COLORADO
Division of Water Resources
Department of Natural Resources

Water Division 2 – Main Office
310 E. Abriendo Ave, Suite B
Pueblo, CO 81004

February 16, 2015

J.C. York, P.E., Principal
J & T Consulting, Inc
305 Denver Avenue, Suite D
Fort Lupton, CO 80621

Re: West Farm Gravel Pit Slurry Wall
Slurry Wall 90-Day Performance Test Final Report
Sections 33 & 28, T22S, R46W, 6th PM
M-08-078
Water Division 2, Water District 67

Dear Mr. York:

The purpose of this letter is to approve the lining of the above referenced site based on your February 12, 2015 submittal of the Performance Test report and documentation. The measured outflow due to pumping indicate that this site **has been lined to the design standard** referenced in the August, 1999 State Engineer Guidelines for Lining Criteria for Gravel Pits. **Meeting the design standard requires that all water inflows and outflows for this site must be accounted for on at least a monthly basis**. I understand from your letter report that GP Aggregates, LLC will be responsible for providing the monthly water accounting. Please provide the specific contact information of the person who will be responsible for this reporting at your earliest convenience, but no later than February 27, 2015.

Please call me if you have any questions.

Sincerely,

Bill W. Tyner

Bill W. Tyner, P.E.
Assistant Division Engineer

Enclosure

CC: Rebecca Nichols, Water Commissioner, Water District 67
Lonnie Spady, Water Commissioner, Water Districts 17/67
Charlie DiDomenico, Augmentation Coordinator
Melissa Peterson, Denver SEO Team 237
Michelle L. Hatcher, Clear Water Solutions
Rachel Zancanella, Engineering Support
Dan DiRezza, Ground Water Commissioner
Don Higbee, LAWMA

J&T Consulting, Inc.

February 12, 2015

Colorado Division of Water Resources – Division 2
The Office of the State Engineer
Attention: Bill Tyner
310 E. Abriendo Avenue, Suite B
Pueblo, CO 81004

Subject: Slurry Wall 90-Day Performance Test Final Report
West Farm Gravel Pit Slurry Wall and Reservoir
Prowers County, Colorado

Dear Mr. Tyner:

On behalf of GP Aggregates, LLC. J&T Consulting, Inc. (JT) is submitting this performance report for the slurry wall that was constructed at the West Farm Gravel Pit in Prowers County, Colorado.

A description of the attached tables is listed below.

1. Table I – Piezometer Data & Groundwater Level Summary. This table along with the attached Monitoring Well Location Map provides the locations of the piezometers and the water level differences that were present on the site during the leak test.

2. Table II – Allowable Groundwater Flow. This table provides the input values that determined the allowable groundwater inflow (leakage rate) for the slurry wall based on the State Engineer Guidelines for Lining Criteria for Gravel Pits, August 1999.

3. Table III - Monthly Evaporation Data. Evaporative losses were determined using the National Oceanic and Atmospheric Administration's (NOAA) Technical Report NWS 33 "Evaporative Atlas for the Contiguous 48 United States" and are shown on this Table. The West Farm Gravel Pit location is subject to an annual evaporation of 60 inches per Map 3 of the report titled "Annual Free Water Surface Evaporation". A dewatering trench measuring 8 feet wide by 400 feet long was used to dewater the area inside the slurry wall and to maintain the water level inside the slurry wall throughout the duration of the test. An area of 3,200 square-feet corresponding to the exposed water surface area of the dewatering trench was used to calculate the evaporative losses during the test.

4. Table IV – Precipitation and Pumping Data. Precipitation data was taken from NOAA Weather Station GHCND: USC00054770 which is located approximately 2.5 miles west of the site. Daily climatological summaries for the test period are attached for your reference. JT estimated that 30 percent of the rain that fell upon the dry portions enclosed within the slurry wall contributed to the volume of water and 100 percent that fell on the open water portions within the slurry wall boundary contributed to the volume of water that affected the leak test. The overall area enclosed by the slurry wall is 39.4

acres. The area discussed above in the evaporation section was used for the open water area (3,200 square-feet = 0.0735 acres), with the remaining 39.32 acres of area being the dry portion of the site. Water was intermittently pumped from the dewatering trench to maintain the level of water inside the slurry wall. The pump totalizer was read at four intervals throughout the test. The pump totalizer reads in acre-feet units to the one-thousandth of an acre-foot (000.000). A pump totalizing flow meter re-verification test was done to certify the accuracy of the totalizer. A copy of the certification for the totalizer is attached for your reference.

