act in violation of any state or federal antitrust law in connection with the bidding upon, award of, or performance under any CalRecycle contract, subcontract, grant or loan; or
- (i) The person or entity is on the list of unreliable persons or entities, or similar list, of any other federal or California state agency; or
- (j) The person or entity has violated an Order issued in accordance with section 18304; or,
- (k) The person or entity has directed or transported to, has or accepted waste tires at, a site where the operator is required to have but does not have a waste tire facility permit; or,
- (l) The person or entity has transported waste tires without a waste tire hauler registration; or,
- (m) The person or entity has had a solid waste facility or waste tire permit or a waste tire hauler registration denied, suspended or revoked; or,
- (n) The person or entity has abandoned a site or taken a similar action which resulted in corrective action or the expenditure of funds by CalRecycle to remediate, clean, or abate a nuisance at the site; or
- (o) The following are additional grounds for a finding that, a person or entity described below should be placed on the Unreliable List:
 - (1) The person or entity owned 20% or more of an entity on the Unreliable List at the time of the activity that resulted in its placement on the Unreliable List;
 - (2) The person held the position of officer director, manager, partner, trustee, or any other management position with significant control (Principal Manager) in an entity on the Unreliable List at the time of the activity that resulted in its placement on the Unreliable List;
 - (3) The entity includes a Principal Manager who:
 1. Was a Principal Manager in an entity on the Unreliable List at the time of the activity that resulted in its placement on the Unreliable List; or,
 2. Owned 20% or more of an entity on the Unreliable List at the time of the activity that resulted in its placement on the Unreliable List;
 - (4) The entity has a person who owns 20% or more of the entity, if that person:
 1. Was a Principal Manager in an entity on the Unreliable List at the time of the activity that resulted in its placement on the Unreliable List; or,
 2. Owned 20% or more of an entity on the Unreliable List at the time of the activity that resulted in its placement on the Unreliable List.
 - (5) The entity has another entity which owns 20% or more of the entity, if that other entity:
 1. Is on the Unreliable List; or,
 2. Owned 20% or more of an entity on the Unreliable List at the time of the activity that resulted in its placement on the Unreliable List.
 - (6) Subsection (o) is not intended to apply to a person or entity that purchases or otherwise obtains an entity on the Unreliable List subsequent to its placement on the Unreliable List.

ATTACHMENT 2 – REVISED BID LIST

Louise Avenue Pavement Rehabilitation, PS 18-01

BID ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	EXTENDED TOTAL
1	Mobilization, Bonds & Insurance	1	LS		
2	Traffic Control	1	LS		
3	SWPPP plus BMP installation	1	LS		
4	1/2" HMA (Type A) PG 64-10	226	TN		
5	3/4" HMA (Type A) PG 64-10	12,274	TN		
6	1/2" RHMA (Type G) PG 64-16	4,772	TN		
7	Pulverize 18" and Grade	265,500	SF		
8	Remove & Dispose 9" of Pulverized Material	265,500	SF		
9	Quicklime and / or Cement Soil Treatment 11"	265,500	SF		
10	Remove & Replace 8" HMA	1,260	SF		
11	6" Deep Lift Stabilization (Allowance)	10,000	SF		
12	Cold Plane 2-1/2"	4,444	SY		
13	Case "A" Curb Ramp	4	EA		
14	Case "B" Curb Ramp	2	EA		
15	Case "C" Curb Ramp	7	EA		
16	Construct Median Island Type "C" Passageway	1	EA		
17	Remove & Replace/Install PCC Sidewalk	2,338	SF		
18	Remove & Replace/Install PCC Curb & Gutter	246	LF		
19	4" Sch. 40 Conduit Sleeves for future signal interconnect at 2 intersections	368	LF		
20	Install G-5 Pull Box	8	EA		
21	Lower Manhole Cover	32	EA		
22	Lower Gas Valve Cover	4	EA		
23	Lower Telecommunication Manhole Cover	5	EA		
24	Lower Survey Monument Cover	7	EA		
25	Lower Water Valve Cover	26	EA		
26	Lower Loop Detector Handhole Cover	3	EA		
27	Adjust Manhole Cover to Finish Grade	32	EA		
28	Adjust Gas Valve Cover to Finish Grade	4	EA		
29	Adjust Telecomm. Manhole Cover to Finish Grade	5	EA		
30	Adjust Survey Monument Cover to Finish Grade	7	EA		
31	Adjust Water Valve Cover to Finish Grade	26	EA		
32	Adjust Loop Detector Handhole Cover to Finish Grade	3	EA		
33	Install Blue RPM @ Hydrant	10	EA		
34	12" White Crosswalk/Limit Line (Thermo)	1,750	LF		
35	Striping Detail #9 (Thermo & Markers)	8,000	LF		
36	Striping Detail #25 (Thermo & Markers)	1,458	LF		

37	Striping Detail #27B (Thermo)	130	LF		
38	Striping Detail #29 (Thermo & Markers)	3,210	LF		
39	Striping Detail #38 (Thermo & Markers)	1,145	LF		
40	Striping Detail #39 (Thermo)	2,240	LF		
41	Striping Detail #39A (Thermo)	600	LF		
42	Striping Detail #40 (Thermo)	115	LF		
43	Striping Detail #41 (Thermo)	95	LF		
44	Pavement Marking Type III (L or R) Arrow (Thermo)	13	EA		
45	Pavement Marking "Bike Lane Symbol" Legend (Thermo)	4	EA		
46	Aerial Target "+" Pavement Legend (Thermo)	2	EA		
47	Install Sign Post & Signage	4	EA		
48	Remove & Replace Loop Detectors	90	EA		
49	Preserving Survey Monumentation	1	LS		
50	3" Conduit w/ Mule Tape for signal connect, incl. trench, box setting and concrete repair.	4,000	LF		
51	Furnish and Install B-12 pull box for bid item #50	6	EA		
52	12" C-905 Water Line (including all appurtenances)	5,410	LF		
53	Blow Off Valve	1	EA		
54	Butterfly Valve	8	EA		
55	Connect to Existing Water Line	2	EA		
56	Remove and Replace HMA Dike Type "A"	900	LF		
57	2" PVC conduit	21,640	LF		
58	B-24 Pull Box for bid item 57	36	EA		
59	Temporary Striping and Markings – single coat paint	1	LS		
60	3" Sch. 40 Conduit sleeves for future irrigation	700	LF		

TOTAL BASE BID: \$ _____

TOTAL BASE BID IN WORDS: _____

BID SCHEDULE CONTINUED ON NEXT PAGE

BID ALTERNATE 1

BID ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	EXTENDED TOTAL
1	Median Planter Material	1	LS		
2	Construct PCC Median Curb	3,080	LF		
3	Construct Stamped Concrete (Median Pavement)	771	SF		
4	½" RHMA (Type G) PG 64-16 DEDUCT	308	TN		
5	Cold Plane 2-1/2" DEDUCT	2,189	SY		
6	Striping Detail 25 (Thermo & Markers) (Replaces Bid Item 36 in Base Bid)	4,525	LF		
7	Striping Detail 29 (Thermo & Markers) (Replaces Bid Item 38 in Base Bid)	1,746	LF		

TOTAL BID ALTERNATE 1: \$ _____

TOTAL BID ALTERNATE 1 IN WORDS: _____

BID ALTERNATE 1 AND 2

BID ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	EXTENDED TOTAL
1	Median Planter Material	1	LS		
2	Construct PCC Median Curb	6,364	LF		
3	Construct Stamped Concrete (Median Pavement)	1,896	SF		
4	½" RHMA (Type G) PG 64-16 DEDUCT	317	TN		
5	Cold Plane 2-1/2" DEDUCT	2,255	SY		
6	Striping Detail 25 (Thermo & Markers) (Replaces Bid Item 36 in Base Bid)	7,803	LF		
7	Striping Detail 29 (Thermo & Markers) (Replaces Bid Item 38 in Base Bid)	35	LF		

TOTAL BID ALTERNATE 1 AND 2: \$ _____

TOTAL BID ALTERNATE 1 and 2 IN WORDS: _____

Project No.
15970.000.000

June 19, 2020

City of Lathrop
390 Towne Center
Drive Lathrop, CA
95330

Subject: Louise Ave Pavement Study
Lathrop, California

PAVEMENT EXPLORATION AND RECOMMENDATIONS

As requested, we performed a pavement exploration for East Louise Avenue between Harlan Road and 5th Street in Lathrop, California. This letter includes the results of our exploration as well as our recommendations.

PROJECT DESCRIPTION

We understand that the project consists of rehabilitating all four lanes of the approximately 4,000-foot stretch of East Louise Avenue between Harlan Road and 5th Street as shown on Figures 1 and 2.

FIELD EXPLORATION

Our field exploration was performed on May 24, 2019. Drilling within the roadway was conducted using a truck-mounted drill rig, fitted with a 4-inch-diameter auger. Eight borings were advanced through the existing Asphalt (AC) and Aggregate Base (AB) and approximately 1 foot into the subgrade at each location. ENGEO measured the existing pavement thicknesses, logged the subgrade soil conditions, and collected subgrade samples for testing. We performed Resistance Value (R-value) testing on two representative subgrade soil samples within the near surface at the locations shown on Figure 2. The laboratory test results are included in Appendix B.

SURFACE CONDITIONS

During our field exploration, we observed deteriorating conditions of the existing pavement including transverse and alligator cracking as shown in the figures below. We also observed continuous truck traffic along Louise Avenue throughout the day.

FIGURE 1: Transverse Cracking



FIGURE 2: Alligator Cracking



SUBSURFACE CONDITIONS

Varying pavement section thicknesses were encountered along the alignment studied. The pavement section components measured at the eight boring locations are presented in Table 1. Boring logs are included in Appendix A.

TABLE 1: Existing Pavement Measurements

BORING	AC (INCHES)	AB (INCHES)	TOTAL SECTION (INCHES)
1-B1	8	7	15
1-B2	7.5	11	18.5
1-B3	7.5	11	18.5
1-B4	6.5	8	14.5
1-B5	7	7	14
1-B6	9.5	4	13.5
1-B7	5.5	0	5.5
1-B8	6.5	3.5	10
AVERAGE	7.3	6.4	13.7

Notes: AC is asphalt concrete
 AB is aggregate base

Soil Conditions

We encountered subgrade soil consisting of silty sand to sandy silt. Groundwater was not encountered in any of our borings at the time of drilling.

R-Value Testing

We collected two bulk samples for R-Value testing at the locations shown on the Site Plan, Figure 2. The results of our R-Value testing are summarized in the table below. The laboratory test results are included in Appendix B.

TABLE 2: R-Value Testing Results

SAMPLE LOCATION	R-VALUE
R-4	68
R-7	78

Based on the results above, we consider an R-Value of 50 to be appropriate for design.

RECOMMENDATIONS

Using traffic index alternatives of 12 and 14 as provided by the City, we developed three options for the subject roadway which consist of full depth reclamation, full depth reclamation using Tensar Geogrid, and Cold In-place Recycling (CIR).

Option 1 – Full Depth Reclamation

The following pavement sections were designed using Topic 633 of the Caltrans Highway Design Manual.

TABLE 3: Recommended Asphalt Concrete Pavement Sections

TRAFFIC INDEX	SECTION		TOTAL SECTION (INCHES)
	ASPHALT CONCRETE (INCHES)	CLASS 2 AGGREGATE BASE (INCHES)	
12	7.2	9.8	17
14	8.4	12	20.4

Option 2 – Full Depth Reclamation Utilizing Tensar Geogrid

As an alternative to the above, we present pavement sections using Tensar Geogrid provided in Table 4 below.

TABLE 4: Recommended Asphalt Concrete Pavement Sections with Geogrid

TRAFFIC INDEX	ASPHALT CONCRETE (INCHES)	CLASS 2 AB (INCHES)	GEOGRID TYPE	NUMBER OF LAYERS	TOTAL SECTION (INCHES)
12	6	6	TX7	1	12
14	7.2	7.2	TX7	1	14.4

Option 3 – Cold In-Place Recycling

Another alternative is to use Cold-In-Place Recycling (CIR) to reuse the existing roadway materials. We present pavement sections using CIR provided in Table 5 below.

TABLE 5: Recommended Asphalt Concrete Pavement Sections using CIR

TRAFFIC INDEX	DESIGN METHOD	HOT MIX ASPHALT (INCHES)	CIR-EAM (INCHES)	AB (INCHES)	TOTAL SECTION (INCHES)
12	Caltrans	7	6	0	13
	AASHTO '93	3	6	2	11
14	Caltrans	10	6	0	16
	AASHTO '93	7	4	0	11
		5.5	6	0	11.5

If the above Cold-In-Place Recycling sections are desired for use, the following constructability items should be reviewed prior to incorporation into design.

- The maximum cut depth of CIR equipment in the industry cannot exceed 6 inches in depth as shown in the table above.
- Existing pavement sections at 1-B7 does not meet the section required for a TI of 12 or 14 above. This area will need additional review and supplemental recommendations.
- Aggregate Base should meet the requirements for ¾-inch maximum Class 2 AB in accordance with Section 26-1.02B of the latest Caltrans Standard Specifications.
- Localized shallow utilities may require some supplemental recommendations for locally reduced pavement sections.

The above design recommendations were provided by Graniterock. Additional design information regarding this design is included in Appendix D.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

This report presents a summary of our findings and geotechnical recommendations of the improvements as described above. If changes occur in the nature or design of the project, we should be allowed to review this report and provide additional recommendations, if any.

We strived to perform our professional services in accordance with generally accepted geotechnical engineering principles and practices currently employed in the area; no warranty is expressed or implied.

CLOSING

If you have any questions or comments regarding this letter, please call and we will be glad to discuss them with you.

Sincerely,

ENGEO Incorporated



Connor Dunn

cd/sh/dt



Steve Harris, GE



- Attachments:
- Figure 1 – Vicinity Map
 - Figure 2 – Site Plan
 - Appendix A – Exploration Logs
 - Appendix B – Laboratory Test Results
 - Appendix C – Tensar Pavement Section Options
 - Appendix D – CIR Pavement Section Options



BASE MAP SOURCE: GOOGLE EARTH MAPPING SERVICE



VICINITY MAP
 LOUISE AVE PAVEMENT STUDY
 LATHROP, CALIFORNIA

PROJECT NO.: 15970.000.000

SCALE: AS SHOWN

DRAWN BY: EJ

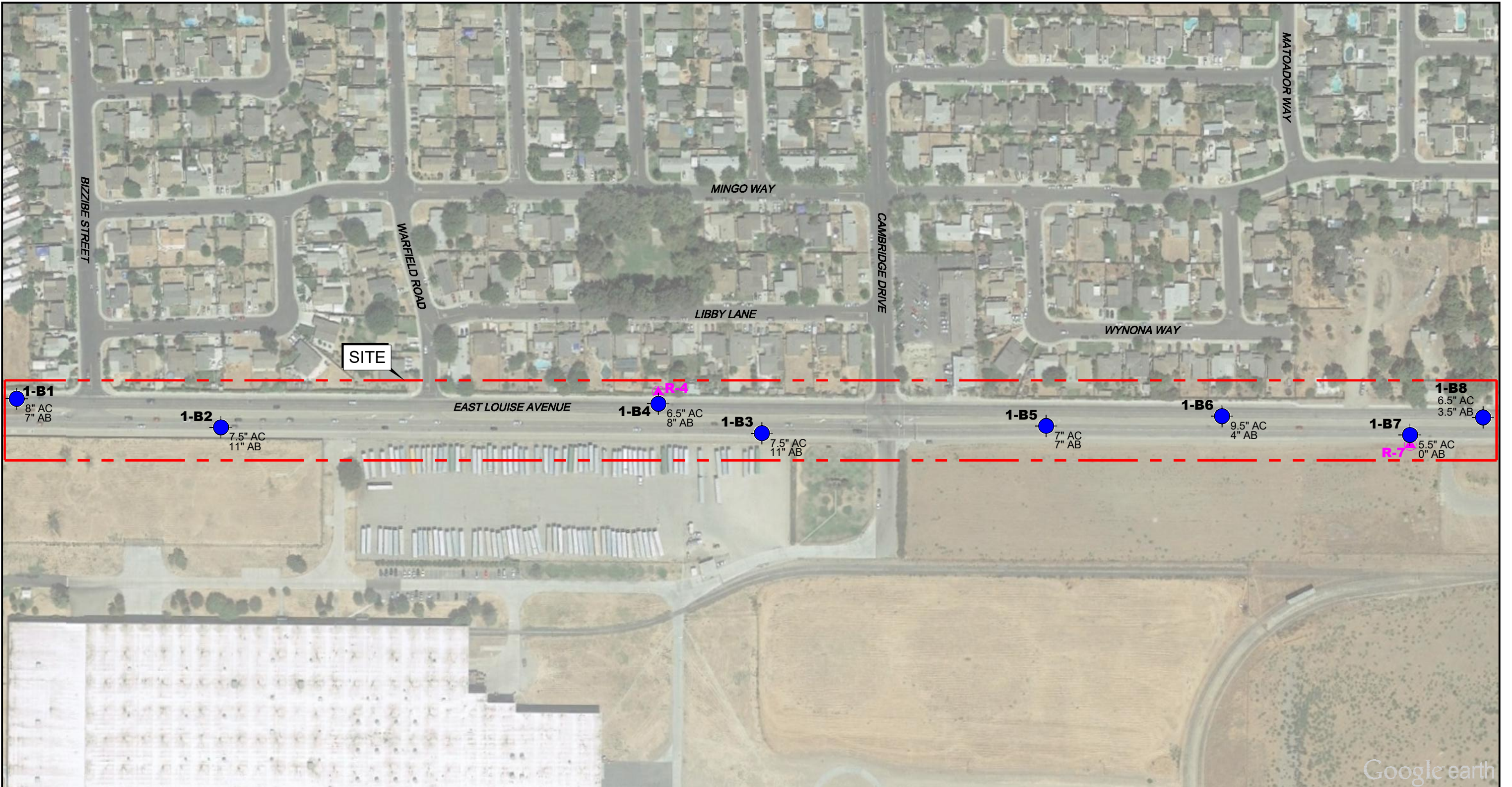
CHECKED BY: TJS

FIGURE NO.

1

ORIGINAL FIGURE PRINTED IN COLOR



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Google earth

EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

- 1-B8**  6.5" AC
3.5" AB BORING (ENGEO, 2019)
- R-7**  R-VALUE SAMPLE (ENGEO, 2019)



BASE MAP SOURCE: GOOGLE EARTH MAPPING SERVICE



SITE PLAN
LOUISE AVE PAVEMENT STUDY
LATHROP, CALIFORNIA

PROJECT NO.: 15970.000.000

SCALE: AS SHOWN

DRAWN BY: EJ

CHECKED BY: TJS

FIGURE NO.

2

APPENDIX A
Exploration Logs

KEY TO BORING LOGS

MAJOR TYPES		DESCRIPTION	
COARSE-GRAINED SOILS MORE THAN HALF OF MAT'L LARGER THAN #200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE	CLEAN GRAVELS WITH LESS THAN 5% FINES	GW - Well graded gravels or gravel-sand mixtures GP - Poorly graded gravels or gravel-sand mixtures
		GRAVELS WITH OVER 12 % FINES	GM - Silty gravels, gravel-sand and silt mixtures GC - Clayey gravels, gravel-sand and clay mixtures
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LESS THAN 5% FINES	SW - Well graded sands, or gravelly sand mixtures SP - Poorly graded sands or gravelly sand mixtures
		SANDS WITH OVER 12 % FINES	SM - Silty sand, sand-silt mixtures SC - Clayey sand, sand-clay mixtures
FINE-GRAINED SOILS MORE THAN HALF OF MAT'L SMALLER THAN #200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50 % OR LESS		ML - Inorganic silt with low to medium plasticity CL - Inorganic clay with low to medium plasticity OL - Low plasticity organic silts and clays
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50 %		MH - Elastic silt with high plasticity CH - Fat clay with high plasticity OH - Highly plastic organic silts and clays
	HIGHLY ORGANIC SOILS		PT - Peat and other highly organic soils

For fine-grained soils with 15 to 29% retained on the #200 sieve, the words "with sand" or "with gravel" (whichever is predominant) are added to the group name.

For fine-grained soil with >30% retained on the #200 sieve, the words "sandy" or "gravelly" (whichever is predominant) are added to the group name.

