Loomis Diversion Trunkline Change Order No. 8

Additional Brace Road Paving and Adjustment of Quantities for 15” Pipe

Eric Nielsen, P.E.

November 1, 2018

OVERVIEW

- Rock
  - Red = Controlled Blasting
  - Yellow = Rock Hammer

CHANGE ORDER SUMMARY

Items in Change Order No. 8	Cost
Overlay Brace Road	$ 83,502.65
15” SS Pipe	$ 46,800.00
15” SS Pipe – Hard Rock Excavation	- $ 347,600.00
Total	**- $ 217,297.35**

Reimbursement from Town of Loomis for Overlay	- $ 56,412.10

Summary of Change Orders	Amount	% of Original Contract
Original contact amount	$ 5,086,485.00	-
Total Change Orders to Date (#1- #8)	$ 3,918,614.95	77%
Total Project Cost	$ 9,005,099.95	177%

Questions?

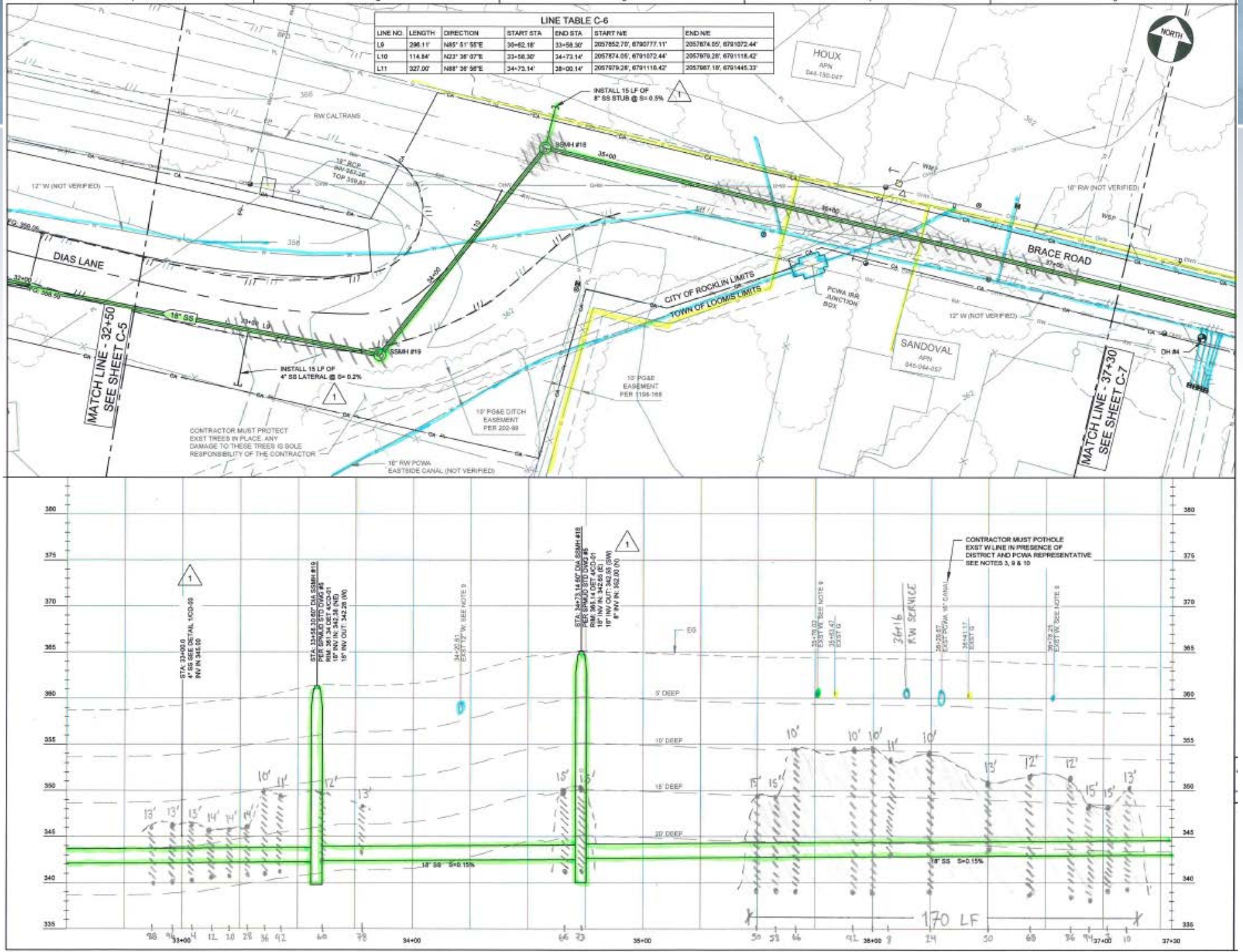
Questions?