5. Table V – Water Accounting. This table displays the amount of water on a daily interval that affected the leak test. Data from the site precipitation, evaporation, and pumping was used in the following equations to determine the leakage rate through and/or under the slurry wall and reservoir floor:

   a) Total Outflow = Evaporation + Water Pumped Out

   b) Leak Volume (Net Outflow) = Cumulative Outflow (Evaporation + Pumping) – Cumulative Inflow (Precipitation)

   c) Leakage Rate = Leak Volume converted to gallons per minute rate

A design standard leakage rate of 70.3 gallons per minute and a performance standard of 210.8 gallons per minute were calculated for this reservoir. The leak test exhibited an overall leakage rate of 53.3 gallons per minute. The starting date for the performance test was November 1, 2014 and the test was concluded on January 31, 2015, a period of 92 days. The leak test was performed over four periods with the overall leakage calculated over the start and end dates above.

The minimum 10-ft water level differential that is required during a leak test was achieved throughout the test as shown in Table I. The minimum water level differential that occurred during the test was 40.12 feet on November 1, 2014 between monitoring well I-1 and X-2.

The slurry wall appears to have passed the State regulations for the design standard during the test. Pending approval from the Office of the State Engineer, GP will now be responsible for providing monthly water accounting to the Office of the State Engineer, Colorado Division of Water Resources.

Please contact us if you have any questions or comments regarding this report.

Sincerely,

J.C. York, P.E.
Principal

Cc: GP Aggregates, LLC

Enclosures:

Monitoring Well Location Map

West Farm Pit Slurry Wall and Reservoir construction plans by J&T Consulting, Inc. dated May 30, 2013