GRAIN SIZES

U.S. STANDARD SERIES SIEVE SIZE				CLEAR SQUARE SIEVE OPENINGS			
	200	40	10	4	3/4 "	3"	12"
SILTS AND CLAYS	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		

RELATIVE DENSITY

<u>SANDS AND GRAVELS</u>	BLOWS/FOOT (S.P.T.)
VERY LOOSE	0-4
LOOSE	4-10
MEDIUM DENSE	10-30
DENSE	30-50
VERY DENSE	OVER 50

CONSISTENCY

<u>SILTS AND CLAYS</u>	<u>STRENGTH*</u>
VERY SOFT	0-1/4
SOFT	1/4-1/2
MEDIUM STIFF	1/2-1
STIFF	1-2
VERY STIFF	2-4
HARD	OVER 4

MOISTURE CONDITION

DRY	Dusty, dry to touch
MOIST	Damp but no visible water
WET	Visible freewater

LINE TYPES

—————	Solid - Layer Break
-----	Dashed - Gradational or approximate layer break

GROUND-WATER SYMBOLS

	Groundwater level during drilling
	Stabilized groundwater level

SAMPLER SYMBOLS

	Modified California (3" O.D.) sampler
	California (2.5" O.D.) sampler
	S.P.T. - Split spoon sampler
	Shelby Tube
	Dames and Moore Piston
	Continuous Core
	Bag Samples
	Grab Samples
NR	No Recovery

(S.P.T.) Number of blows of 140 lb. hammer falling 30" to drive a 2-inch O.D. (1-3/8 inch I.D.) sampler

* Unconfined compressive strength in tons/sq. ft., asterisk on log means determined by pocket penetrometer



LOG OF BORING 1-B1



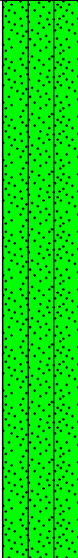
LATITUDE: 37.811878

LONGITUDE: -121.289833

Pavement Exploration
Louise Ave Pavement Study
Lathrop, CA
15970.000.000

DATE DRILLED: 5/23/2019
HOLE DEPTH: Approx. 2½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (WGS84): Approx. 19 ft.

LOGGED / REVIEWED BY: C. Dunn / ZC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: N/A

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits			Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
							Liquid Limit	Plastic Limit	Plasticity Index				
			ASPHALT 8 inches										
			AGGREGATE BASE (AB), 7 inches										
1			SILTY SAND (SM), dark yellowish brown, moist, fine-grained sand, 20-30% fines										
2			Bottom of boring at approximately 2 1/2 feet. Groundwater not encountered during drilling.										

LOG - GEOTECHNICAL W/ELEV. 15970000000_2019-05-24_CORES GINT FILE.GPJ ENGEO INC.GDT 8/11/19



LOG OF BORING 1-B2

LATITUDE: 37.811717

LONGITUDE: -121.288354

Pavement Exploration
Louise Ave Pavement Study
Lathrop, CA
15970.000.000

DATE DRILLED: 5/23/2019
HOLE DEPTH: Approx. 2½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (WGS84): Approx. 19 ft.

LOGGED / REVIEWED BY: C. Dunn / ZC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: N/A

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits			Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
							Liquid Limit	Plastic Limit	Plasticity Index				
			ASPHALT 7.5 inches										
			AGGREGATE BASE (AB), 11 inches										
1			SILTY SAND (SM), dark yellowish brown, moist, fine-grained sand, 20-30% fines										
2			Bottom of boring at approximately 2 1/2 feet. Groundwater not encountered during drilling.										

LOG - GEOTECHNICAL W/ELEV. 15970000000_2019-05-24_CORES GINT FILE.GPJ ENGEO INC.GDT 8/11/19



LOG OF BORING 1-B3

LATITUDE: 37.811714

LONGITUDE: -121.284421

Pavement Exploration
Louise Ave Pavement Study
Lathrop, CA
15970.000.000

DATE DRILLED: 5/23/2019
HOLE DEPTH: Approx. 2½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (WGS84): Approx. 19 ft.

LOGGED / REVIEWED BY: C. Dunn / ZC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: N/A

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits			Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
							Liquid Limit	Plastic Limit	Plasticity Index				
			ASPHALT 7.5 inches										
			AGGREGATE BASE (AB), 11 inches										
1			SILTY SAND (SM), dark yellowish brown, moist, fine-grained sand, 20-30% fines										
2			Bottom of boring at approximately 2 1/2 feet. Groundwater not encountered during drilling.										

LOG - GEOTECHNICAL W/ELEV. 15970000000_2019-05-24_CORES GINT FILE.GPJ ENGEO INC.GDT 8/11/19



LOG OF BORING 1-B4



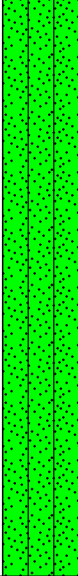
LATITUDE: 37.811878

LONGITUDE: -121.285173

Pavement Exploration
Louise Ave Pavement Study
Lathrop, CA
15970.000.000

DATE DRILLED: 5/23/2019
HOLE DEPTH: Approx. 2½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (WGS84): Approx. 19 ft.

LOGGED / REVIEWED BY: C. Dunn / ZC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: N/A

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits			Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
							Liquid Limit	Plastic Limit	Plasticity Index				
			ASPHALT 6.5 inches										
			AGGREGATE BASE (AB), 8 inches										
1			SILTY SAND (SM), dark yellowish brown, moist, fine-grained sand, 20-30% fines										
2			Bottom of boring at approximately 2 1/2 feet. Groundwater not encountered during drilling.										

LOG - GEOTECHNICAL W/ELEV. 15970000000_2019-05-24_CORES GINT FILE.GPJ ENGEO INC.GDT 8/11/19



LOG OF BORING 1-B5

LATITUDE: 37.81177

LONGITUDE: -121.28235

Pavement Exploration
Louise Ave Pavement Study
Lathrop, CA
15970.000.000

DATE DRILLED: 5/23/2019
HOLE DEPTH: Approx. 2½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (WGS84): Approx. 21 ft.

LOGGED / REVIEWED BY: C. Dunn / ZC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: N/A

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits			Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
							Liquid Limit	Plastic Limit	Plasticity Index				
			ASPHALT 7 inches										
			AGGREGATE BASE (AB), 7 inches										
1	20		SILTY SAND (SM), dark yellowish brown, moist, fine-grained sand, 20-30% fines										
2		X	Bottom of boring at approximately 2 1/2 feet. Groundwater not encountered during drilling.										

LOG - GEOTECHNICAL W/ELEV. 15970000000_2019-05-24_CORES GINT FILE.GPJ ENGEO INC.GDT 8/11/19



LOG OF BORING 1-B6

LATITUDE: 37.811834

LONGITUDE: -121.281078

Pavement Exploration
Louise Ave Pavement Study
Lathrop, CA
15970.000.000

DATE DRILLED: 5/23/2019
HOLE DEPTH: Approx. 2½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (WGS84): Approx. 22 ft.

LOGGED / REVIEWED BY: C. Dunn / ZC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: N/A

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits			Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
							Liquid Limit	Plastic Limit	Plasticity Index				
			ASPHALT 9.5 inches										
			AGGREGATE BASE (AB), 4 inches										
1			SILTY SAND (SM), dark yellowish brown, moist, fine-grained sand, 20-30% fines										
2	20	X	Bottom of boring at approximately 2 1/2 feet. Groundwater not encountered during drilling.										

LOG - GEOTECHNICAL W/ELEV. 15970000000_2019-05-24_CORES GINT FILE.GPJ ENGEO INC.GDT 8/11/19



LOG OF BORING 1-B7

LATITUDE: 37.811734

LONGITUDE: -121.279711

Pavement Exploration
Louise Ave Pavement Study
Lathrop, CA
15970.000.000

DATE DRILLED: 5/23/2019
HOLE DEPTH: Approx. 1½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (WGS84): Approx. 21 ft.

LOGGED / REVIEWED BY: C. Dunn / ZC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: N/A

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits			Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
							Liquid Limit	Plastic Limit	Plasticity Index				
			ASPHALT 5.5 inches										
			SILTY SAND (SM), dark yellowish brown, moist, fine-grained sand, 20-30% fines										
1	20		Bottom of boring at approximately 1 1/2 feet. Groundwater not encountered during drilling.										



LOG OF BORING 1-B8

LATITUDE: 37.811838

LONGITUDE: -121.279183

Pavement Exploration
Louise Ave Pavement Study
Lathrop, CA
15970.000.000

DATE DRILLED: 5/23/2019
HOLE DEPTH: Approx. 2 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (WGS84): Approx. 21 ft.

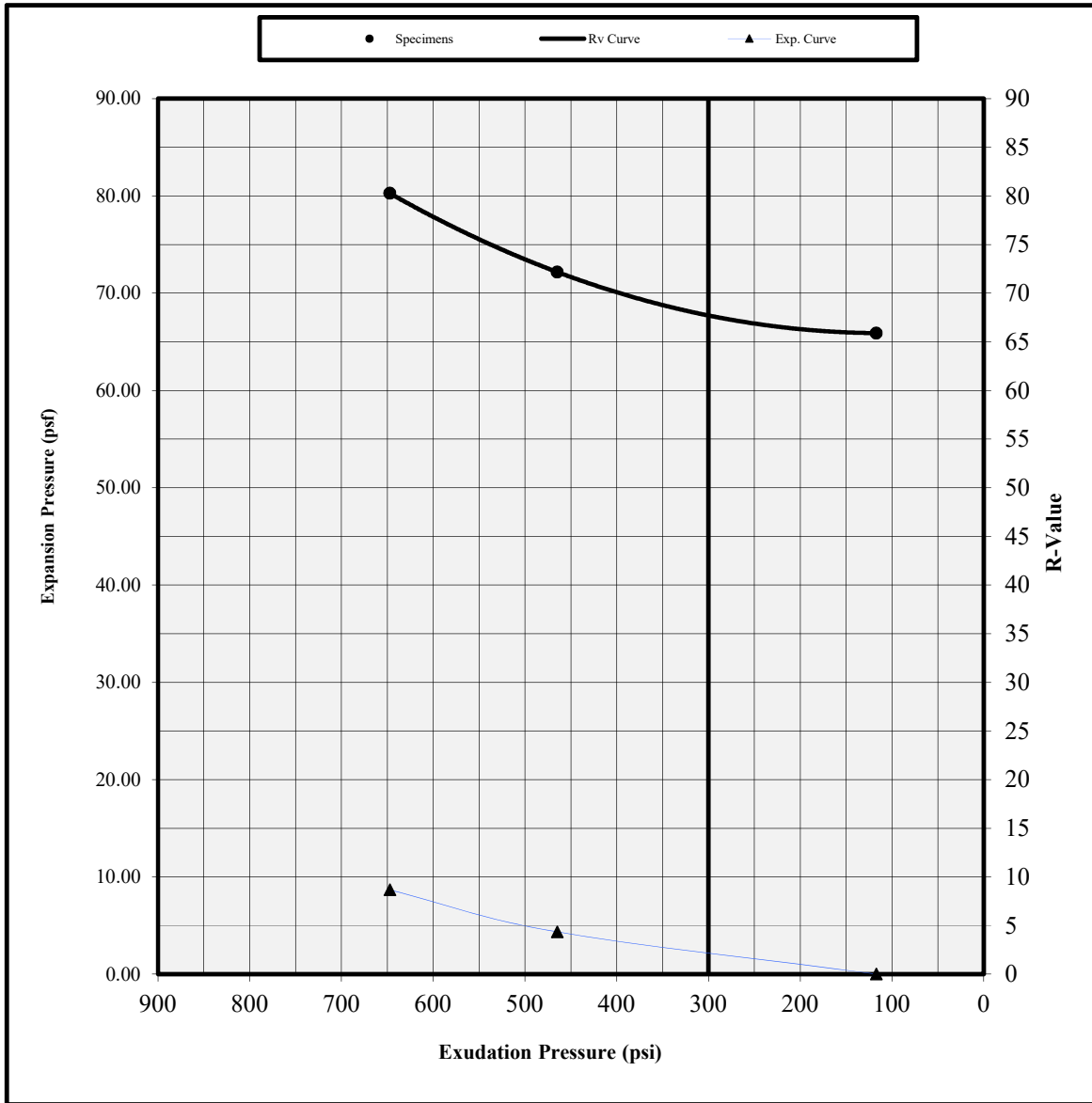
LOGGED / REVIEWED BY: C. Dunn / ZC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: N/A

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits			Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
							Liquid Limit	Plastic Limit	Plasticity Index				
			ASPHALT 6.5 inches										
			AGGREGATE BASE (AB), 3.5 inches										
1	20		SILTY SAND (SM), dark yellowish brown, moist, fine-grained sand, 20-30% fines										
2			Bottom of boring at approximately 2 feet. Groundwater not encountered during drilling.										

APPENDIX B

Laboratory Test Results

**R VALUE TEST REPORT
CTM-301**



Sample ID/Location: R-4

Description: Dark brown silty SAND

Test remarks:

Specimen	Specimen 1	Specimen 2	Specimen 3
Exudation Pressure (p.s.i.)	647	465	117
Expansion dial (0.0001")	2	1	0
Expansion Pressure (p.s.f.)	9	4	0
Resistance Value, "R"	80	72	66
% Moisture at Test	12.7	13.2	14.0
Dry Density at Test, p.c.f.	114.3	115.4	112.8
"R" Value at Exudation Pressure of 300 psi.	68		
Expansion Pressure (psf) at Exudation Pressure of 300 psi.	2		

PROJECT NAME: Harlan Road to 5th St. Pavement Study
PROJECT NUMBER: 15970.000.000
CLIENT: City of Lathrop
PHASE NUMBER: 001

DATE: 06/06/19

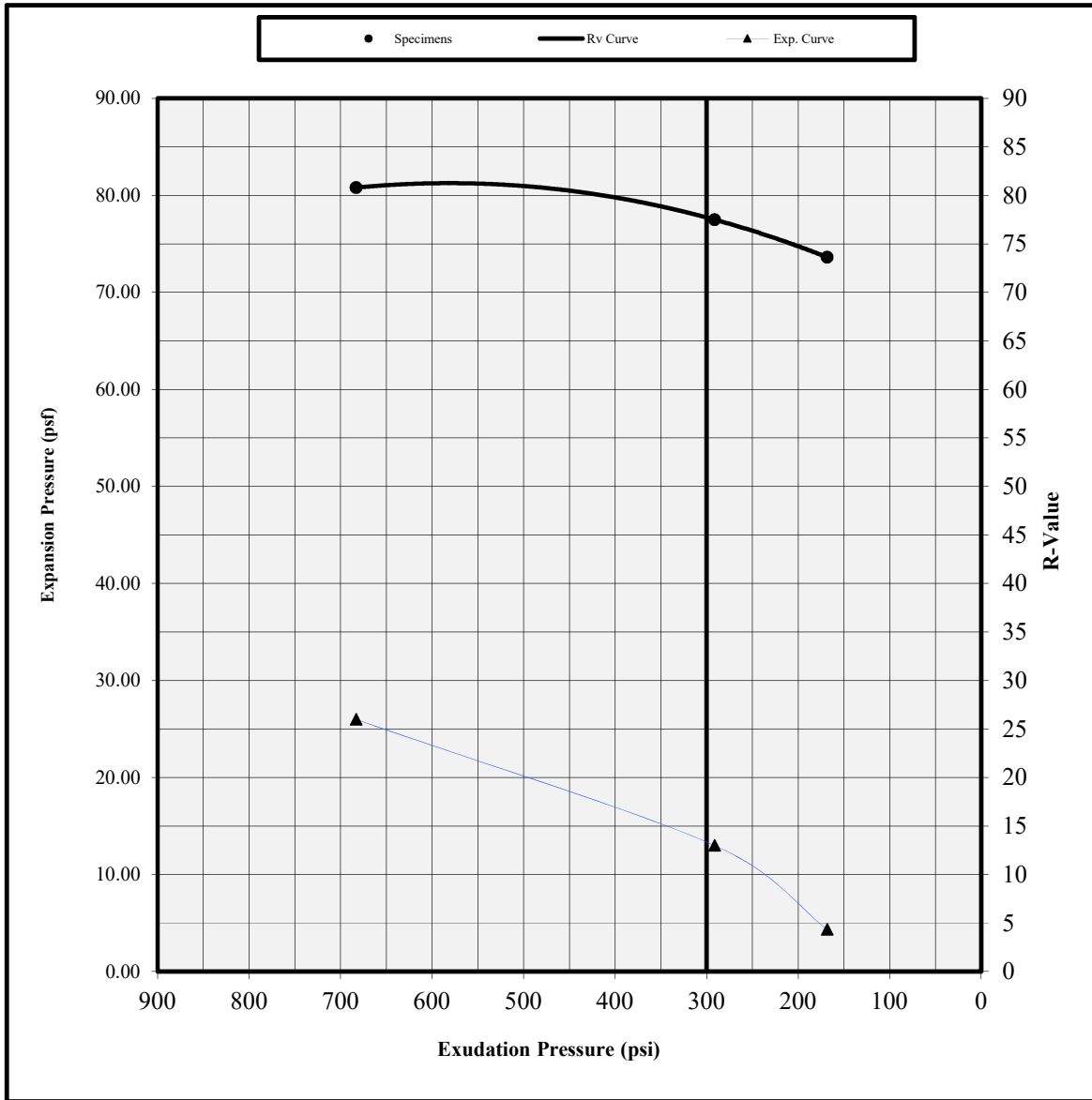


Tested by: R. Montalvo

Reviewed by: M. Gilbert

Lab Address: 2213 Plaza Drive, Rocklin, CA 95765

**R VALUE TEST REPORT
CTM-301**



Sample ID/Location: R-7

Description: Brown silty SAND

Test remarks:

Specimen	Specimen 1	Specimen 2	Specimen 3
Exudation Pressure (p.s.i.)	683	291	168
Expansion dial (0.0001")	6	3	1
Expansion Pressure (p.s.f.)	26	13	4
Resistance Value, "R"	81	77	74
% Moisture at Test	22.9	24.3	25.3
Dry Density at Test, p.c.f.	103.6	100.6	102.3
"R" Value at Exudation Pressure of 300 psi.	78		
Expansion Pressure (psf) at Exudation Pressure of 300 psi.	13		

PROJECT NAME: Harlan Road to 5th St. Pavement Study
PROJECT NUMBER: 15970.000.000
CLIENT: City of Lathrop
PHASE NUMBER: 001

DATE: 06/06/19



Tested by: R. Montalvo

Reviewed by: M. Gilbert

Lab Address: 2213 Plaza Drive, Rocklin, CA 95765

APPENDIX C

Tensor Pavement Section Options

Louise Ave - City of Lathrop

Planned Design - Typical Section 1

Traffic Index		12.0
Subgrade R-value		50



THE COMPANY YOU CAN BUILD ON™

Design Calculations - Typical Section 1

Pavement Layer	Required Gravel Equivalent (feet)	Layer GE	Actual GE (ft)	Thickness (feet)	Thickness (inch)	Pavement Profile
AC	1.92	1.02	1.92	0.60	7.2	7.2 in. AC
AB		0.90		0.82	9.8	9.8 in. C12AB
Total Thickness:				1.42	17.0	Subgrade

Tensar Alternative Concept Section 1A

Traffic Index		12.0
Subgrade R-value		50

Tensar Alternative Concept Section 1A

Pavement Layer	Required Gravel Equivalent (feet)	Layer GE	Actual GE (feet)	Thickness (feet)	Thickness (inch)	TriAx Pavement Profile
AC	1.92	0.80	1.92	0.50	6.0	6.0 in. AC
AB		1.12		0.50	6.0	6.0 in. AB
Total Thickness:				1.00	12.0	Subgrade

Louise Ave - City of Lathrop

Planned Design - Typical Section 1		
Traffic Index		14.0
Subgrade R-value		50



THE COMPANY YOU CAN BUILD ON™

Design Calculations - Typical Section 1						
---	--	--	--	--	--	--

Pavement Layer	Required Gravel Equivalent (feet)	Layer GE	Actual GE (ft)	Thickness (feet)	Thickness (inch)	Pavement Profile
AC	2.24	1.16	2.26	0.70	8.4	8.4 in. AC
AB		1.10		1.00	12.0	12.0 in. C12AB
Total Thickness:				1.70	20.4	Subgrade

Tensor Alternative Concept Section 1A		
---------------------------------------	--	--