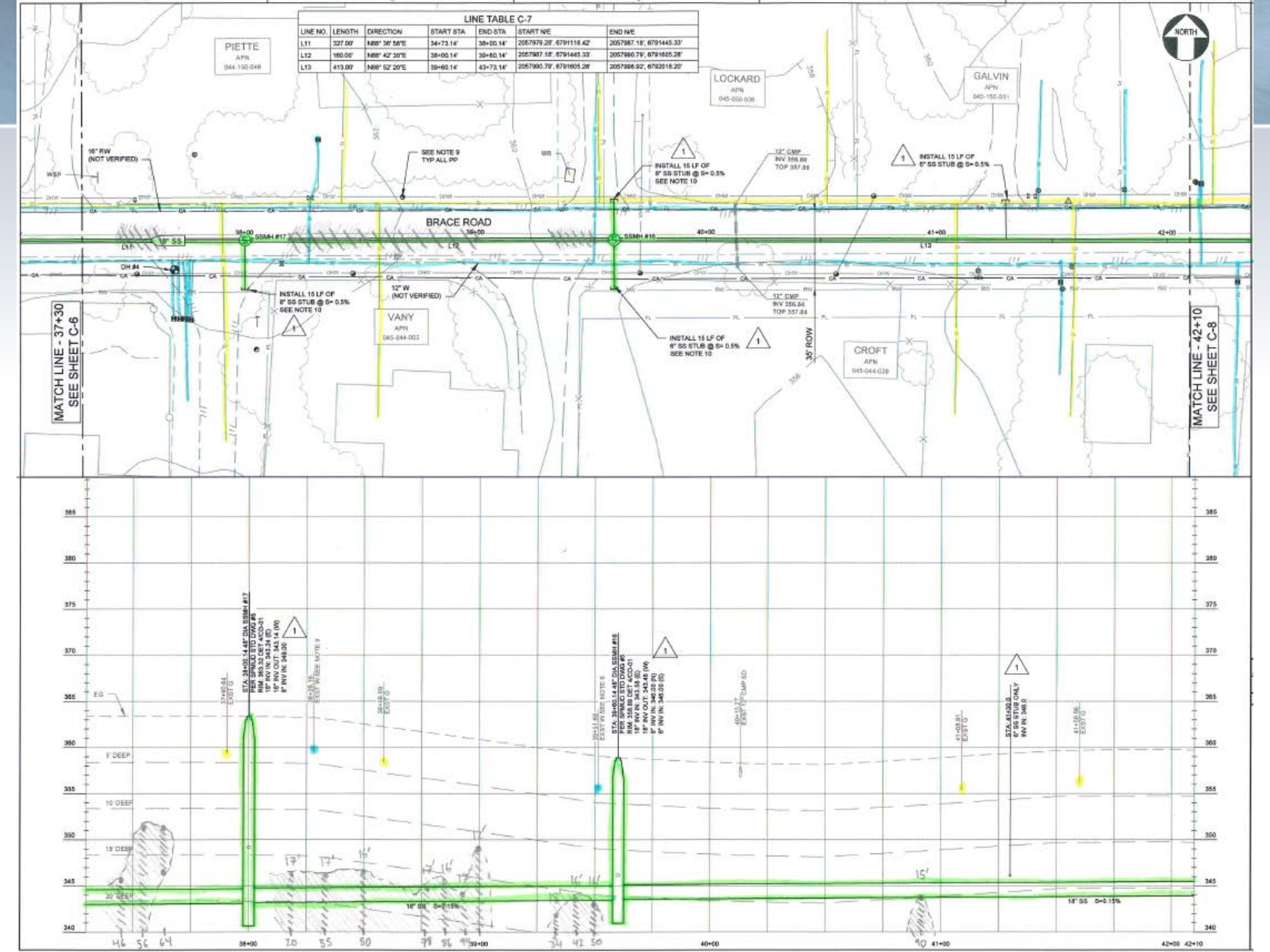
CHANGE ORDER

- Controlled Blasting on Brace Road
- Controlled Blasting on the Tulip LLC Property North of Horseshoe Bar Road
- Additional Laterals and Stubs on Brace Road and Dias Lane

BLASTING

- Brace Road
  - 49 Days of Drilling
  - 22 Days of Controlled Blasting
  - 2,832 Holes Drilled (Approx. 10.6 vertical miles)
- Tulip LLC (North)
  - 15 Days of Drilling
  - 5 Days of Controlled Blasting
  - 290 Holes Drilled (Approx. 1 vertical miles)


LINE TABLE C-6
LINE NO. | LENGTH | DIRECTION | START STA | END STA | START N/E | END N/E
L9 | 296.11' | N85° 51' 55"E | 30+62.18' | 33+58.30' | 2057852.78', 6790777.11' | 2057874.05', 6791072.44'
L10 | 114.84' | N23° 36' 07"E | 33+58.30' | 34+73.14' | 2057874.05', 6791072.44' | 2057879.28', 6791118.42'
L11 | 327.00' | N88° 36' 56"E | 34+73.14' | 38+00.14' | 2057879.28', 6791118.42' | 2057987.18', 6791445.33'
NORTH
HOUX APN 044-150-047
INSTALL 15 LF OF 8" SS STUB @ S= 0.5%
SSMH #18
SSMH #19
RW CALTRANS
18" RCP INV 357.34 TOP 359.87
12" W (NOT VERIFIED)
DIAS LANE
18" SS
INSTALL 15 LF OF 4" SS LATERAL @ S= 0.2%
MATCH LINE - 32+50 SEE SHEET C-5
CONTRACTOR MUST PROTECT EXST TREES IN PLACE. ANY DAMAGE TO THESE TREES IS SOLE RESPONSIBILITY OF THE CONTRACTOR
16' RW PCWA EASTSIDE CANAL (NOT VERIFIED)
10' PG&E DITCH EASEMENT PER 220-99
10' PG&E EASEMENT PER 1198-168
CITY OF ROCKLIN LIMITS
TOWN OF LOOMIS LIMITS
PCWA (R&R) JUNCTION BOX
BRACE ROAD
16' RW (NOT VERIFIED)
SANDOVAL APN 045-044-057
DH #4
MATCH LINE - 37+30 SEE SHEET C-7
STA: 33+00.0 4" SS SEE DETAIL 4/CD-03 INV IN 345.50
STA: 33+58.30 60" DIA SSMH #18 PER SHROUD STD DWG #5 RIM: 361.34 DET 4/CD-01 18" INV IN: 342.38 (NE) 18" INV OUT: 342.28 (W)
STA: 34+73.14 60" DIA SSMH #19 PER SHROUD STD DWG #5 RIM: 365.14 DET 4/CD-01 18" INV IN: 342.55 (E) 18" INV OUT: 342.45 (W) 8" INV IN: 352.00 (W)
EG
5' DEEP
10' DEEP
15' DEEP
20' DEEP
18" SS S=0.15%
CONTRACTOR MUST POTHOLE EXST W LINE IN PRESENCE OF DISTRICT AND PCWA REPRESENTATIVE SEE NOTES 3, 9 & 10
36+16 RW SERVICE
170 LF
33+00
34+00
35+00
36+00
37+00