Traffic Index		14.0
Subgrade R-value		50

Tensor Alternative Concept Section 1A						
---------------------------------------	--	--	--	--	--	--

Pavement Layer	Required Gravel Equivalent (feet)	Layer GE	Actual GE (feet)	Thickness (feet)	Thickness (inch)	TriAx Pavement Profile
AC	2.24	0.95	2.27	0.60	7.2	7.2 in. AC
AB		1.32		0.60	7.2	7.2 in. AB
Total Thickness:				1.20	14.4	Subgrade

APPENDIX D

CIR Pavement Section Options

Lathrop - East Louise Avenue
all thicknesses in inches

TI	Traffic		Caltrans			AASHTO '93		
	Trucks ¹	ESALs	HMA	CIR-EAM	AB	HMA	CIR-EAM	AB
11	300	5,400,000	6	6	0	2	6	3
11	300	5,400,000				3	4	4
11	300	5,400,000				3	6	0
12	625	11,200,000	7	6	0	3	6	2
13	1,225	22,000,000	8	6	0	3	6	5
13	1,225	22,000,000				4.5	6	0
13	1,225	22,000,000				6	4	0
14	2,300	41,000,000	10	6	0	7	4	0
14	2,300	41,000,000				5.5	6	0

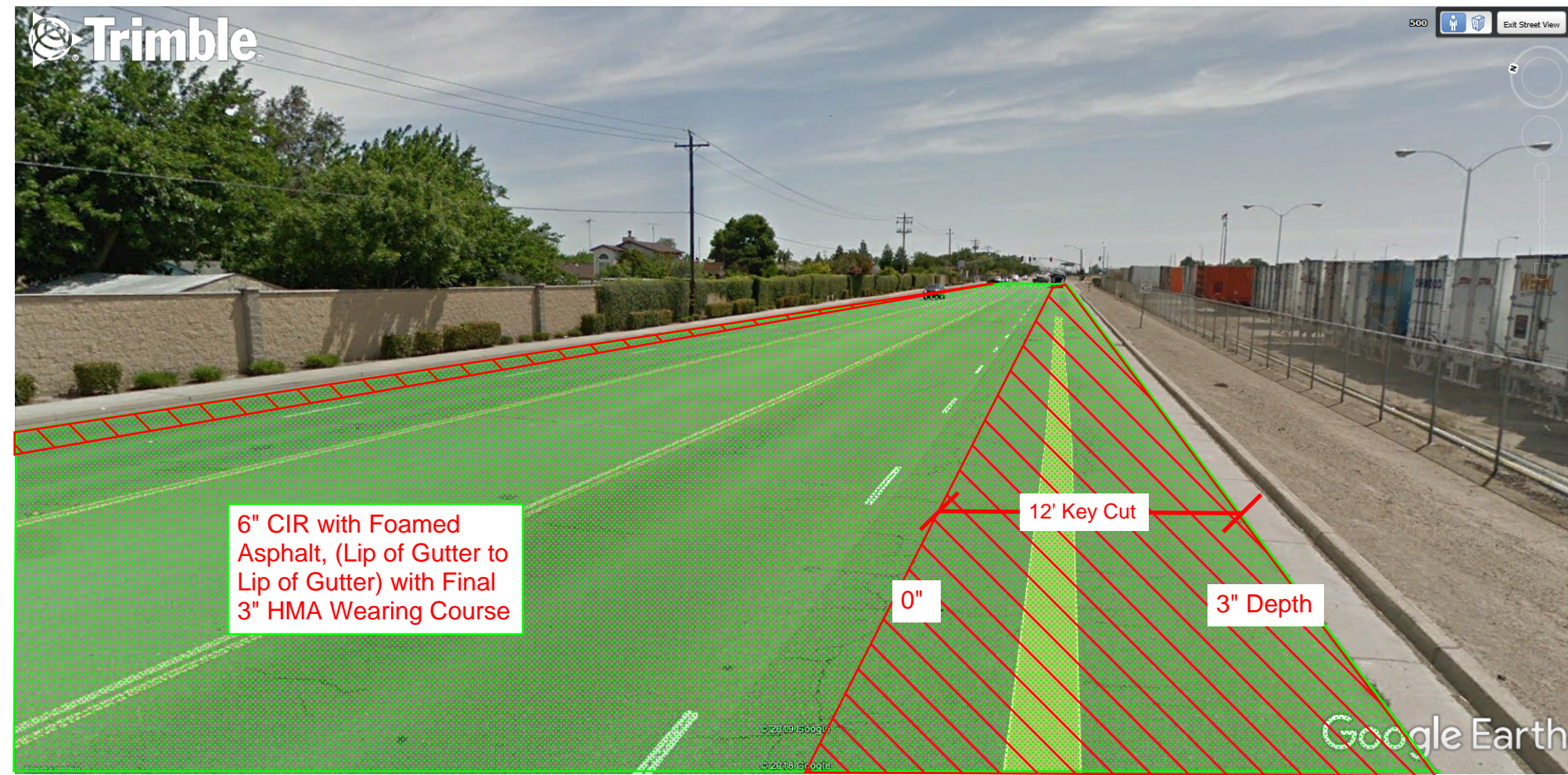
¹ - 80,000-pound 5-axle trucks per day for a 20-year design period

2300 trucks per day

1.6 fully-loaded trucks per minute, 24 hours per day, 7 days per week

12' Wedge Cut to 3" at lip of gutter, 3" overlay with 6" CIR?	total section	9 inches	remaining base worst case			Remaining		apparent location
			boring	AC	AB	AC	AB	
			1-B1	8	7	0	6	#2 lane WB
			1-B2	7.5	11	0	9.5	#2 lane EB
			1-B4	6.5	8	0	5.5	#2 lane WB
			1-B3	7.5	11	0	9.5	#2 lane EB
			1-B5	7	7	0	5	#1 lane EB
ok for TI = 12, shy 1" AB for TI = 13			1-B6	9.5	4	0.5	4	#1 lane WB
doesn't work here			1-B7	5.5	0	0	0	#2 lane EB
ok for TI = 11, shy 1" AB for TI=12			1-B8	6.5	3.5	0	1	#1 lane WB

City of Lathrop - E. Louise Ave



Full Mill 3" Depth due to median island control, then CIR 6" Depth

Typical Side Street Conform, 3" Depth

6" CIR (Gutter to gutter, with 3" final HMA Surfacing

Wedge Cut both sides of roadway 12' width, entire length

Typical Conform to 3" depth



Connor Dunn

From: Connor Dunn
Sent: Thursday, July 11, 2019 8:59 AM
To: Connor Dunn
Subject: RE: E Louise

From: Dennis McElroy <dmcelroy@Graniterock.com>
Sent: Monday, June 17, 2019 1:23 PM
To: Steve Harris <sharris@engeo.com>
Cc: Mike Robinson <mike@mikerobinsonllc.com>
Subject: RE: E Louise

Steve,

I included Mike Robinson P.E, our pavement design consultant, on this email so he can join in the conversation if need be.

Do you think B-7 is an outlier? Was there a mistake in recording the AB section, or total core thickness, in this area? I hate to bring it up again but it seems a little odd that the section is much thinner than the rest of the project area.

Please note, that Caltrans as an organization hasn't provided the best way to efficiently design a pavement section using CIR in the CT Highway Design Manual. The preferred method to design pavement sections using CIR as a pavement rehab technique, for now, is AASHTO '93. Mike has shown the differences between the two design methods in the below table and the attached excel file. Mike has used a conservative structural coefficient of 0.30 and 95% reliability in the AASHTO '93 preliminary design recommendation. You can see that using AASHTO '93 provides a much more cost effective and efficient pavement layer.

It's important to note that TI is exponential and as you can see in the table below a TI of 14 equates to about 1.6 80,000-pound (Fully Loaded) trucks per minute (one every 38 seconds), 24 hours per day, 7 days per week, for 20 years. – Mike Robinson P.E.

After considering the constructability of the project, the request to use CIR-FA, and costs; our preliminary recommendation would be to use a TI of 12, AASHTO'93 section (3"HMA, 6" CIR-FA, 2"AB) as the standard section thickness throughout the identified project area. A 9" section consisting of recycled pavement, a new HMA wearing course, with existing AB underneath most of the project area, and a sub base with high R-Values, is substantial. This section would apply to borings B1 – B6, and B8. B7 is still an outlier and would fall under the TI of 11 category (3"HMA, 5.5" – 6" CIR, 0" AB).

- The maximum cut depth of CIR equipment in the industry cannot exceed 6" in depth. This is shown appropriately in the tables.
- Note, we saw a x2 small concrete islands, on Google Earth, at the intersection of E. Louise Ave & Cambridge Drive. The City might want to consider demoing that median prior to the pavement section being treated because it's an obstacle. The median could be saw cut and poured after the overlay... just a thought.
- See attached google earth images that I put together for a visual aide.
- A TI of 13 or 14 could be possible, but the HMA thickness becomes excessive at that point. With a section that thick, additional costs would be a concern and constructability would also have to be discussed at length. Traffic access would likely need to be considered at this point and the project may have to be phased. This would likely add more costs.

Lathrop - East Louise Avenue

all thicknesses in inches

Traffic			Caltrans CIR Foamed Asphalt			AASHTO '93 CIR Foamed Asphalt		
TI	Trucks ¹	ESALs	HMA	Asphalt	AB	HMA	Asphalt	AB
11	300	5,400,000	6	6	0	2	6	3
11	300	5,400,000				3	4	4
11	300	5,400,000				3	6	0
12	625	11,200,000	7	6	0	3	6	2
13	1,225	22,000,000	8	6	0	3	6	5
13	1,225	22,000,000				4.5	6	0
13	1,225	22,000,000				6	4	0
14	2,300	41,000,000	10	6	0	7	4	0
14	2,300	41,000,000				5.5	6	0

¹ - 80,000-pound 5-axle trucks per day for a 20-year design period

2300 tru
1.6 fu

We hope this information was helpful and please let us know if you have any questions.

Thanks,

Dennis McElroy

FMG Division Manager

Cold In-Place Recycling & Asphalt Milling

CELL 408.639.8063

5225 Hellyer Ave, Suite #220

San Jose Ca, 95138

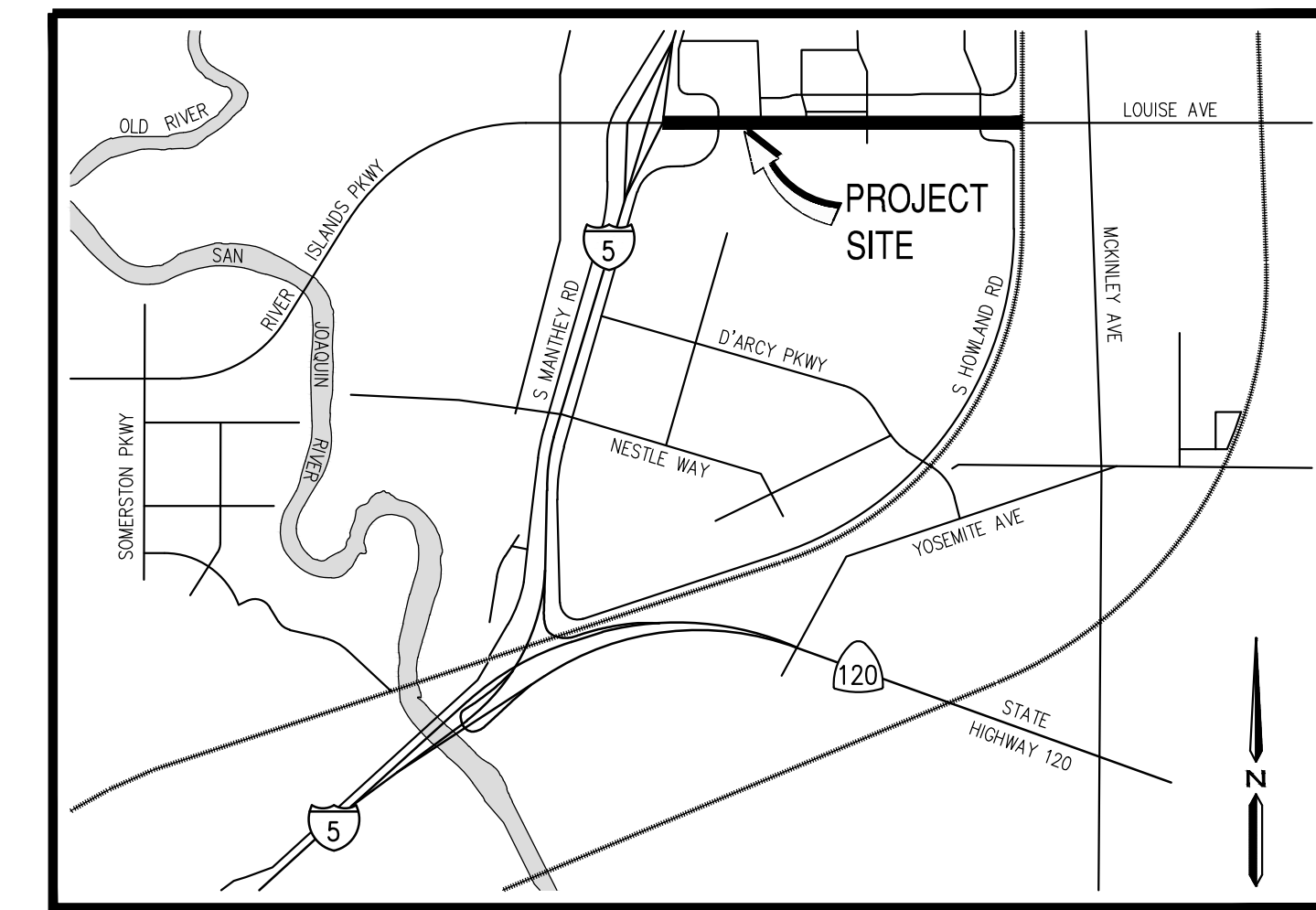
OFFICE 408.574.1460 FAX 408.573.8364



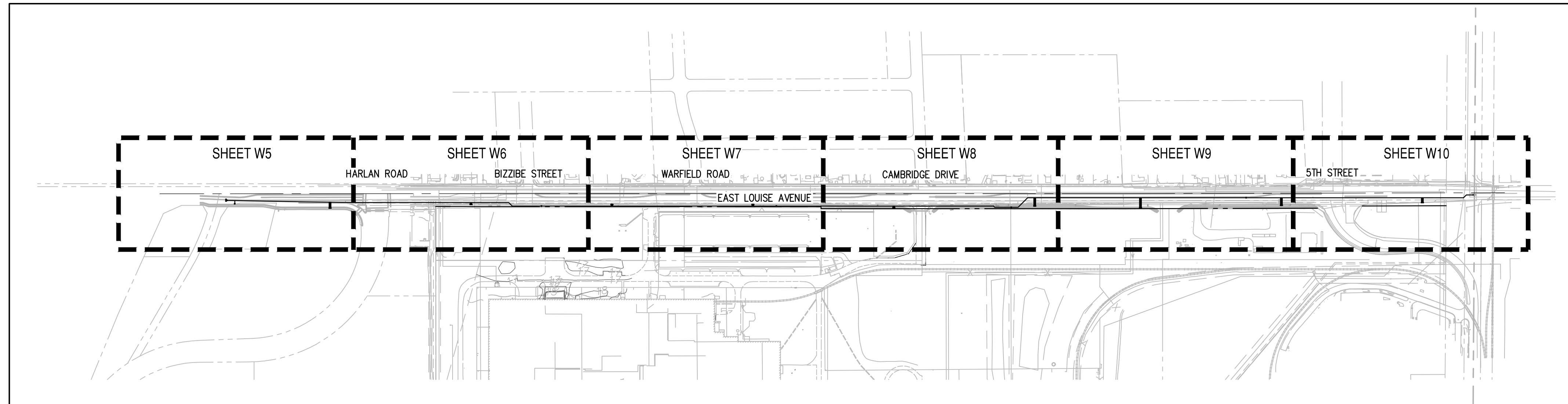
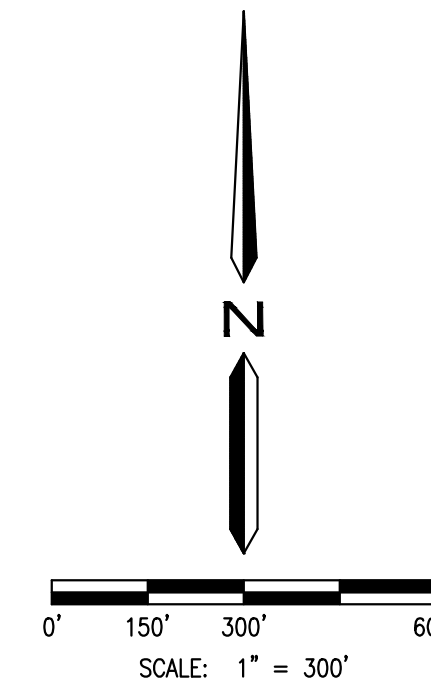
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ATTACHMENT 4

CITY OF LATHROP LOUISE AVENUE WATER TRANSMISSION MAIN PROJECT (CIP PS 18-01)



VICINITY MAP
NOT TO SCALE



LOCATION MAP
SCALE: 1" = 300'

SHEET INDEX	
SHEET NUMBER	SHEET TITLE
W1	COVER SHEET
W2	GENERAL NOTES
W3	DETAILS
W4	CROSS SECTIONS
W5	EAST LOUISE AVENUE WATER MAIN (STA 1+00 TO STA 9+00)
W6	EAST LOUISE AVENUE WATER MAIN (STA 9+00 TO STA 19+00)
W7	EAST LOUISE AVENUE WATER MAIN (STA 19+00 TO STA 29+00)
W8	EAST LOUISE AVENUE WATER MAIN (STA 29+00 TO STA 39+00)
W9	EAST LOUISE AVENUE WATER MAIN (STA 39+00 TO STA 49+00)
W10	EAST LOUISE AVENUE WATER MAIN (STA 49+00 TO END)

PLAN REVISIONS:

REV. NO.	DATE	APPLICABLE SHEETS/REVISIONS
1	7/24/20	ADD PVC CONDUIT

ODELL ENGINEERING
6200 Stoneridge Mall Road, Suite 330
Pleasanton, CA 94588
Ph 925.223.8340 odellengineering.com

CITY OF LATHROP
LOUISE AVENUE WATER TRANSMISSION
MAIN PROJECT (CIP PS 18-01)

COVER SHEET

CIVIL ENGINEER

PLANS PREPARED UNDER DIRECTION OF:

JIAN ANG ZHANG _____ DATE _____
RCE 69314 EXPIRES 6-30-16

**CITY OF LATHROP
ENGINEERING**

APPROVED BY: _____ DATE: _____
City Engineer RCE NO: _____
EXP DATE: _____

**CITY OF LATHROP
DEPARTMENT OF PUBLIC WORKS**

APPROVED BY: _____ DATE: _____
Public Works Director

**CITY OF LATHROP
PUBLIC WORKS DEPARTMENT**

APPROVED BY: _____ DATE: _____
M & O Superintendent



APPROVED: _____

DESIGNED: JLL
DRAWN: JPJ
CHECKED: RIC
SCALE: N/A
DATE: 7/7/20
JOB NO.: 37810
FILE NO.: IP01.DWG

SHEET NO.
W1
OF
10

WDID#



GENERAL NOTES

- THESE PLANS HAVE BEEN CHECKED BY THE CITY OF LATHROP AND/OR ITS AUTHORIZED REPRESENTATIVE, BUT SUCH CHECKING AND/OR APPROVAL DOES NOT RELIEVE THE DEVELOPER FROM HIS RESPONSIBILITY TO CORRECT ERRORS, OMISSIONS OR MAKE CHANGES REQUIRED BY CONDITIONS DISCOVERED IN THE FIELD DURING THE COURSE OF CONSTRUCTION.
- ALL REVISIONS TO THIS PLAN MUST BE REVIEWED BY THE CITY ENGINEER PRIOR TO CONSTRUCTION AND SHALL BE ACCURATELY SHOWN ON REVISED PLANS STAMPED AND SIGNED BY THE CITY PRIOR TO THE INSTALLATION OF THE IMPROVEMENTS.
- ALL CONSTRUCTION AND MATERIAL SHALL CONFORM TO CITY OF LATHROP DESIGN AND CONSTRUCTION STANDARDS, THE PROJECT URBAN DESIGN CONCEPT (IF APPLICABLE), AND THE APPROVED PLANS. THE IMPROVEMENTS ARE SUBJECT TO INSPECTIONS AND APPROVAL OF THE PUBLIC WORKS DEPARTMENT. CONTACT PUBLIC WORKS CONSTRUCTION INSPECTION AT (209) 941-7430, AT LEAST THREE (3) WORKING DAYS PRIOR TO START OF ANY WORK TO ARRANGE FOR INSPECTION.
- NOTIFY UNDERGROUND SERVICE ALERT (USA - NORTH) AT "811" OR (800) 227-2600 AT LEAST TWO (2) WORKING DAYS PRIOR TO EXCAVATION. THE USA AUTHORIZATION NUMBER SHALL BE KEPT AT THE JOB SITE.
- IF NECESSARY TO CONFIRM FIELD LOCATIONS OF FACILITIES, EXPLORATORY TRENCHING OR POTHOLING SHALL BE DONE AT THE EXPENSE OF THE CONTRACTOR.
- IF A CONFLICT OCCURS BETWEEN THE CITY OF LATHROP DESIGN AND CONSTRUCTION STANDARDS AND THE RECOMMENDATIONS BY THE DESIGN ENGINEER AND/OR SOILS ENGINEER, THE MORE STRINGENT SHALL APPLY AS DIRECTED BY THE CITY ENGINEER.
- BENCHMARK:
FOUND 2" BRASS DISK STAMPED "LS44450" AT THE SOUTHWEST CORNER OF INTERSECTION OF LOUISE AVENUE AND 5TH STREET/HOWLAND ROAD, IN THE CURB, 4 FEET EAST OF A TRAFFIC SIGNAL POLE AT THE WEST EDGE OF THE HANDICAP RAMP. CITY OF LATHROP BM# 1026 ELEVATION = 22.37 FEET (NAV 88)
- THE EXISTING UTILITIES ARE PLOTTED FROM AVAILABLE RECORDS. THE CONTRACTOR SHALL TAKE PRECAUTIONARY MEASURES TO PROTECT THESE UTILITIES. THE CONTRACTOR SHALL NOT EXCAVATE UNTIL ALL UTILITY AGENCIES AND THE CITY OF LATHROP HAVE BEEN NOTIFIED AND HAVE MARKED THEIR FACILITIES IN THE FIELD.
- EXISTING UTILITIES SHALL NOT BE INTERRUPTED UNTIL THE UTILITY COMPANY HAS PROVIDED ALTERNATIVE SERVICE FACILITIES. THE CONTRACTOR SHALL COOPERATE AND COORDINATE HIS WORK WITH THE APPROPRIATE AGENCIES AND UTILITY COMPANIES.
- FINAL PAVEMENT WORK SHALL NOT OCCUR WITHIN THE CITY RIGHT-OF-WAY PRIOR TO COMPLETION OF UTILITY RELOCATION WITHOUT THE SPECIFIC APPROVAL OF THE CITY ENGINEER.
- ALL UTILITY TRENCHES IN EXISTING ROADWAY SHALL BE BACKFILLED AND OPENED TO PUBLIC TRAFFIC FOR A MINIMUM OF TWO WEEKS PRIOR TO PLACING PERMANENT PAVEMENT.
- ALL CONSTRUCTION STAKING FOR GRADING, CURB, AND GUTTER, SIDEWALK, SANITARY SEWER, STORM DRAINS, WATER LINES, FIRE HYDRANTS, ELECTROLIERS, ETC. SHALL BE DONE BY A REGISTERED CIVIL ENGINEER OR A LICENSED LAND SURVEYOR.
- ALL AREAS UNDERGOING GRADING, AND ALL OTHER CONSTRUCTION ACTIVITIES SHALL BE WATERED, OR OTHER DUST-PALLIATIVE MEASURES USED, TO PREVENT DUST, AS CONDITIONS WARRANT. WATER TRUCKS SHALL BE AVAILABLE AT ALL TIMES. THE PERSON RESPONSIBLE FOR DUST CONTROL, SUSAN DELL'OSSO AT (209)879-7900, SHALL BE AVAILABLE 24 HOURS A DAY.
- PRIOR TO RECEIVING/TAKING ANY WATER FROM THE CITY OF LATHROP WATER SYSTEM THE CONTRACTOR SHALL ACQUIRE A CITY WATER METER OR CITY FIRE HYDRANT METER. ALL WATER USAGE SHALL BE METERED.
- ALL LINES ABANDONED DURING CONSTRUCTION SHALL BE REMOVED UNLESS OTHERWISE NOTED ON THE PLANS.
- PRIOR TO TRENCHING FOR ANY SEWER, WATER, RECYCLED WATER, OR STORM DRAIN PIPE, THE CONTRACTOR SHALL VERIFY, IN THE FIELD, THE SIZE AND THE LOCATION OF THE EXISTING PIPE AT THE POINT OF CONNECTION. ANY DEVIATION FROM THE PLANS SHALL BE RESOLVED BY THE DESIGN ENGINEER PRIOR TO TRENCHING. ANY DAMAGE CAUSED BY TRENCHING TO EXISTING UNDERGROUND UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- ALL TRENCHES SHALL BE BACKFILLED IN ACCORDANCE WITH CITY STANDARD DETAILS. COMPACTION SHALL BE ACHIEVED BY MECHANICAL MEANS. NO FLOODING, PONDING, OR JETTING SHALL BE PERMITTED.
- TESTING:
 - ALL INDEPENDENT LABORATORY INSPECTIONS CALLED FOR BY THE CITY ENGINEER WILL BE PAID FOR BY THE DEVELOPER OR CONTRACTOR.
 - ROADWAY SUB-GRADE, SUB-BASE, BASE, AND TRENCH BACKFILL COMPACTION TESTING SHALL BE PERFORMED BY A SOILS LAB CONTRACTING WITH THE CITY OF LATHROP AT THE DEVELOPER'S EXPENSE.
 - R-VALUE TESTING OF THE PAVEMENT SUB-GRADE SHALL BE PERFORMED PRIOR TO THE INSTALLATION OF BASE ROCK, OR AS REQUIRED BY THE CITY ENGINEER.
 - A MINIMUM OF 48 HOURS NOTICE IS REQUIRED TO SCHEDULE ALL SPECIAL INSPECTION/TESTING SERVICES.
- EXISTING CURB, GUTTER AND SIDEWALKS WITHIN THE PROJECT LIMITS THAT ARE DAMAGED OR DISPLACED, SHALL BE REPAIRED OR REPLACED PER THE CITY DESIGN AND CONSTRUCTION STANDARDS BY THE CONTRACTOR.
- NO TREES SHALL BE REMOVED UNLESS THEY ARE SHOWN AND NOTED TO BE REMOVED ON THE IMPROVEMENT PLANS. ALL TREES CONFLICTING WITH GRADING, UTILITIES, OR OTHER IMPROVEMENTS, OR OVERHANGING THE SIDEWALK OR PAVEMENT TO FORM A NUISANCE OR HAZARD, SHALL BE TRIMMED AND PROPERLY TREATED AND SEALED. THE DRIP LINE OF TREES TO BE SAVED WILL BE FENCED, AND NO GRADING SHALL TAKE PLACE WITHIN THIS FENCED AREA.
- THE FULL STRUCTURAL SECTION OF THE MAJOR STREETS SHALL BE CONTINUED THROUGH THE INTERSECTIONS.
- BENCHMARKS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR AT LOCATIONS SHOWN. THE DEVELOPER'S ENGINEERS SHALL STAMP THE BENCHMARKS PER STANDARD DETAIL R-26 AND FURNISH THE CITY ENGINEER WITH THE BENCHMARK ELEVATION DATA.
- STREET SIGNS SHALL BE INSTALLED AT ALL INTERSECTIONS THAT MEET THE UDC STANDARDS (IF APPLICABLE) PER CITY DESIGN AND CONSTRUCTION STANDARDS.
- TRAFFIC CONTROL DEVICES AND INSTALLATIONS SHALL BE IN CONFORMANCE WITH CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.), AND MUST MEET THE UDC STANDARDS (IF APPLICABLE).
- ALL STREET MONUMENTS, LOT CORNER, BENCHMARKS AND OTHER PERMANENT PIPE OR MONUMENTS DISTURBED DURING THE PROCESS OF CONSTRUCTION SHALL BE REPLACED BY A LICENSED CIVIL ENGINEER OR SURVEYOR PRIOR TO ACCEPTANCE OF IMPROVEMENTS BY THE CITY.

IF A MONUMENT IS LOCATED WITHIN THE BOUNDARY OF THE PROJECT, THE CONTRACTOR SHALL SUBMIT THE ACKNOWLEDGEMENT OF MONUMENT RESPONSIBILITY "PRE-CONSTRUCTION" FORM, FOUND IN APPENDIX E OF THESE STANDARDS, TO THE CITY DURING THE ENCROACHMENT PERMIT APPLICATION PHASE. IN ADDITION, THE CONTRACTOR SHALL SUBMIT THE ACKNOWLEDGEMENT OF MONUMENT RESPONSIBILITY "POST-CONSTRUCTION" FORM, FOUND IN APPENDIX E OF THESE STANDARDS, TO THE CITY WHEN WORK IS COMPLETE.
- ESCPs MUST BE PREPARED CONSISTENT TO THE CITY'S DESIGN AND CONSTRUCTION STANDARDS AND ORDINANCES. SWPPPS MUST BE PREPARED BY A QUALIFIED SWPPP DEVELOPER AND BE COMPLIANT WITH THE STATE'S CONSTRUCTION GENERAL PERMIT. EROSION AND SEDIMENT CONTROL MEASURES MUST BE IN PLACE AT ALL TIMES DURING THE CONSTRUCTION PROJECT UNTIL FINAL SITE STABILIZATION IS ACHIEVED. THE PERSON RESPONSIBLE FOR THE DAILY MAINTENANCE OF THE FACILITIES IS SUSAN DELL'OSSO AND CAN BE REACHED 24 HOURS A DAY AT (209) 879-7900. THESE FACILITIES SHALL CONTROL AND CONTAIN EROSION-CAUSED SEDIMENT DEPOSITS AND PROVIDE FOR THE SAFE DISCHARGE OF SEDIMENT-FREE STORM WATER INTO EXISTING STORM DRAIN FACILITIES.
- IF THE PROJECT IS APPLICABLE TO THE STATE'S CONSTRUCTIONS GENERAL PERMIT, A NOTICE OF INTENT (NOI) TO COMPLY WITH THE NPDES GENERAL PERMIT FOR STORMWATER RUN-OFF ASSOCIATED WITH CONSTRUCTION ACTIVITY SHALL BE SUBMITTED TO THE SWRCB VIA THE STATE'S SMARTS SYSTEM. THE WID# SHOULD BE INDICATED ON THE PLANS. A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) SHALL BE SUBMITTED FOR APPROVAL BY THE CITY ENGINEER.
- IF, DURING CONSTRUCTION, ARCHAEOLOGICAL REMAINS ARE ENCOUNTERED, CONSTRUCTION IN THE VICINITY SHALL BE HALTED, AN ARCHAEOLOGIST CONSULTED AND THE CITY COMMUNITY DEVELOPMENT DEPARTMENT NOTIFIED. IF, IN THE OPINION OF THE ARCHAEOLOGIST, THE REMAINS ARE SIGNIFICANT, MEASURES, AS MAY BE REQUIRED BY THE COMMUNITY DEVELOPMENT DIRECTOR, SHALL BE TAKEN TO PROTECT THEM.
- WORK SHALL BE RESTRICTED TO WEEKDAYS BETWEEN 8:00 AM TO 5:00 PM AND WEEKENDS BY CITY APPROVAL WORK WHICH REQUIRES ANY TRAFFIC LANE CLOSURES OR RESTRICTING OF THE TRAVELED WAY SHALL BE LIMITED TO 9:00 AM TO 3:30 PM IN THE COMMUTE DIRECTION AND 8:00 AM TO 4:30 PM IN THE NON-COMMUTE DIRECTION.

- THE OVERTIME COST FOR INSPECTION REQUESTED BEFORE 8:00 AM, AFTER 5:00 PM, WEEKENDS, AND HOLIDAYS, THAT REQUIRE CITY INSPECTION, SHALL BE PRE-PAID BY THE CONTRACTOR OR DEVELOPER BEFORE THE WORK IS AUTHORIZED.
- CONSTRUCTION EQUIPMENT WHICH OPERATES AT A NOISE LEVEL IN EXCESS OF 85 DECIBELS (MEASURED ON THE A-WEIGHTED SCALE DEFINED IN ANSI S-1.4) AT A DISTANCE OF 100 FEET FROM THE EQUIPMENT IS PROHIBITED.
- THE CONTRACTOR SHALL KEEP EXCAVATIONS FREE FROM WATER DURING CONSTRUCTION. THE STATIC WATER LEVEL SHALL BE DRAWN DOWN A MINIMUM OF 2 FEET BELOW BOTTOM OF EXCAVATIONS TO MAINTAIN AN UNDISTURBED STATE OF NATURAL SOILS AND ALLOW PLACEMENT OF FILL TO THE SPECIFIED DENSITY. DISPOSAL OF WATER SHALL NOT DAMAGE PROPERTY OR CREATE A PUBLIC NUISANCE. CONTRACTOR SHALL DETERMINE METHOD OF DEWATERING AND LOCATION FOR DISCHARGE/DISPOSAL.
- DISPOSAL OF WATER INTO THE CITY SANITARY SEWER SYSTEM IS STRICTLY PROHIBITED.
- DISPOSAL OF WATER INTO THE EXISTING STORM DRAIN SYSTEM MUST BE APPROVED IN WRITING BY THE CITY ENGINEER PRIOR TO DISPOSAL.
- CONTRACTOR SHALL MAINTAIN ALL STREETS SIDEWALKS, AND OTHER PUBLIC RIGHT-OF-WAY IN A CLEAN, SAFE, AND USABLE CONDITION THROUGHOUT THE COURSE OF CONSTRUCTION. ALL SPILLAGE OF SOIL, ROCK, CONSTRUCTION DEBRIS, ETC., SHALL BE REMOVED IMMEDIATELY FROM PUBLICLY OWNED PROPERTY. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC, SHALL BE MAINTAINED IN A CLEAN, SAFE, AND USABLE CONDITION. THE CONTRACTOR SHALL PROVIDE FOR SAFE, UNOBSTRUCTED ACCESS TO PRIVATE PROPERTY ADJACENT TO WORK THROUGHOUT THE PERIOD OF CONSTRUCTION. CONTRACTOR SHALL PROVIDE TO THE PUBLIC WORKS DEPARTMENT THE NAME AND TELEPHONE NUMBER OF THE RESPONSIBLE PERSON AVAILABLE 24 HOURS A DAY IF ANY PROBLEMS OR CONDITIONS ARE NOT MET.
- ALL TRASH, CONSTRUCTION DEBRIS AND MATERIALS SHALL BE CONTAINED WITHIN PROPER CONTAINERS AND REMOVED ON A WEEKLY BASIS.
- THE CONTRACTOR SHALL KEEP ADJOINING PUBLIC STREETS AND PARKING AREAS FREE AND CLEAN OF PROJECT DIRT, MUD, AND MATERIALS DURING THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTIVE MEASURES AS DIRECTED BY THE PUBLIC WORKS INSPECTOR AT NO EXPENSE TO THE CITY.
- A BUILDING PERMIT IS REQUIRED FOR CONSTRUCTION OF ALL RETAINING WALLS OVER 4 FEET IN HEIGHT MEASURED FROM THE BOTTOM OF THE FOOTING TO THE TOP OF THE WALL. PRIOR TO ACCEPTANCE OF THE IMPROVEMENTS AS COMPLETE, VERIFICATION THAT BUILDING INSPECTION HAS SIGNED OFF ON THE PERMIT SHALL BE PROVIDED TO THE PUBLIC WORKS INSPECTOR. ALL WOOD IN CONTACT WITH THE GROUND SHALL BE PRESSURE-TREATED, WHETHER A CONSTRUCTION PERMIT IS REQUIRED OR NOT.
- THE MANNER OF BRACING AND SHORING EXCAVATIONS SHALL BE AS SET FORTH IN THE RULES, ORDERS AND REGULATIONS OF THE STATE OF CALIFORNIA CONSTRUCTION SAFETY ORDERS, DIVISION OF INDUSTRIAL SAFETY.
- CONTRACTORS MAY BE REQUIRED AT THE DISCRETION OF THE CITY ENGINEER TO PROVIDE DRAWINGS OR CALCULATIONS BY A REGISTERED ENGINEER FIVE (5) WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION FOR SPECIALLY DESIGNED BRACING AND SHORING OF AN EXCAVATION WHERE STANDARD PRE-MANUFACTURED BRACING OR SHORING CANNOT BE USED.
- CONTRACTORS SHALL SUBMIT A COPY OF THEIR CURRENT ANNUAL EXCAVATION PERMIT ISSUED BY THE STATE OF CALIFORNIA DIVISION OF INDUSTRIAL SAFETY (CAL-OSHA) ALONG WITH THE CONTRACTOR'S OWN TRENCH SAFETY PLAN PRIOR TO THE START OF CONSTRUCTION.
- PRIOR TO ANY WORK BEING PERFORMED, THE CONTRACTOR SHALL ATTEND A PRE-CONSTRUCTION MEETING WITH THE CITY OF LATHROP. THE CONTRACTOR SHALL PROVIDE THE CITY OF LATHROP 72 HOURS NOTICE TO SCHEDULE THE PRE-CONSTRUCTION MEETING. THE CONTRACTOR SHALL ALSO NOTIFY THE BELOW LISTED PROJECT CONTACTS A MINIMUM OF 72 HOURS IN ADVANCE OF SAID MEETING.
- ALL GRADING SHALL BE DONE IN ACCORDANCE WITH RECOMMENDATIONS IN THE GEOTECHNICAL AND FOUNDATION INVESTIGATION PREPARED FOR THIS SITE BY 825-1-2, DATED CORNERSTONE EARTH GROUP, FILE NO. JULY 28, 2015.

WATER NOTES

- WATER LINES SHALL BE LOCATED A MINIMUM OF 10 FEET HORIZONTALLY FROM SEWER MAINS. CROSSING SHALL MEET STATE HEALTH STANDARDS. SEWER LINE NEEDS TO BE ONE (1) FOOT BELOW WATER LINE.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL TESTING AND DISINFECTING OF WATER LINES IN CONFORMANCE WITH THE REQUIREMENTS OF THE CITY OF LATHROP PRIOR TO FINAL ACCEPTANCE. ALL WATER LINES SHALL BE PRESSURE-TESTED, DISINFECTED, FLUSHED, AND TESTED FOR BACTERIA IN CONFORMANCE WITH SECTION 4 OF THE DESIGN AND CONSTRUCTION STANDARDS PRIOR TO FINAL ACCEPTANCE BY THE CITY. THE MAXIMUM LENGTH OF PIPELINE TO BE TESTED AT A TIME SHALL BE LIMITED TO 5,000 FEET. ALL NEW VALVES SHALL BE EXERCISED DURING THE PRESSURE TEST.
- ACTUAL CONNECTIONS TO EXISTING CITY OF LATHROP WATER LINES WILL NOT BE PERMITTED PRIOR TO COMPLETION OF STERILIZATION AND TESTING OF THE WATER MAINS. ALL EXISTING WATER VALVES ARE TO BE OPERATED UNDER THE DIRECTION OF THE CITY OF LATHROP PUBLIC WORKS DEPARTMENT OR AUTHORIZED CITY OF LATHROP PERSONNEL ONLY.
- WATER SERVICES SHALL BE AS PER SECTION 4 OF THE DESIGN AND CONSTRUCTION STANDARDS AND STANDARD DETAILS FOR WATER.
- THE LOCATION OF WATER SERVICES IN NEW SUBDIVISIONS SHALL BE MARKED BY THE CONCRETE CONTRACTOR WITH THE LETTER "W" STAMPED ON THE TOP CURB. THE UNDERGROUND CONTRACTOR SHALL PROVIDE SUFFICIENT RECORDS AND SHALL LEAVE ADEQUATE MARKS IN THE FIELD FOR THE CONCRETE CONTRACTOR TO ACCURATELY STAMP THE LETTER "W" FOR ALL WATER SERVICES, PRIOR TO THE PLACING OF ANY SIDEWALK OR CURB AND GUTTER. THE CONCRETE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL DRIVEWAYS AND WATER SERVICES BEFORE POURING THE CURB, AND FURNISH DATA TO THE CITY OF LATHROP'S FIELD INSPECTOR SHOWING HE HAS ADEQUATE INFORMATION TO ACCURATELY FIELD LOCATE AND MARK THE LETTER "W" TO BE STAMPED IN THE CURB. PRIOR TO THE FINAL TROWELING OF THE CONCRETE, THE CITY OF LATHROP'S CONSTRUCTION INSPECTOR SHALL VERIFY THAT THE LETTER "W" HAS BEEN STAMPED IN THE PROPER LOCATION.
- THE TYPICAL ANGLE METER STOP AT THE END OF THE WATER SERVICE SHALL BE PER SECTION 4 OF THE DESIGN AND CONSTRUCTION STANDARDS AND STANDARD DETAILS FOR WATER.
- ALL DEAD ENDS, CAPPED OR FLANGED, INCLUDING FUTURE SERVICE STUBS, TEES, ELBOW BENDS AND BLOW-OFFS, TEMPORARY OR PERMANENT, SHALL HAVE THRUST BLOCKS INSTALLED AS PER SECTION 4 OF THE DESIGN AND CONSTRUCTION STANDARDS, AND PER STANDARD DETAILS FOR WATER, OTHERWISE MEGALUG JOINT RESTRAINTS MUST BE PROVIDED.
- FIRE HYDRANTS TEES ARE TO BE PLACED AT LOCATIONS APPROVED BY THE FIRE DISTRICT OR AS SHOWN ON THE PLANS.
- FLANGE JOINTS ARE REQUIRED WHEN INSTALLING FOUR INCH (4") AND LARGER LINE VALVES IN STEEL PIPE. NO OTHER TYPE OF JOINT SHALL BE USED WITHOUT SPECIFIC APPROVAL OF THE CITY ENGINEER.
- ALL CONSTRUCTION WATER PURCHASED FROM THE CITY OF LATHROP SHALL BE METERED BY USE OF A CITY HYDRANT METER.
- ALL CONNECTIONS AND SERVICE TAPS TO EXISTING CITY OF LATHROP MAINS SHALL BE MADE WITHOUT DEPRESSURIZING THE MAIN, UNLESS PRIOR APPROVAL IS GIVEN BY THE CITY ENGINEER.
- FIRE HYDRANTS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR IN ACCORDANCE WITH THE SECTION 4 OF THE DESIGN AND CONSTRUCTION STANDARDS AND STANDARD DETAILS FOR WATER.
- ALL NUT/BOLT KITS TO BE INSTALLED BELOW GRADE SHALL BE 316 GRADE STAINLESS STEEL OR APPROVED EQUAL.
- ALL HYDRANTS SHALL BE NUMBERED ON THE PLANS USING NOMENCLATURE APPROVED BY THE PUBLIC WORKS DIRECTOR.

SPECIAL NOTES

- ANY EXISTING IMPROVEMENTS THAT ARE DAMAGED DURING CONSTRUCTION SHALL BE REMOVED, REPLACED, AND FULLY RESTORED TO ITS' ORIGINAL CONDITION AT THE DEVELOPER'S COST. ALL WORK SHALL BE APPROVED BY THE CITY ENGINEER.
- DEVELOPER/CONTRACTORS WORK SHALL BE IN ACCORDANCE WITH THE SJVAPCD GUIDELINES, INCLUDED SJVAPCD REGULATION VIII AND IMPLEMENT CONTROL MEASURES BASED ON SJVAPCD COMPLIANCE ASSISTANCE BULLETIN FOR SHORT TERM IMPACTS. SJVAPCD SHALL BE CONTACTED TO DISCUSS MITIGATION MEASURES AND IMPLEMENT MEASURES FROM TABLE 6-4 OF THE GUIDE FOR ASSESSING AND MITIGATION AIR QUALITY IMPACTS.
- ALL PLASTIC PIPES SHALL HAVE TRACE WRES.
- IF MOISTURE OR WATER IS FOUND WHEN TRENCHING, THE CONTRACTOR WILL IMMEDIATELY HALT WORK UNTIL DEWATERING PLANS FOR ALL TRENCHES SHALL BE SUBMITTED FOR APPROVAL BY THE CITY ENGINEER.
- ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE WRAPPED IN POLYWRAP.
- ANY WORK IN THE INTERSECTION WILL BE COMPLETED DURING NIGHTTIME HOURS.
- MONUMENT PRESERVATION: CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING MONUMENTS AND OTHER SURVEY CONTROL. ANY MONUMENTS OR OTHER SURVEY CONTROL WHICH MAYBE DESTROYED DURING CONTRACTORS WORK SHALL BE REFERENCED THROUGH A PRE-CONSTRUCTION CORNER RECORD PREPARED BY A LICENSED LAND SURVEYOR OR REGISTERED CIVIL ENGINEER PRIOR TO THE TIME OF THE CONTRACTORS WORK. MONUMENT REPLACEMENT SHALL BE PER CITY OF LATHROP STANDARD DETAIL R-27. REFERENCE OF ALL SURVEY MONUMENTS AND OTHER SURVEY CONTROL SHALL BE AT SOLE EXPENSE OF THE CONTRACTOR. POST-CONSTRUCTION CORNER RECORD MUST ESTABLISH MONUMENT DESTROYED BY CONSTRUCTION.
- TRAFFIC CONTROL PLANS WILL BE PROVIDED BY THE CONTRACTOR WHEN THEY APPLY FOR THE ENCROACHMENT PERMIT.
- CONTRACTOR TO FOLLOW BEST MANAGEMENT PRACTICE SET FORTH BY THE SWPPP. WID #5539C376864.
- ALL STRIPING REMOVED WILL BE RESTORED TO ORIGINAL CONFIGURATION WITH MATERIALS APPROVED PER CITY OF LATHROP STANDARD SPECIFICATIONS 6-5.12 STRIPING AND MARKINGS.

STREET NOTES

- PRIOR TO PLACING CURB AND GUTTER, SIDEWALK, ASPHALT CONCRETE, SUBBASE, OR BASE MATERIAL, ALL UNDERGROUND FACILITIES WITHIN THE RIGHT-OF-WAY SHALL BE INSTALLED, BACKFILL COMPLETED, AND THE PUBLIC WORKS DEPARTMENT CONSTRUCTION INSPECTION DIVISION NOTIFIED THAT THE UTILITY INSTALLATION HAS SATISFACTORILY PASSED ACCEPTANCE TESTS BY EACH OF THE UTILITY COMPANIES HAVING FACILITIES WITHIN THE WORK AREAS.
- WHEN WIDENING THE PAVEMENT ON AN EXISTING ROAD, THE EXISTING PAVEMENT SHALL BE SAWCUT TO A NEAT LINE AND REMOVED BACK TO AN EXISTING SOUND STRUCTURAL SECTION AS DETERMINED BY THE CITY ENGINEER. AN EXPLORATORY TRENCH, OR POTHOLING, MAY BE REQUIRED TO DETERMINE THE LIMITS OF PAVEMENT REMOVAL.
- STREET STRIPING SHALL INCLUDE STOP BARS, CENTERLINE STRIPING OR MARKERS, CROSSWALKS AND ALL OTHER MARKINGS REQUIRED BY THE CITY ENGINEER. ALL STRIPING SHALL BE DONE WITH THERMOPLASTIC AND REFLECTIVE MARKERS. ALL STRIPING SHALL BE CAT-TRACKED PRIOR TO FINAL INSTALLATION. FINAL INSTALLATION WILL BE ALLOWED ONLY AFTER APPROVAL OF THE STRIPING LAYOUT BY THE CONSTRUCTION INSPECTOR.
- THE THICKNESS OF SUBBASE, BASE, AND SURFACING SHALL BE AS APPROVED ON THESE PLANS.
- FOG SEAL AT ASPHALT CONCRETE. THE TYPE OF FOG SEAL USED SHALL BE PER SECTION 37 OF CALTRANS STANDARD SPECIFICATIONS LATEST EDITION AND APPROVED BY THE CITY OF LATHROP PRIOR TO USE.
- THERE SHALL BE A 2.5% MINIMUM CROSS SLOPE ON THE CONSTRUCTION OF ALL NEW MINOR STREETS AND LOCAL STREETS. THERE SHALL BE A 2% CROSS SLOPE ON THE CONSTRUCTION OF ALL OTHER STREETS.
- ALL TERMINATED STREETS WITHOUT CUL-DE-SACS SHALL HAVE A BARRICADE INSTALLED IN ACCORDANCE WITH STANDARD DETAIL R-24 OF THE STANDARD DETAILS.
- ALL MANHOLE RIMS, LAMPHOLES, VALVES, AND MONUMENT BOXES, ETC. SHALL BE ADJUSTED TO FINISH GRADE AFTER STREET PAVING BY THE UNDERGROUND CONTRACTOR AFTER THE FINAL PAVING COURSE IS PLACED, UNLESS OTHERWISE NOTED. COST FOR THIS WORK SHALL BE INCLUDED IN THE UNIT PRICES FOR MANHOLES.
- THE CONTRACTOR SHALL PROTECT ALL EXISTING MONUMENTS AND HAVE THE ENGINEER/LAND SURVEYOR TIE OUT BEFORE THE SETTING OF ALL NEW MONUMENTS. ALL SURVEY MONUMENT WELLS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR AT LOCATIONS SHOWN. DEVELOPER'S ENGINEER/LAND SURVEYOR SHALL SET AND STAMP ALL MONUMENTS AND FURNISH THE CITY ENGINEER WITH A COPY OF A TIE PLAT FOR EACH MONUMENT.
- UTILITY BOXES SET IN PAVED STREETS SHALL HAVE H-20 TRAFFIC RATING LIDS.

PLAN REVISIONS:		
REV.NO.	DATE	APPLICABLE SHEETS/REVISIONS



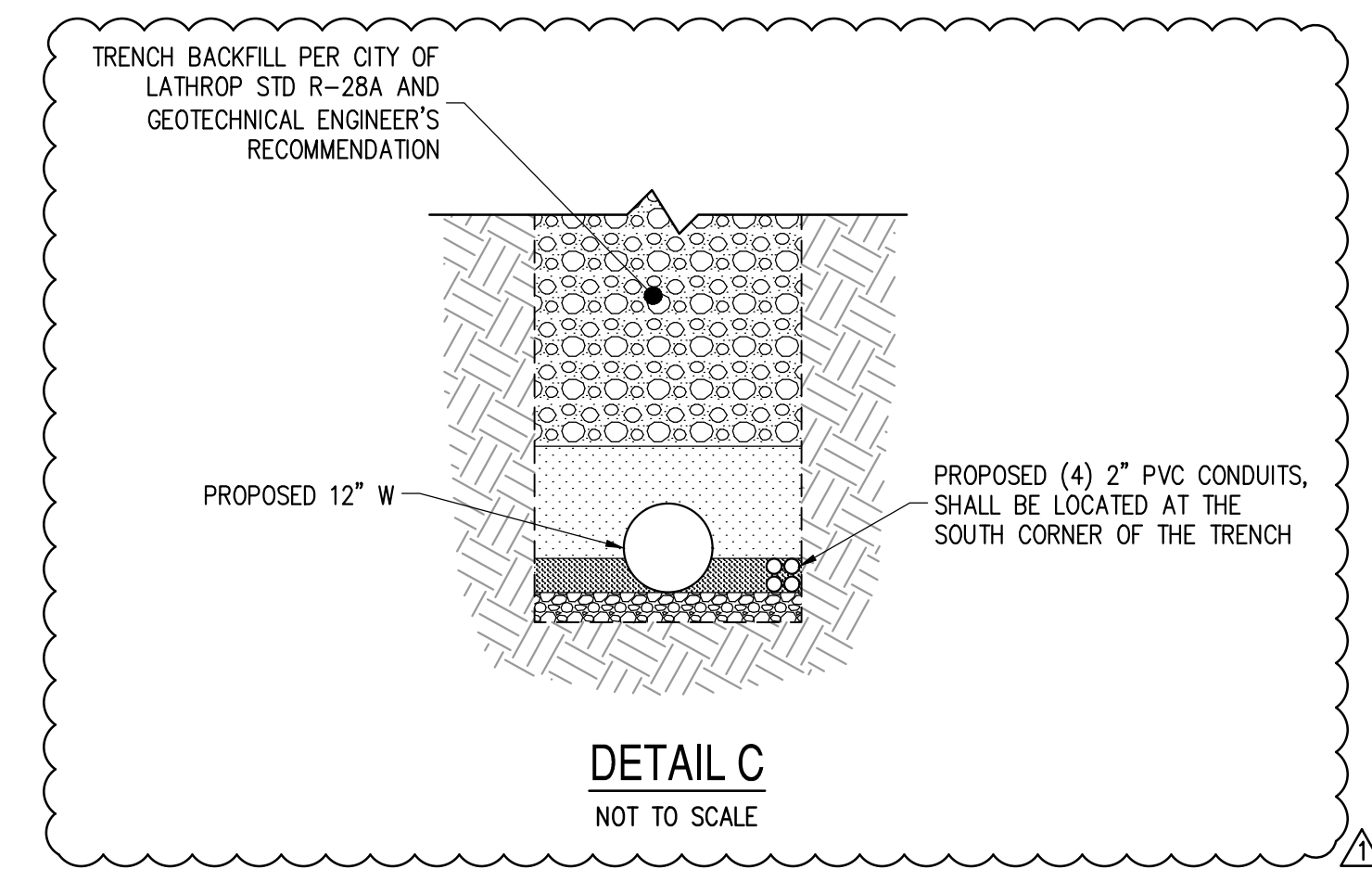
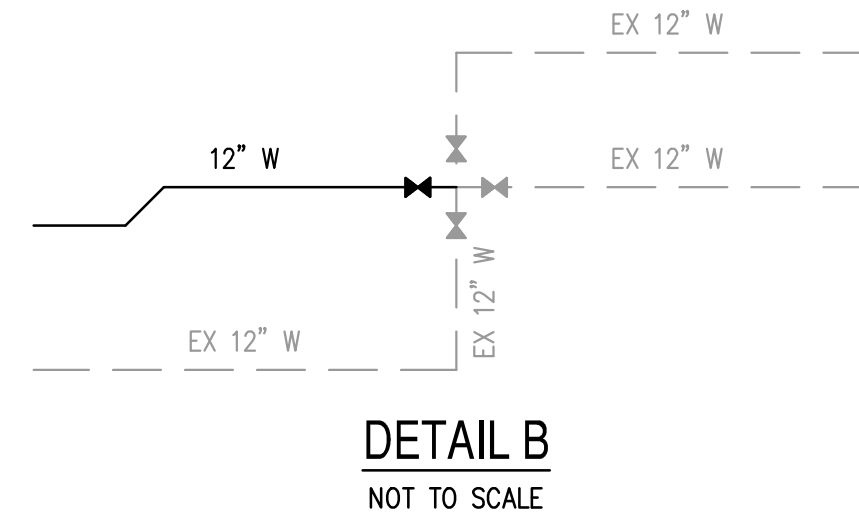
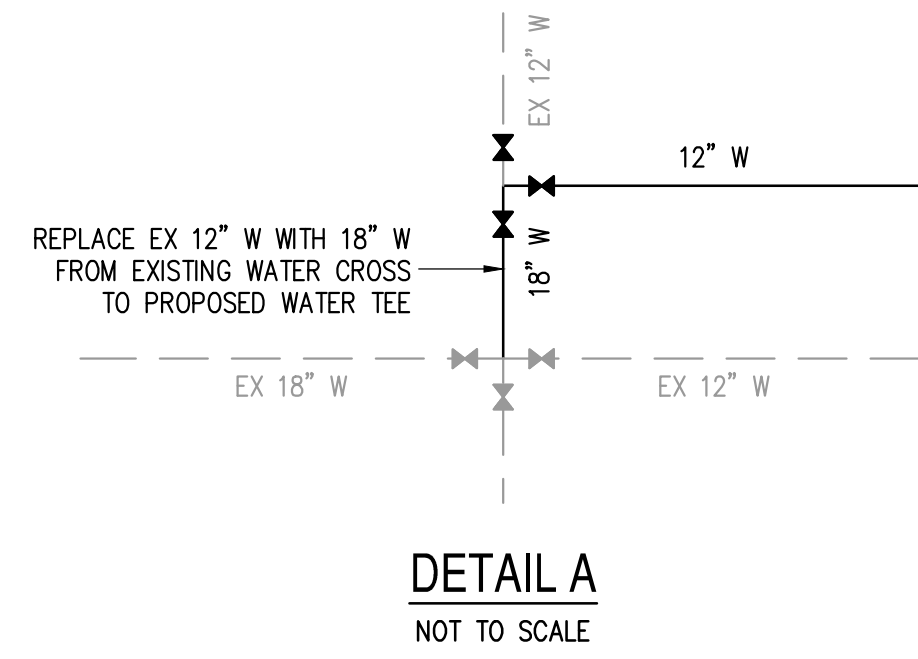
CITY OF LATHROP
LOUISE AVENUE WATER TRANSMISSION
MAIN PROJECT (CIP PS 18-01)

GENERAL NOTES



APPROVED:	
DESIGNED:	JLL
DRAWN:	JPJ
CHECKED:	RIC
SCALE:	N/A
DATE:	7/7/20
JOB NO.:	37810
FILE NO.:	IP02.DWG

SHEET NO.
W2
OF
10



PLAN REVISIONS:		
REV. NO.	DATE	APPLICABLE SHEETS/REVISIONS
1	7/24/20	ADD PVC CONDUIT

ODELL
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 6200 Stoneridge Mall Road, Suite 330
 Pleasanton, CA 94588
 Ph 925.223.8340 odellengineering.com

CITY OF LATHROP
 LOUISE AVENUE WATER TRANSMISSION
 MAIN PROJECT (CIP PS 18-01)

DETAILS



APPROVED:

DESIGNED: JLL
 DRAWN: JPJ
 CHECKED: RIC
 SCALE: N/A
 DATE: 7/7/20
 JOB NO.: 37810
 FILE NO.: IP03.DWG

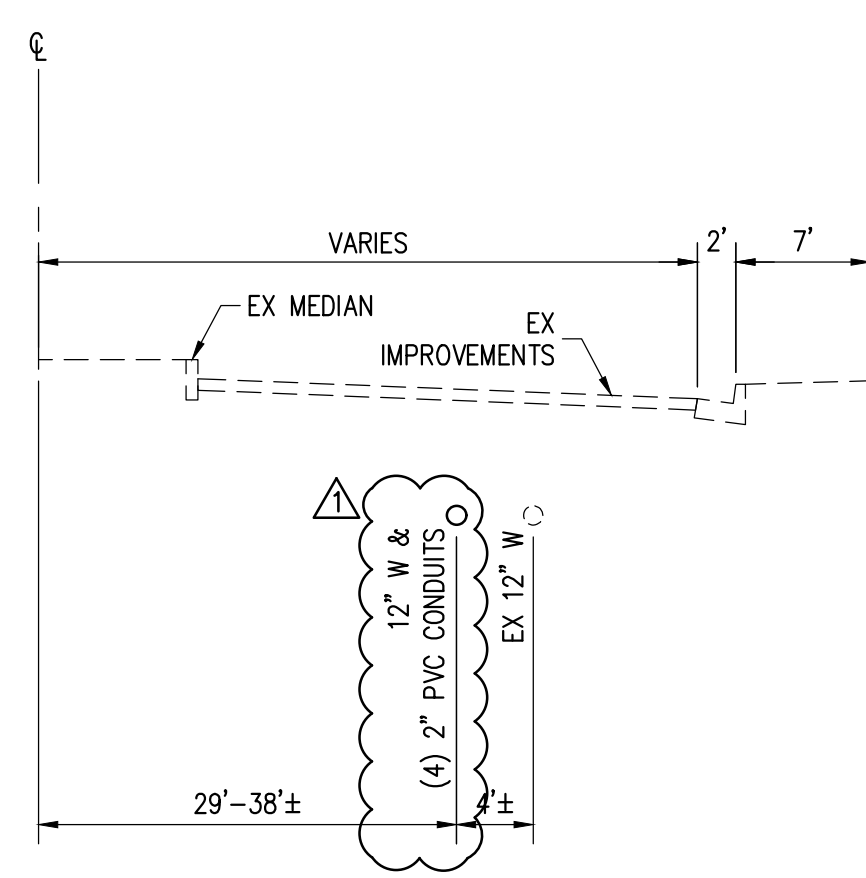
SHEET NO.