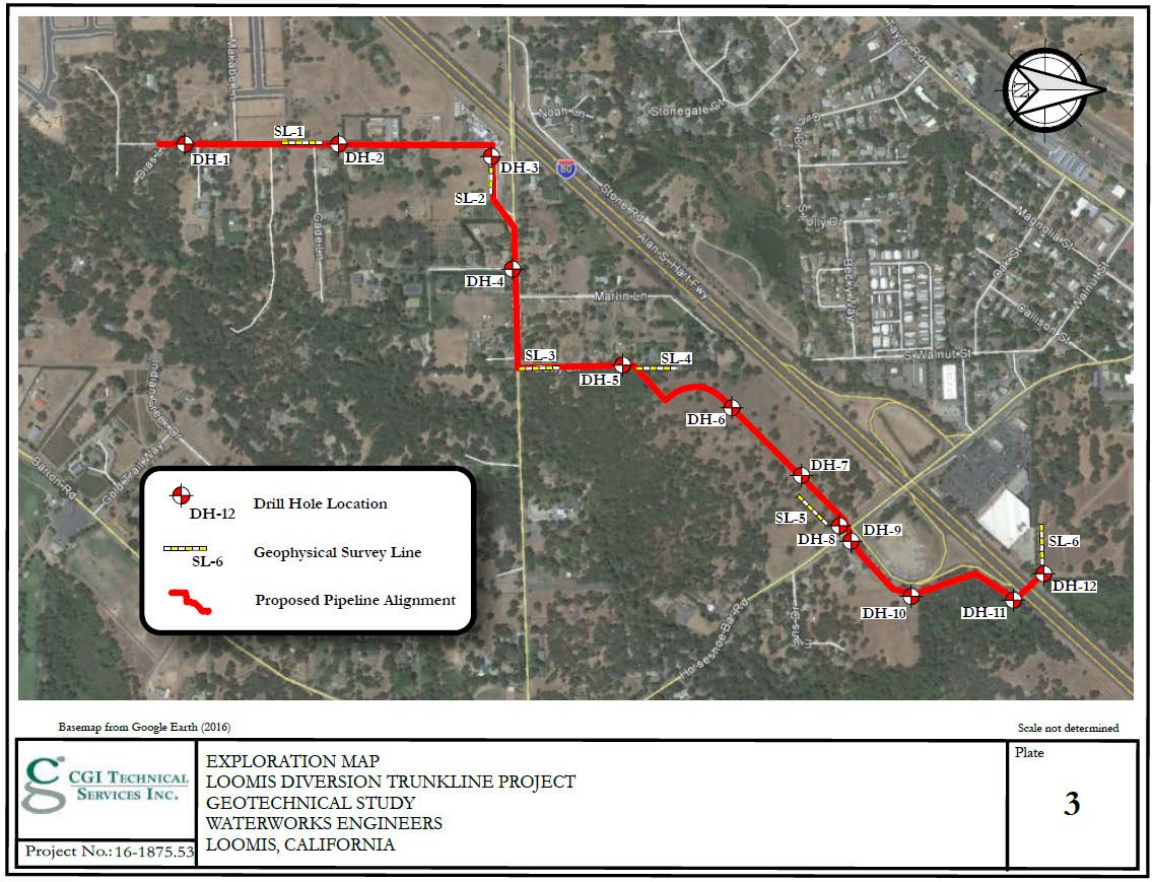

LINE TABLE C-7
LINE NO. | LENGTH | DIRECTION | START STA | END STA | START N/E | END N/E
L11 | 327.00' | N88° 36' 56"E | 34+73.14' | 38+00.14' | 2057979.28', 6791118.42' | 2057987.18', 6791445.33'
L12 | 160.00' | N88° 42' 30"E | 38+00.14' | 39+60.14' | 2057987.18', 6791445.33' | 2057990.79', 6791605.28'
L13 | 413.00' | N88° 52' 20"E | 39+60.14' | 43+73.14' | 2057990.79', 6791605.28' | 2057998.92', 6792018.20'
PIETTE APN 044-150-048
LOCKARD APN 045-050-038
GALVIN APN 045-150-031
VANY APN 045-044-003
CROFT APN 045-044-038
NORTH
16" RW (NOT VERIFIED)
WSP
SEE NOTE 9 TYP ALL PP
MB
INSTALL 15 LF OF 8" SS STUB @ S= 0.5% SEE NOTE 10
12" CMP INV 356.80 TOP 357.84
INSTALL 15 LF OF 6" SS STUB @ S= 0.5%