W3
 OF
 10

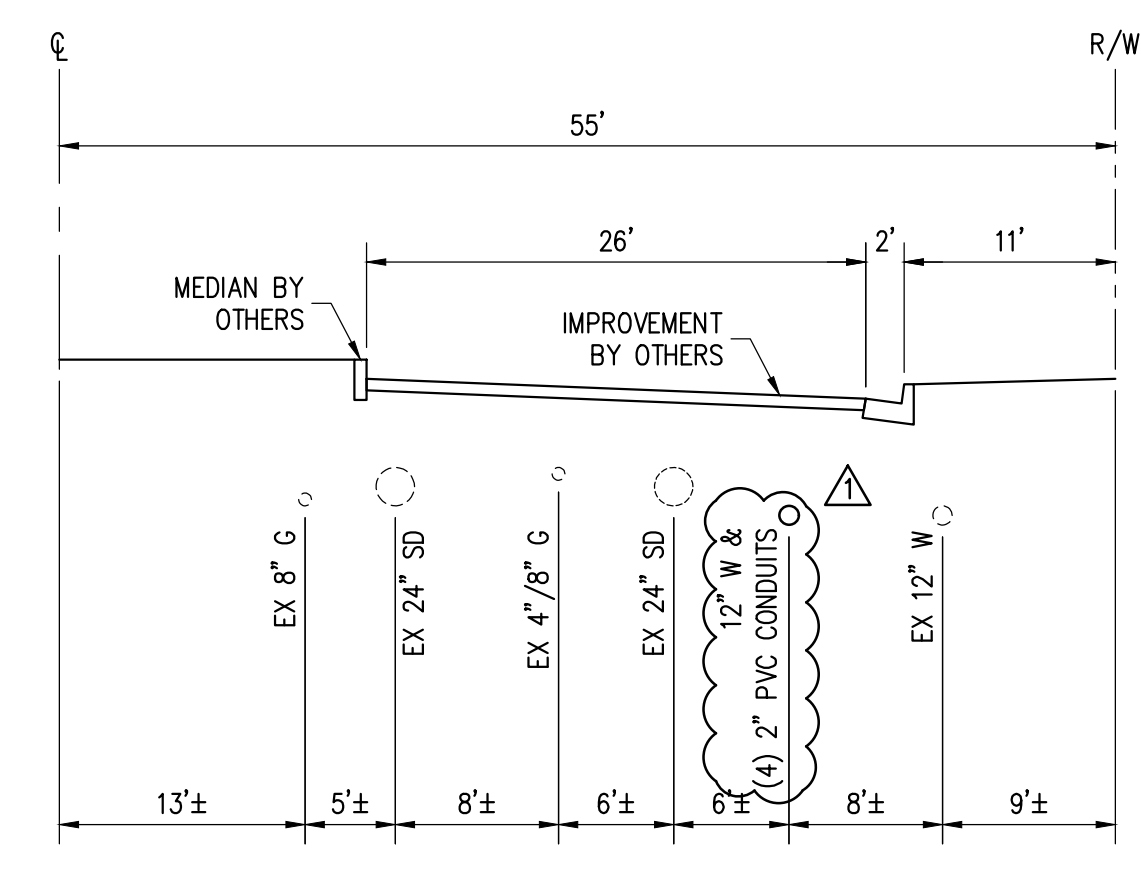
PLAN REVISIONS:		
REV. NO.	DATE	APPLICABLE SHEETS/REVISIONS
△	7/24/20	ADD PVC CONDUIT

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ENGINEERING
6200 Stoneridge Mall Road, Suite 330
Pleasanton, CA 94588
Ph 925.223.8340 odellengineering.com

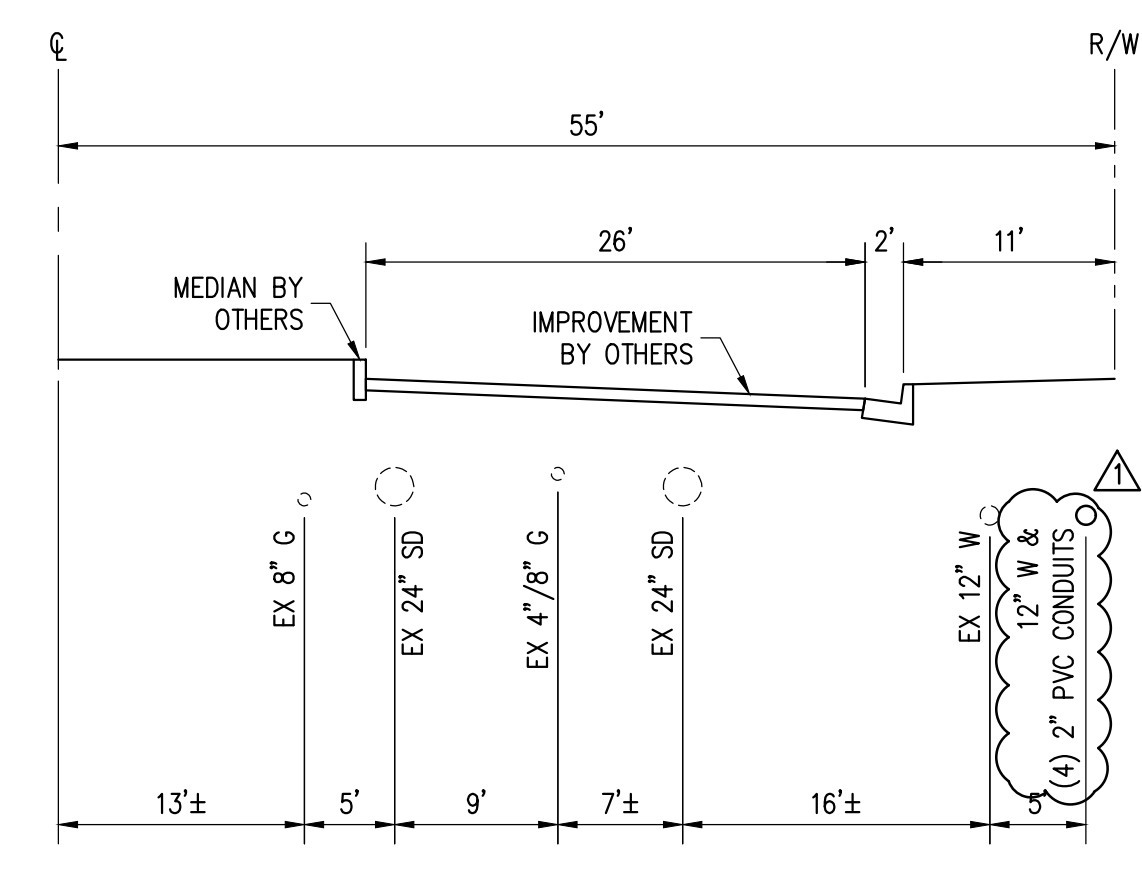
CITY OF LATHROP
LOUISE AVENUE WATER TRANSMISSION
MAIN PROJECT (CIP PS 18-01)



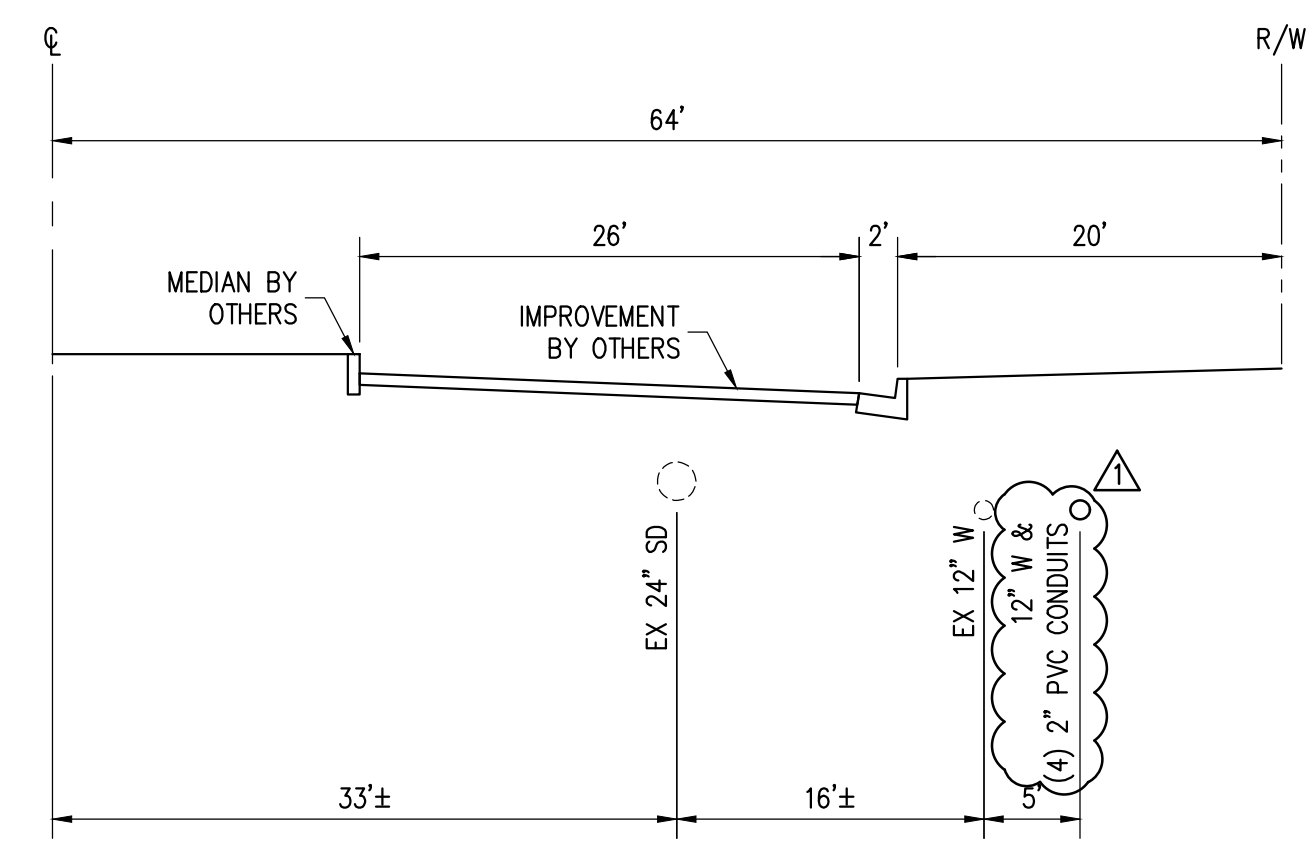
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(STA 1+00 TO 10+00)
NOT TO SCALE



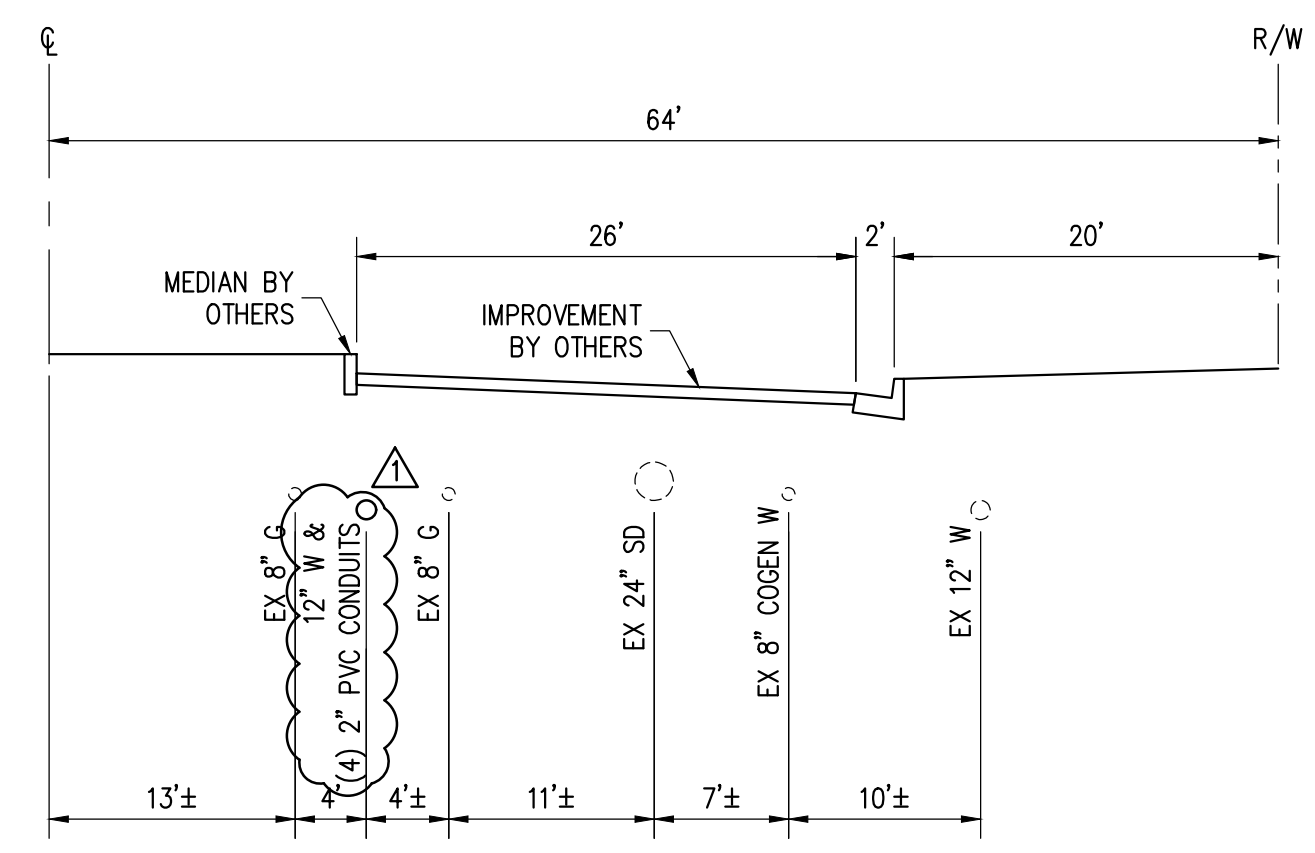
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(STA 10+00 TO 16+50)
NOT TO SCALE



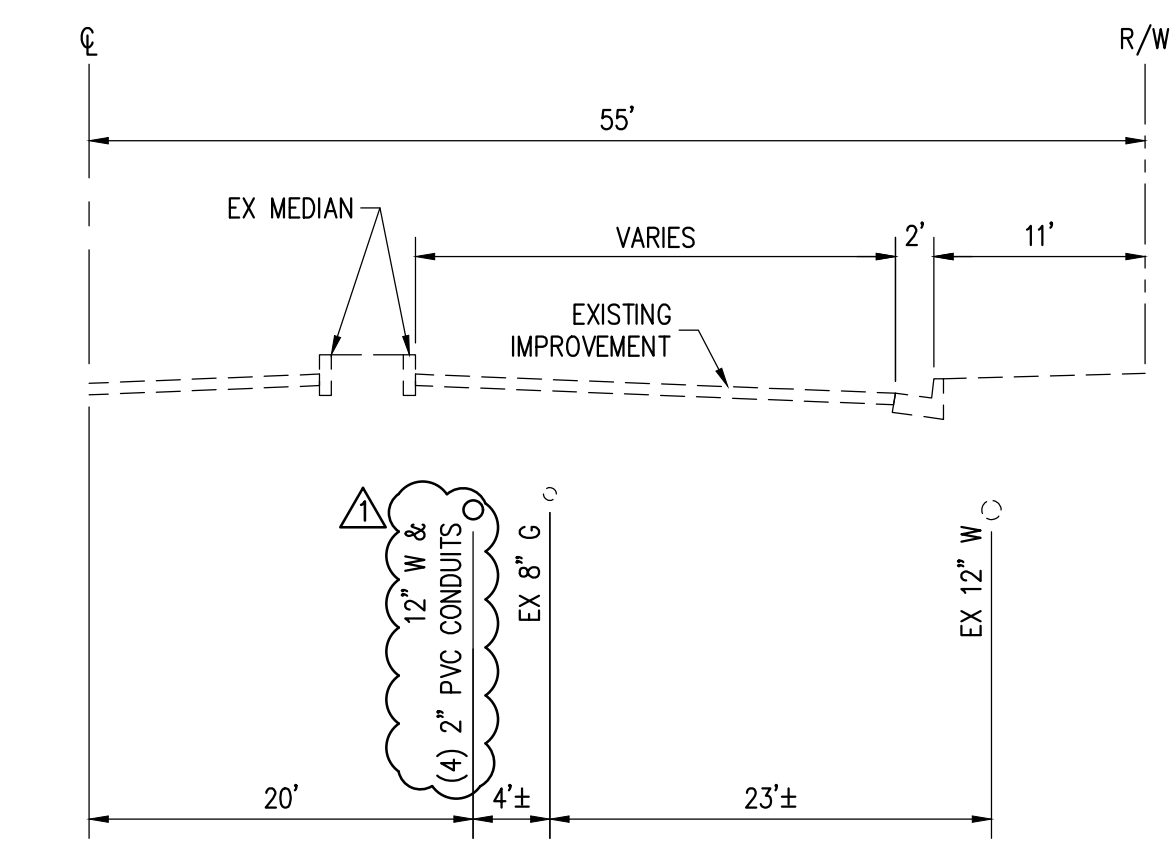
C TYPICAL SECTION
(STA 16+50 TO 29+00)
NOT TO SCALE



D TYPICAL SECTION
(STA 29+00 TO 37+00)
NOT TO SCALE



E TYPICAL SECTION
(STA 37+00 TO 51+00)
NOT TO SCALE



F TYPICAL SECTION
(STA 51+00 TO END)
NOT TO SCALE

NOTE:
1. INSTALL (4) 2" PVC CONDUITS IN A 2X2 PATTERN AT THE BOTTOM OF THE SOUTH CORNER OF THE PROPOSED WATER LINE TRENCH. SEE DETAIL C ON SHEET W3 FOR TYPICAL TRENCH DETAIL.