BRACE ROAD
18" SS
SSMH #17
SSMH #16
38+00
39+00
40+00
41+00
42+00
L11
L12
L13
DH #4
INSTALL 15 LF OF 8" SS STUB @ S= 0.5% SEE NOTE 10
12" W (NOT VERIFIED)
12" CMP INV 356.84 TOP 357.84
INSTALL 15 LF OF 6" SS STUB @ S= 0.5% SEE NOTE 10
35' ROW
MATCH LINE - 37+30 SEE SHEET C-6
MATCH LINE - 42+10 SEE SHEET C-8
STA: 38+00.14 48" DIA SSMH #17 PER SPWLD STD DWG #5 RIM: 363.32 DET 4/CD-01 18" INV OUT: 343.14 (W) 18" INV IN: 343.14 (W) 8" INV IN: 349.06
STA: 39+60.14 48" DIA SSMH #16 PER SPWLD STD DWG #5 RIM: 363.68 DET 4/CD-01 18" INV IN: 343.48 (E) 18" INV OUT: 343.48 (W) 8" INV IN: 349.05 (N) 8" INV IN: 349.05 (E)
STA: 41+30.0 6" SS STUB ONLY INV IN: 349.0
EG
5' DEEP
10' DEEP
15' DEEP
20' DEEP
18" SS S=0.15%
18" SS S=0.15%