CROSS SECTIONS



APPROVED:

DESIGNED:	JLL
DRAWN:	JPJ
CHECKED:	RIC
SCALE:	N/A
DATE:	7/7/20
JOB NO.:	37810
FILE NO.:	IP04.DWG

SHEET NO.
W4
OF
10

PLAN REVISIONS:		
REV. NO.	DATE	APPLICABLE SHEETS/REVISIONS
△	7/24/20	ADD PVC CONDUIT

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CITY OF LATHROP
LOUISE AVENUE WATER TRANSMISSION
MAIN PROJECT (CIP PS 18-01)

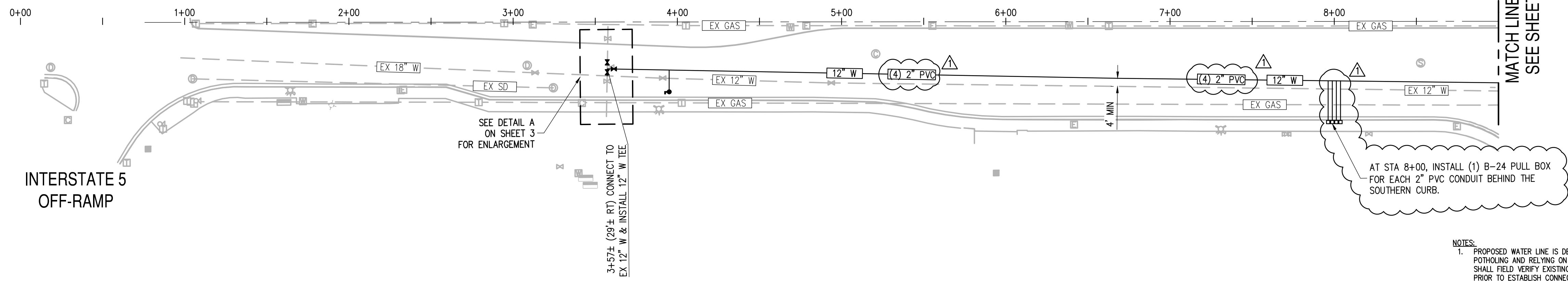
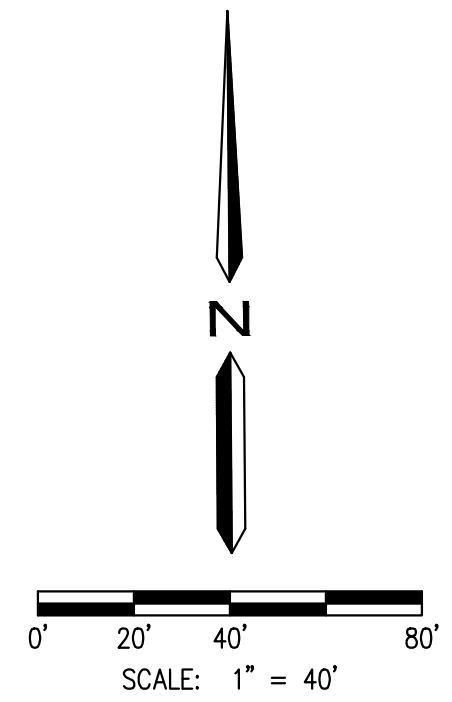
EAST LOUISE AVENUE WATER
MAIN (STA 1+00 TO STA 9+00)



APPROVED:

DESIGNED: JLL
DRAWN: JPJ
CHECKED: RIC
SCALE: 1" = 40'
DATE: 7/7/20
JOB NO.: 37810
FILE NO.: IPO5.DWG

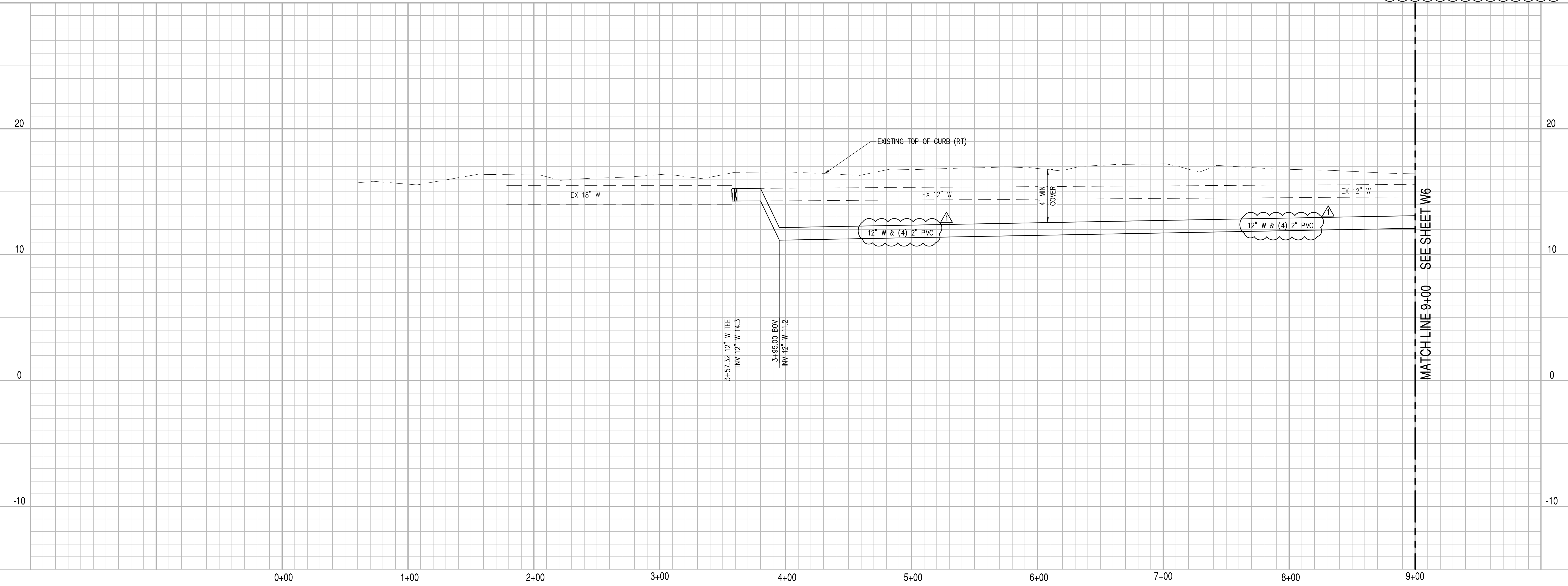
SHEET NO.
W5
OF
10



EAST LOUISE AVENUE WATER MAIN (STA 1+00 TO STA 9+00)

SCALE: HORIZONTAL 1" = 40'
VERTICAL 1" = 4'

- NOTES:
- PROPOSED WATER LINE IS DESIGNED WITHOUT THE BENEFIT OF POT-HOLING AND RELYING ON CITY PROVIDED PLANS. CONTRACTOR SHALL FIELD VERIFY EXISTING UTILITIES INVERT AND LOCATION PRIOR TO ESTABLISH CONNECTIONS.
 - PROPOSED WATER LINE SHALL MAINTAIN MIN. 1' OF VERTICAL SEPARATION FROM OTHER UTILITIES AT CROSSINGS.
 - WHEN WATER COVER IS LESS THAN 4', PLACE CONCRETE CAP OVER PIPE.
 - INSTALL (4) 2" PVC CONDUITS IN A 2X2 PATTERN AT THE BOTTOM OF THE SOUTH CORNER OF THE PROPOSED WATER LINE TRENCH FOR THE ENTIRE LENGTH OF THE PROPOSED WATER LINE. SEE DETAIL C ON SHEET W3 FOR TYPICAL TRENCH DETAIL.



PLAN REVISIONS:		
REV. NO.	DATE	APPLICABLE SHEETS/REVISIONS
△	7/24/20	ADD PVC CONDUIT

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Ph 925.223.8340 odellengineering.com

CITY OF LATHROP
LOUISE AVENUE WATER TRANSMISSION
MAIN PROJECT (CIP PS 18-01)

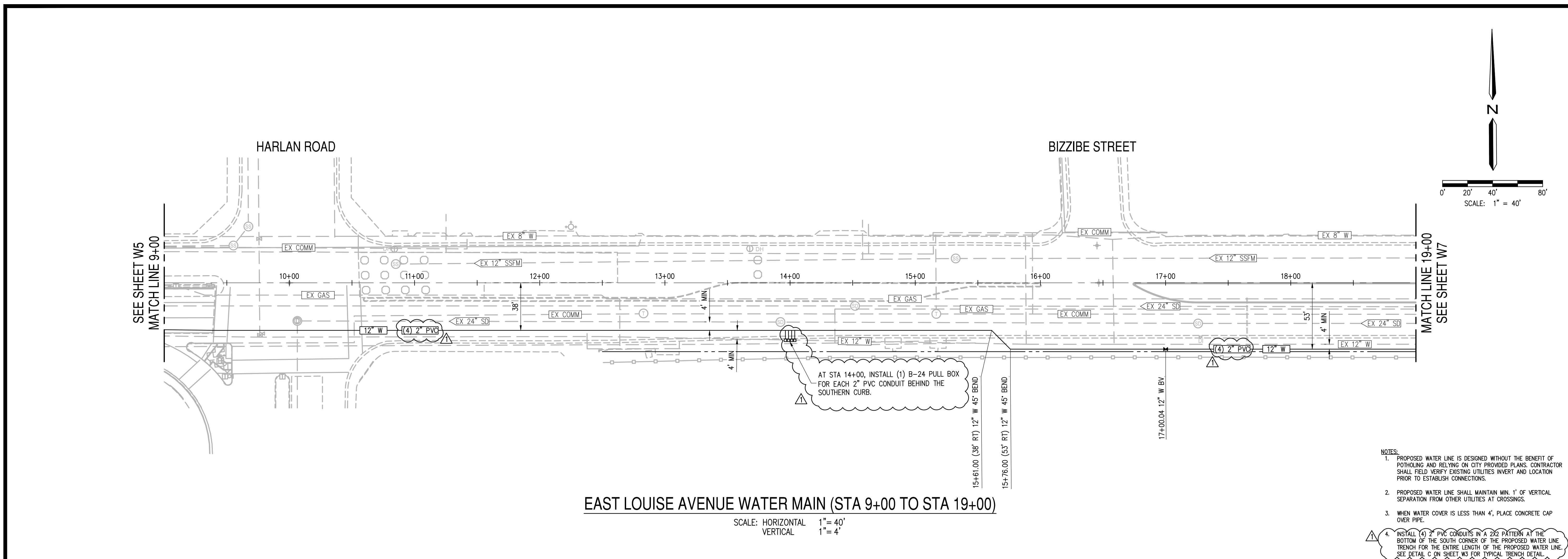
EAST LOUISE AVENUE WATER MAIN (STA 9+00 TO STA 19+00)



APPROVED: _____

DESIGNED:	JLL
DRAWN:	JPJ
CHECKED:	RIC
SCALE:	1" = 40'
DATE:	7/7/20
JOB NO.:	37810
FILE NO.:	IP06.DWG

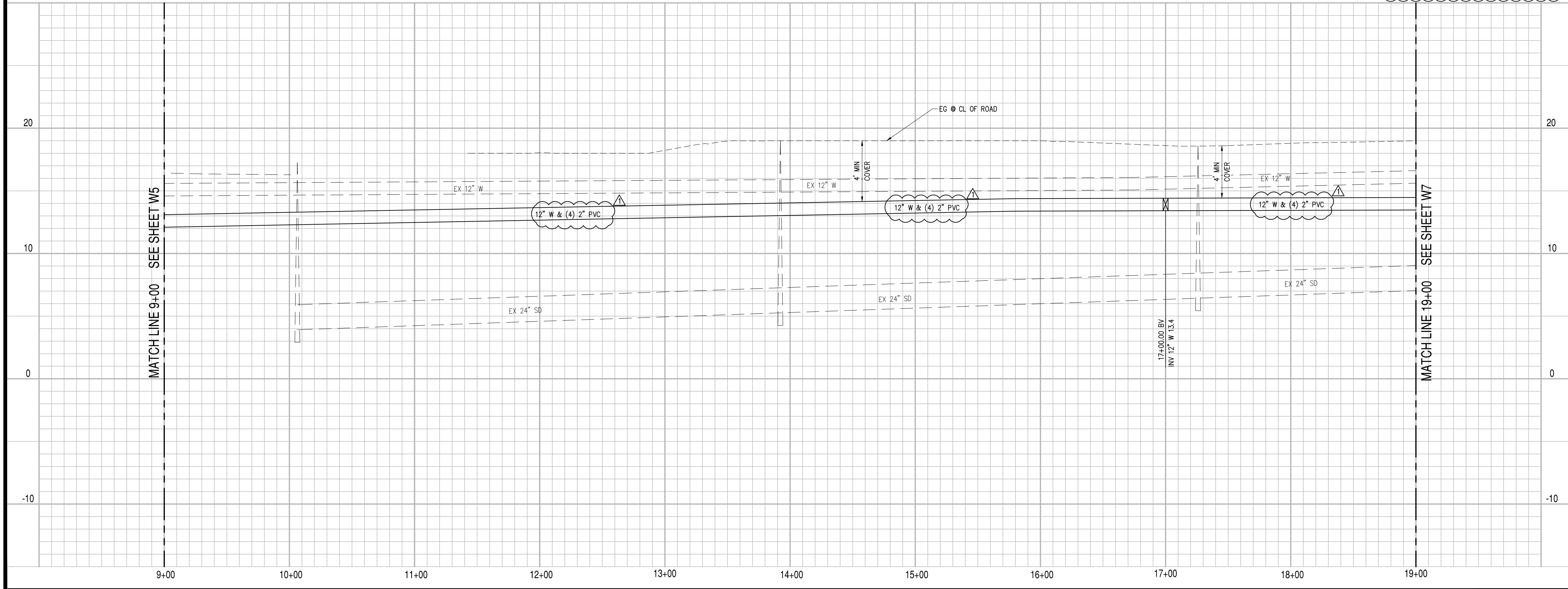
SHEET NO.
W6
OF
10



EAST LOUISE AVENUE WATER MAIN (STA 9+00 TO STA 19+00)

SCALE: HORIZONTAL 1" = 40'
VERTICAL 1" = 4'

- NOTES:
- PROPOSED WATER LINE IS DESIGNED WITHOUT THE BENEFIT OF POT-HOLING AND RELYING ON CITY PROVIDED PLANS. CONTRACTOR SHALL FIELD VERIFY EXISTING UTILITIES INVERT AND LOCATION PRIOR TO ESTABLISH CONNECTIONS.
 - PROPOSED WATER LINE SHALL MAINTAIN MIN. 1' OF VERTICAL SEPARATION FROM OTHER UTILITIES AT CROSSINGS.
 - WHEN WATER COVER IS LESS THAN 4', PLACE CONCRETE CAP OVER PIPE.
 - INSTALL (4) 2" PVC CONDUITS IN A 2x2 PATTERN AT THE BOTTOM OF THE SOUTH CORNER OF THE PROPOSED WATER LINE TRENCH FOR THE ENTIRE LENGTH OF THE PROPOSED WATER LINE. SEE DETAIL C ON SHEET W3 FOR TYPICAL TRENCH DETAIL.



PLAN REVISIONS:		
REV. NO.	DATE	APPLICABLE SHEETS/REVISIONS
△	7/23/20	ADD PVC CONDUIT

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Ph 925.223.8340 odellengineering.com

CITY OF LATHROP
LOUISE AVENUE WATER TRANSMISSION
MAIN PROJECT (CIP PS 18-01)

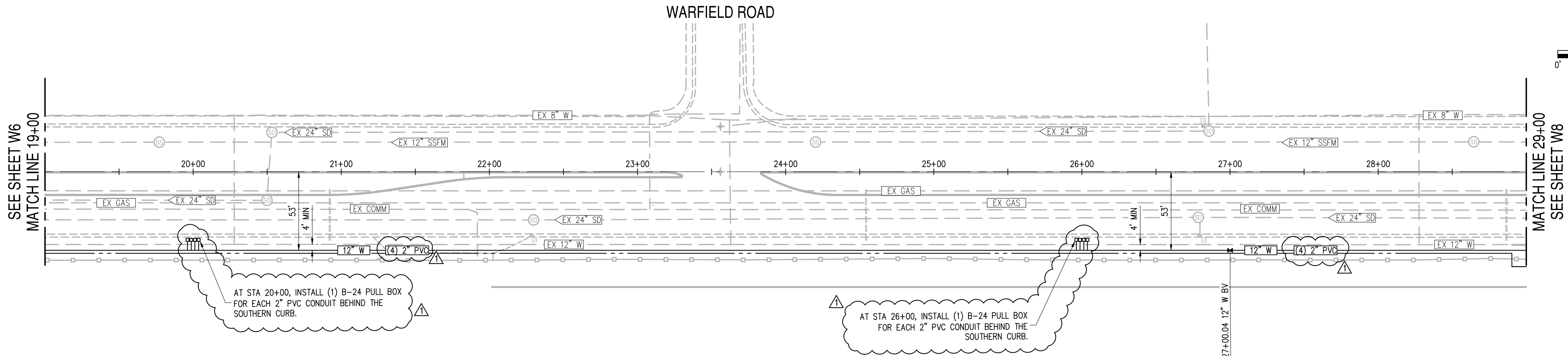
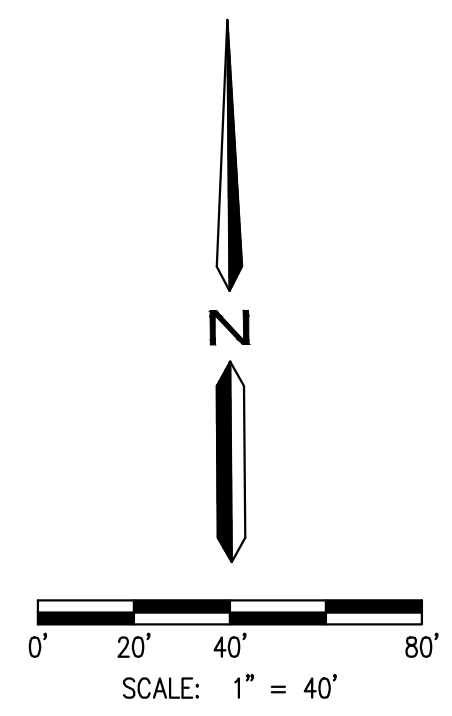
EAST LOUISE AVENUE WATER
MAIN (STA 19+00 TO STA
29+00)



APPROVED: _____

DESIGNED: JLL
DRAWN: JPJ
CHECKED: RIC
SCALE: 1" = 40'
DATE: 7/7/20
JOB NO.: 37810
FILE NO.: IP07.DWG

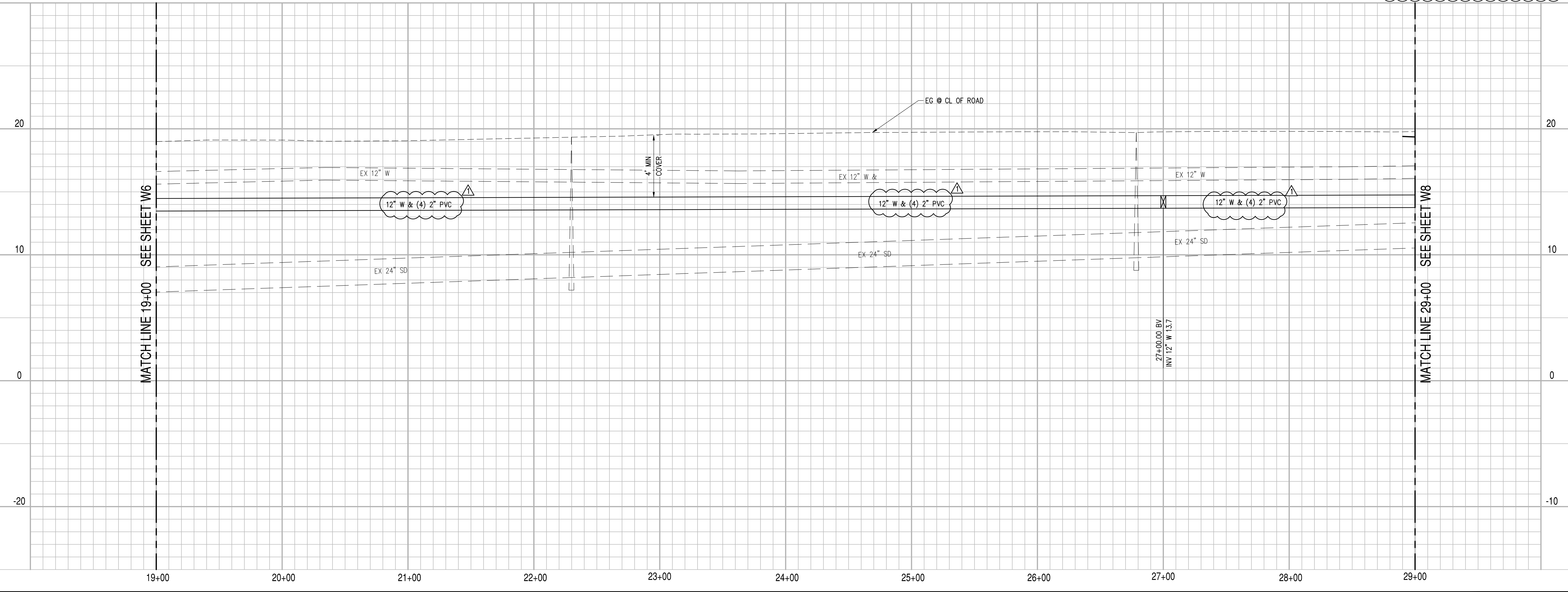
SHEET NO.
W7
OF
10



EAST LOUISE AVENUE WATER MAIN (STA 19+00 TO STA 29+00)

SCALE: HORIZONTAL 1" = 40'
VERTICAL 1" = 4'

- NOTES:
- PROPOSED WATER LINE IS DESIGNED WITHOUT THE BENEFIT OF POT-HOLING AND RELYING ON CITY PROVIDED PLANS. CONTRACTOR SHALL FIELD VERIFY EXISTING UTILITIES INVERT AND LOCATION PRIOR TO ESTABLISH CONNECTIONS.
 - PROPOSED WATER LINE SHALL MAINTAIN MIN. 1' OF VERTICAL SEPARATION FROM OTHER UTILITIES AT CROSSINGS.
 - WHEN WATER COVER IS LESS THAN 4', PLACE CONCRETE CAP OVER PIPE.
 - INSTALL (4) 2" PVC CONDUITS IN A 2X2 PATTERN AT THE BOTTOM OF THE SOUTH CORNER OF THE PROPOSED WATER LINE TRENCH FOR THE ENTIRE LENGTH OF THE PROPOSED WATER LINE. SEE DETAIL C ON SHEET W3 FOR TYPICAL TRENCH DETAIL.