MOVING FORWARD

- Potential future change orders
  - Brace Road surface restoration

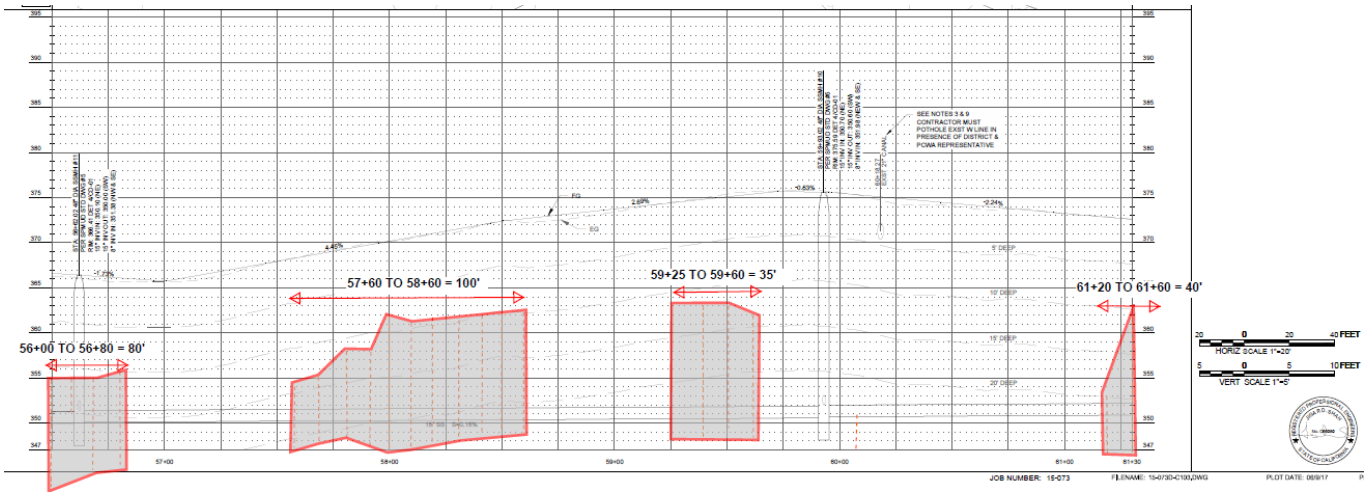
ESTIMATED vs ACTUAL ROCK

- Quantity of Rock Estimated with
  - 12 Drill Holes
  - 6 Refraction Surveys



ESTIMATED vs ACTUAL ROCK

- Results of Pre-Drilling Efforts



	Tulip	Dias	Brace	Total
Length (ft)	790	362	308	1460
Cubic Yards	1754	422	642	2818

REPORTS

- Every blast is monitored
- Report prepared

GASCH GEOPHYSICAL SERVICES, INC.
WWW.GEOGASCH.COM

CONSULTANTS IN GEOPHYSICS FOR THE ENGINEERING, GROUNDWATER, OIL & GAS AND BLASTING INDUSTRIES
Since 1969

Loomis Trunk Line Project, Loomis, California

Summary of Loomis Trunk Line Blast: Production #5, 10/12/17						
Time of Blast Initiation: ~16:28:22						
Weather Conditions: Cloudy, Clear (2-4 mph from Northwest), Warm (~75°F)						
Maximum Pounds Per Delay: 9.77						
Monitor ID	**Monitor Location**	**Distance from Blast**	**Maximum Recorded Vibration Level (in/s)**	**Freq. (Hz)**	**dB (L)**	**Accel. (g)**
BE9708	3938 Betty Lane	~500 feet southwest	0.050 in/s	29	107.5	0.053
BE8352	3899 Martin Lane	~275 feet southwest	0.135 in/s	45	113.3	0.106
BE11334	at PCWA Water Tank	~265 feet northeast	0.095	34	109.5	0.080
BC8311	Above PCWA Pipeline	~160 feet east	0.165 in/s	35	110.6	0.239
BC8479	Between 3938 Betty Lane and Blast	~120 feet south	0.265 in/s	54	117.8	0.292

All monitoring instruments were placed on solid ground with 3-inch spike penetration, atop a hard surface and covered with a sandbag or bolted to a hard surface to ensure good coupling. Each instrument has a current calibration certificate and complies with the standards established by the Vibration Section of The International Society of Explosives Engineers (ISEE).

We trust that this is the information you require; however, should you have questions or comments, please feel free to contact our Rancho Cordova office at your convenience. Thank you for this opportunity to be of service.

Sincerely,

GASCH GEOPHYSICAL SERVICES, INC.

Kent L. Gasch
Professional Geophysicist #1061

Vibration Monitor Location Map

Base Photo Courtesy of Google Earth

Scale: 1 inch≈ 80 feet

= Vibration Monitoring Locations

Loomis Trunk Line Project :
Blast #: Production #5 Date: 10/12/17
Blast Location: 56+57 to 57+16

N
W E
S

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Loomis Trunk Line Project:
Vibration Monitor Location Map

Prepared for: **T&S Construction Co., Inc.**

Project Number: 2017-28.02 *Date:* October, 2017

- Each monitor is analyzed
  - Ensures vibrations are within range set in specs
  - Used for future blasts

Instantel-oomis Trunkline Blast: Production Blast #5, 10/12/17

Date/Time	Vert at 16:28:21 October 12, 2017
Trigger Source	Geo: 0.050 in/s
Range	Geo: 10.000 in/s
Record Time	4.0 sec at 2048 sps
Job Number:	1728

Serial Number	BC8479 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	June 22, 2017 by Instantel
File Name	J479H3VN.390

Notes

Project:	Loomis Trunkline Project
Client:	Western Blasting Technology
User / Company:	Kent Gasch / Gasch Geophysical Services
Location:	Loomis, California

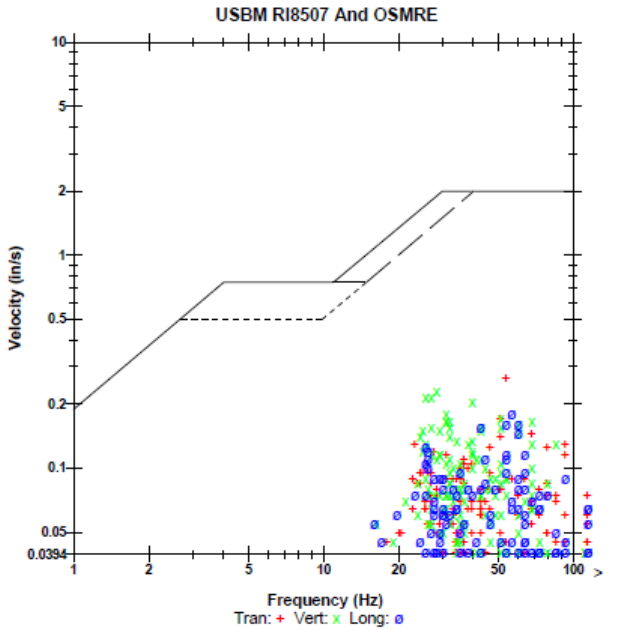
Post Event Notes
Monitor was located between 3938 Betty Lane and the blast, approximately 120 feet southwest of the blast area.

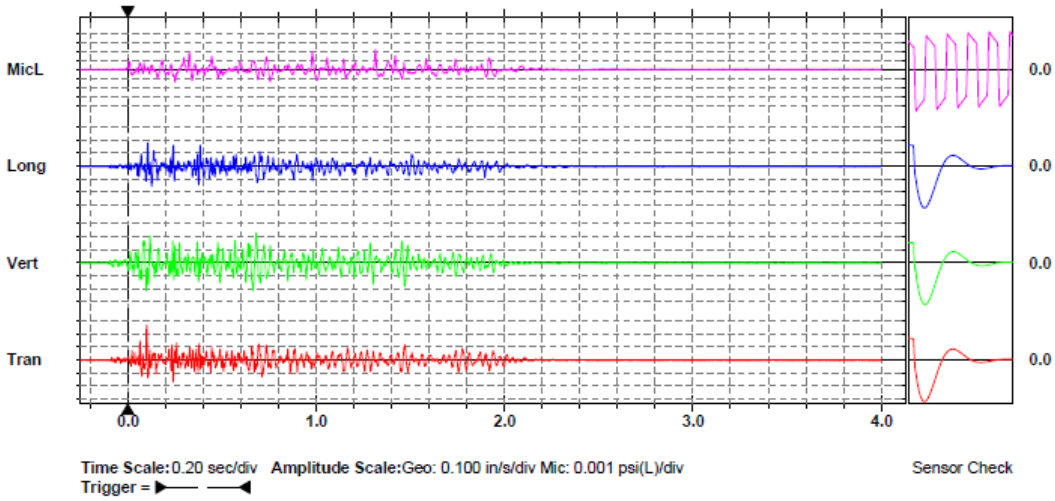
Blast Specifics:
Loomis Trunkline Production Blast #5

Microphone	Linear Weighting
PSPL	117.8 dB(L) 0.002 psi(L) at 1.314 sec
ZC Freq	24 Hz
Channel Test	Passed (Freq = 20.1 Hz Amp = 517 mv)

	Tran	Vert	Long	
PPV	0.265	0.230	0.180	in/s
ZC Freq	54	28	57	Hz
Time (Rel. to Trig)	0.100	0.681	0.107	sec
Peak Acceleration	0.292	0.212	0.239	g
Peak Displacement	0.001	0.001	0.001	in
Sensor Check	Passed	Passed	Passed	
Frequency	7.6	7.5	7.6	Hz
Overswing Ratio	3.9	3.8	3.9	

Peak Vector Sum 0.326 in/s at 0.100 sec





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