PLAN REVISIONS:		
REV. NO.	DATE	APPLICABLE SHEETS/REVISIONS
△	7/24/20	ADD PVC CONDUIT

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CITY OF LATHROP
LOUISE AVENUE WATER TRANSMISSION
MAIN PROJECT (CIP PS 18-01)

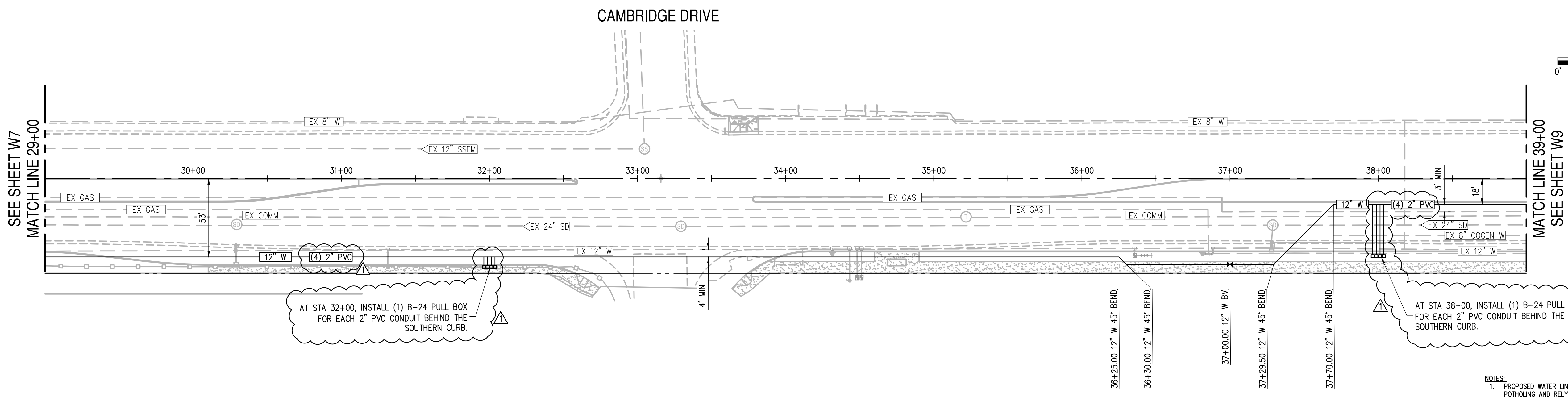
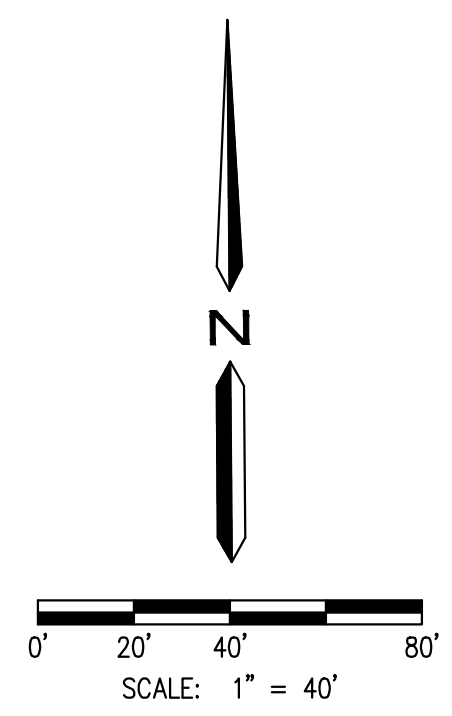
EAST LOUISE AVENUE WATER
MAIN (STA 29+00 TO STA 39+00)



APPROVED:

DESIGNED:	JLL
DRAWN:	JPJ
CHECKED:	RIC
SCALE:	1" = 40'
DATE:	7/7/20
JOB NO.:	37810
FILE NO.:	IP08.DWG

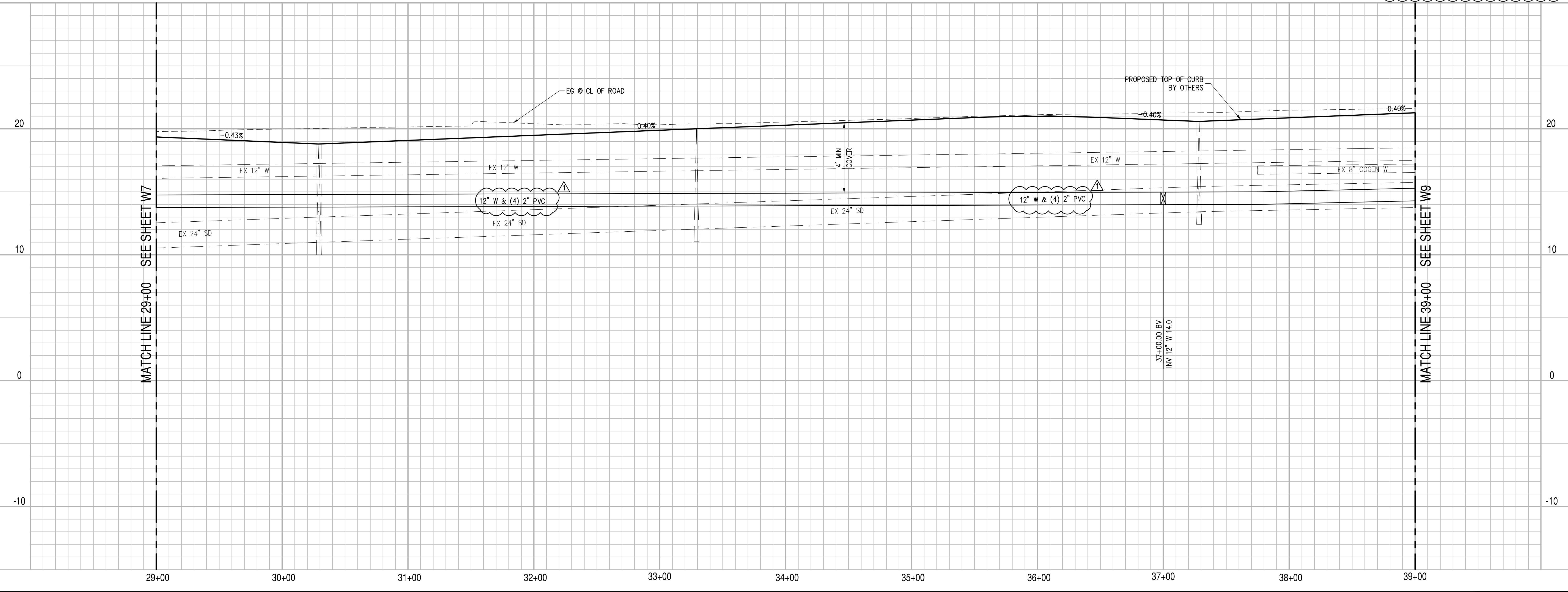
SHEET NO.
W8
OF
10



EAST LOUISE AVENUE WATER MAIN (STA 29+00 TO STA 39+00)

SCALE: HORIZONTAL 1" = 40'
VERTICAL 1" = 4'

- NOTES:
1. PROPOSED WATER LINE IS DESIGNED WITHOUT THE BENEFIT OF POT-HOLING AND RELYING ON CITY PROVIDED PLANS. CONTRACTOR SHALL FIELD VERIFY EXISTING UTILITIES INVERT AND LOCATION PRIOR TO ESTABLISH CONNECTIONS.
 2. PROPOSED WATER LINE SHALL MAINTAIN MIN. 1' OF VERTICAL SEPARATION FROM OTHER UTILITIES AT CROSSINGS.
 3. WHEN WATER COVER IS LESS THAN 4', PLACE CONCRETE CAP OVER PIPE.
 4. INSTALL (4) 2" PVC CONDUITS IN A 2X2 PATTERN AT THE BOTTOM OF THE SOUTH CORNER OF THE PROPOSED WATER LINE TRENCH FOR THE ENTIRE LENGTH OF THE PROPOSED WATER LINE. SEE DETAIL C ON SHEET W3 FOR TYPICAL TRENCH DETAIL.



PLAN REVISIONS:		
REV. NO.	DATE	APPLICABLE SHEETS/REVISIONS
△	7/24/20	ADD PVC CONDUIT

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Pleasanton, CA 94588
Ph 925.223.8340 odellengineering.com

CITY OF LATHROP
LOUISE AVENUE WATER TRANSMISSION
MAIN PROJECT (CIP PS 18-01)

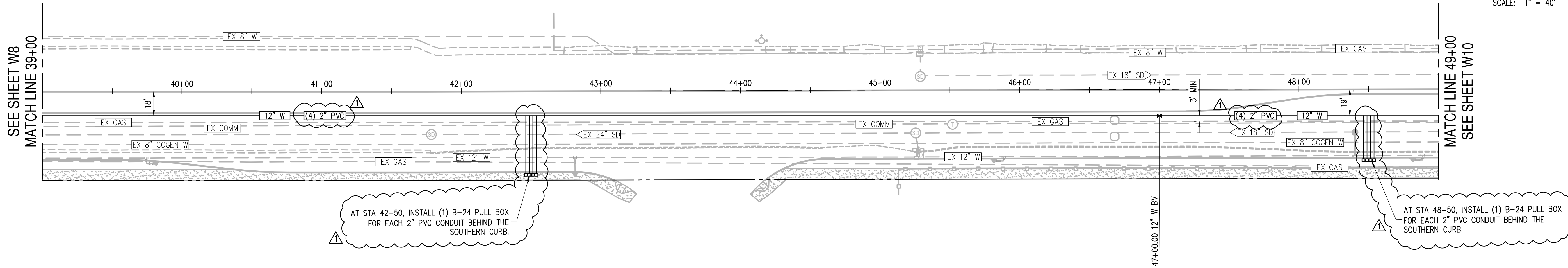
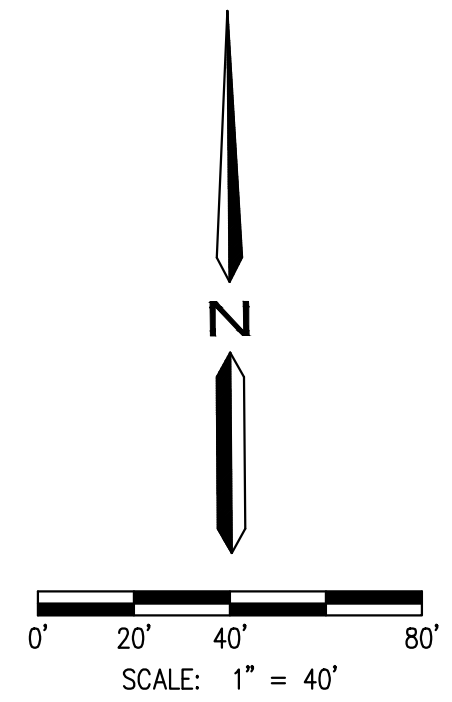
EAST LOUISE AVENUE WATER
MAIN (STA 39+00 TO STA 49+00)



APPROVED:

DESIGNED: JLL
DRAWN: JPJ
CHECKED: RIC
SCALE: 1" = 40'
DATE: 7/7/20
JOB NO.: 37810
FILE NO.: IPO9.DWG

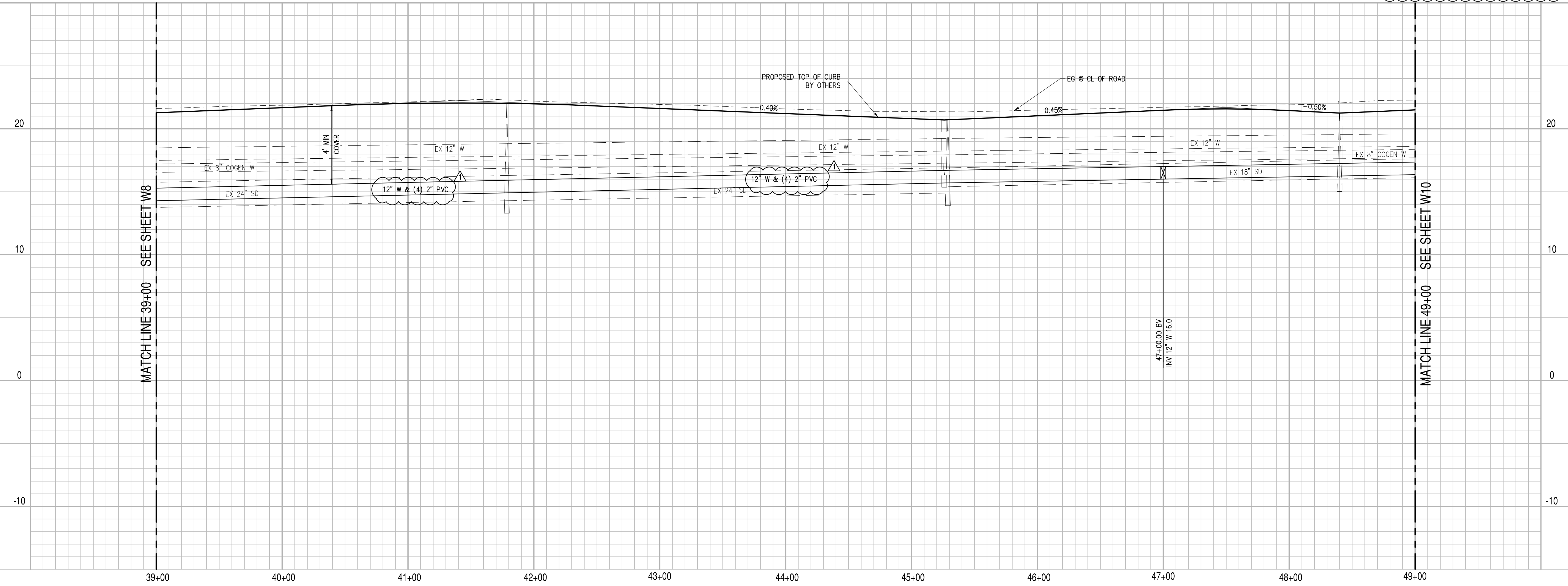
SHEET NO.
W9
OF
10



EAST LOUISE AVENUE WATER MAIN (STA 39+00 TO STA 49+00)

SCALE: HORIZONTAL 1" = 40'
VERTICAL 1" = 4'

- NOTES:
- PROPOSED WATER LINE IS DESIGNED WITHOUT THE BENEFIT OF POT-HOLING AND RELYING ON CITY PROVIDED PLANS. CONTRACTOR SHALL FIELD VERIFY EXISTING UTILITIES INVERT AND LOCATION PRIOR TO ESTABLISH CONNECTIONS.
 - PROPOSED WATER LINE SHALL MAINTAIN MIN. 1' OF VERTICAL SEPARATION FROM OTHER UTILITIES AT CROSSINGS.
 - WHEN WATER COVER IS LESS THAN 4', PLACE CONCRETE CAP OVER PIPE.
 - INSTALL (4) 2" PVC CONDUITS IN A 2x2 PATTERN AT THE BOTTOM OF THE SOUTH CORNER OF THE PROPOSED WATER LINE TRENCH FOR THE ENTIRE LENGTH OF THE PROPOSED WATER LINE. SEE DETAIL C ON SHEET W3 FOR TYPICAL TRENCH DETAIL.



PLAN REVISIONS:		
REV. NO.	DATE	APPLICABLE SHEETS/REVISIONS
△	7/24/20	ADD PVC CONDUIT

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Pleasanton, CA 94588
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CITY OF LATHROP
LOUISE AVENUE WATER TRANSMISSION
MAIN PROJECT (CIP PS 18-01)

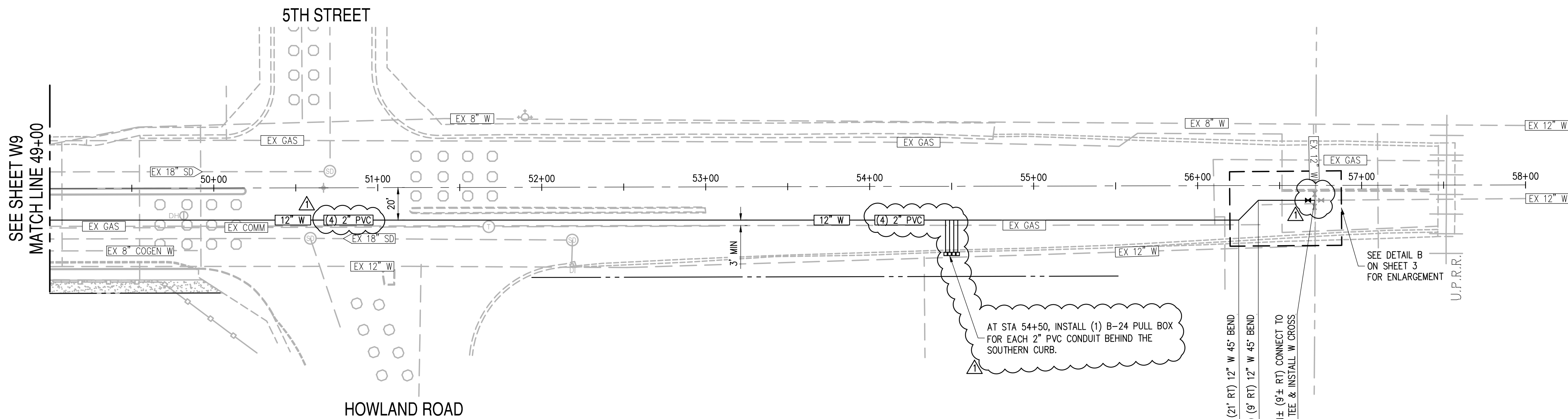
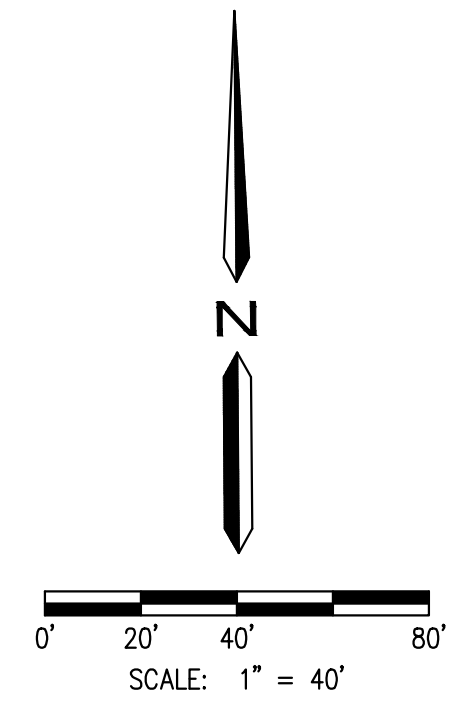
EAST LOUISE AVENUE
WATER MAIN (STA 49+00
TO END)



APPROVED:

DESIGNED: JLL
DRAWN: JPJ
CHECKED: RIC
SCALE: 1" = 40'
DATE: 7/7/20
JOB NO.: 37810
FILE NO.: IP10.DWG

SHEET NO.
W10
OF
10



EAST LOUISE AVENUE WATER MAIN (STA 49+00 TO END)

SCALE: HORIZONTAL 1" = 40'
VERTICAL 1" = 4'

- NOTES:
- PROPOSED WATER LINE IS DESIGNED WITHOUT THE BENEFIT OF POT-HOLING AND RELYING ON CITY PROVIDED PLANS. CONTRACTOR SHALL FIELD VERIFY EXISTING UTILITIES INVERT AND LOCATION PRIOR TO ESTABLISH CONNECTIONS.
 - PROPOSED WATER LINE SHALL MAINTAIN MIN. 1' OF VERTICAL SEPARATION FROM OTHER UTILITIES AT CROSSINGS.
 - WHEN WATER COVER IS LESS THAN 4', PLACE CONCRETE CAP OVER PIPE.
 - INSTALL (4) 2" PVC CONDUITS IN A 2X2 PATTERN AT THE BOTTOM OF THE SOUTH CORNER OF THE PROPOSED WATER LINE TRENCH FOR THE ENTIRE LENGTH OF THE PROPOSED WATER LINE. SEE DETAIL C ON SHEET W3 FOR TYPICAL TRENCH DETAIL.