Table I – Piezometer Data & Groundwater Level Summary

Table II – Allowable Groundwater Flow

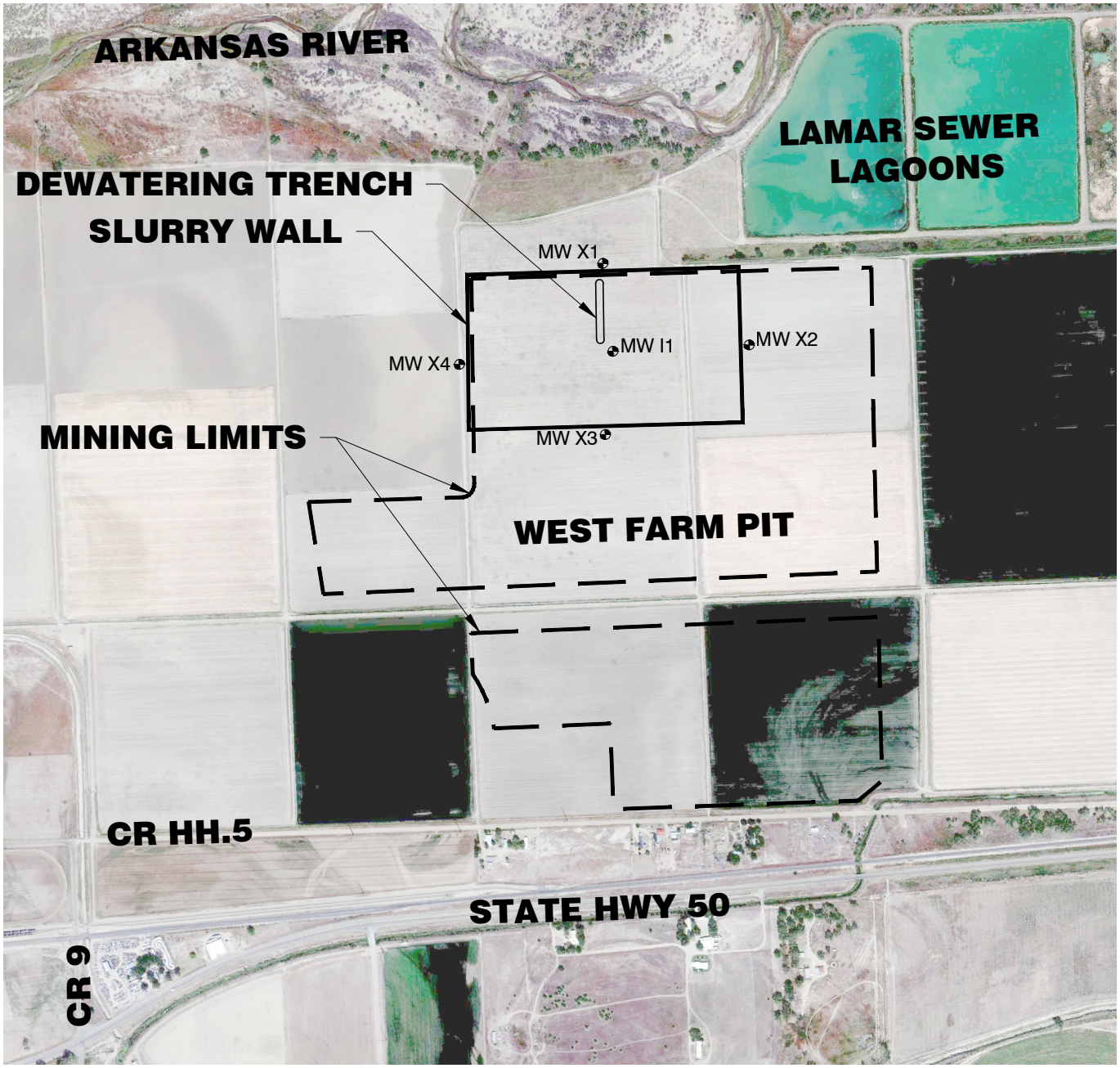
Table III – Monthly Evaporation Data

Table IV – Precipitation and Pumping Data

Table V – Water Accounting

NOAA Weather Station GHCND: USC00054770 climatological data

Pump totalizing flow meter re-verification test



LEGEND:

MW X3 ⊕ MONITORING WELL LOCATION

1000 500 0 1000

SCALE IN FEET

J&T Consulting, Inc.
305 Denver Avenue - Suite D
Fort Lupton, CO 80621
303-857-6222

GP Aggregates, LLC
West Farm Pit
Monitoring Well Location Map

Date:	2/10/15
Job No:	07115
Drawn:	WSS
Scale:	1" = 1000'
Sheet: 1	Of: 1

GP RESOURCES, LLC
West Farm Pit
Slurry Wall & Reservoir Construction Plans

ISSUED FOR CONSTRUCTION

LOCATED IN
TOWNSHIP 22 SOUTH, RANGE 48 WEST, 6th P.M.
COUNTY of PROWERS, STATE of COLORADO
APRIL, 2013

GENERAL NOTES:

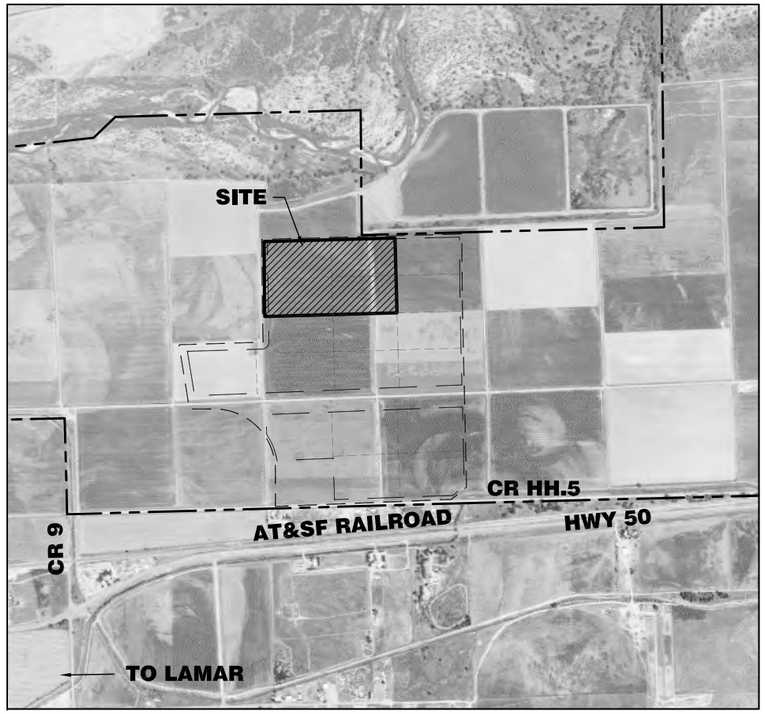
1. THESE CONSTRUCTION PLANS ARE TO BE USED IN CONJUNCTION WITH THE TECHNICAL SPECIFICATIONS PREPARED BY J&T CONSULTING, INC., AND GEOTECHNICAL INVESTIGATION AND ENGINEERING DESIGN RECOMMENDATIONS PREPARED BY CESARE, INC.
2. COMPLY WITH ALL REQUIREMENTS OF OWNER OBTAINED PROJECT PERMITS: INCLUDING, BUT NOT LIMITED TO, PERMITS FROM THE U.S. ARMY CORPS OF ENGINEERS AND COLORADO DEPARTMENT OF HEALTH AND ENVIRONMENT. CONTRACTOR SHALL OBTAIN ALL OTHER PERMITS NECESSARY FOR CONSTRUCTION OF THE WORK.
3. PROTECT ALL EXISTING WETLANDS.
4. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING EROSION AND SEDIMENT CONTROL MEASURES AT ALL TIMES DURING CONSTRUCTION.
5. ALL CONSTRUCTION ACTIVITIES MUST COMPLY WITH THE STATE OF COLORADO PERMITTING PROCESS FOR "STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY." FOR INFORMATION, PLEASE CONTACT THE COLORADO DEPARTMENT OF HEALTH, WATER QUALITY CONTROL DIVISION, 4300 CHERRY DRIVE SOUTH, DENVER, COLORADO 80246–1530. ATTENTION: PERMITS SECTION. PHONE 303–692–3500.
6. IF DEWATERING IS REQUIRED, A STATE CONSTRUCTION DEWATERING DISCHARGE PERMIT IS REQUIRED FOR DISCHARGES TO A STORM SEWER, CHANNEL, IRRIGATION DITCH, ANY STREET THAT IS TRIBUTARY TO THE AFOREMENTIONED FACILITIES, OR ANY WATER OF THE UNITED STATES.
7. PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION, THE CONTRACTOR SHALL CONTACT ALL UTILITIES TO COORDINATE SCHEDULES.
8. THE CONTRACTOR SHALL REGULARLY PATROL THE PUBLIC LANDS ADJACENT TO THE PROJECT, REMOVE CONSTRUCTION DEBRIS AND KEEP AREAS CLEAN AND SAFE.
9. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING AND IMPLEMENTING A SEQUENCE AND SCHEDULE FOR COMPLETION OF THE WORK IN ACCORDANCE WITH APPLICABLE PROVISIONS OF THE CONTRACT DOCUMENTS.
10. READ THOROUGHLY AND BECOME FAMILIAR WITH THE SPECIFICATIONS AND INSTALLATION DETAILS FOR THIS RELATED WORK PRIOR TO CONSTRUCTION.
11. VERIFY SITE ELEVATIONS PRIOR TO CONSTRUCTION.
12. THE CONTRACTOR SHALL PROCURE ALL PERMITS AND LICENSES, PAY ALL CHARGES AND FEES INCLUDING, BUT NOT LIMITED TO, ALL INSPECTION CHARGES OF AGENCIES HAVING APPROPRIATE JURISDICTION.
13. CONTRACTOR SHALL PROVIDE AS–BUILT DRAWINGS OF ENTIRE PROJECT, AS SPECIFIED, UPON FINAL COMPLETION OF PROJECT.

SEDIMENT AND EROSION CONTROL:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SEDIMENT AND EROSION CONTROL AT THE SITE THROUGHOUT CONSTRUCTION.
2. BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE USED AS NECESSARY TO ADDRESS SEDIMENT AND DUST FROM SITE DISTURBANCE. ADDITIONAL MEASURES MAY BE REQUIRED AT THE DIRECTION OF THE ENGINEER.
3. BMP'S MAY INCLUDE, BUT ARE NOT LIMITED TO:

   MINIMAL DISTURBANCE FOR MINIMAL TIME PERIODS
   GRAVEL CONSTRUCTION ENTRIES
   SILT FENCE, STRAW BALE OR SAND BAG BARRIERS, ROCK CHECK DAMS
   STORM SEWER INLET PROTECTION
   SEDIMENT CAPTURE PONDS
   SITE WATERING FOR DUST SUPPRESSION

4. BMP'S SHALL BE MAINTAINED AND KEPT IN GOOD REPAIR FOR THE DURATION OF THE PROJECT. THE CONTRACTOR SHALL INSPECT BMP'S WEEKLY AND AFTER SIGNIFICANT (GREATER THAN 0.1" PRECIPITATION) STORM EVENTS. THE MAINTENANCE AND REPAIR SHALL BE COMPLETED IN A TIMELY MANNER. SEDIMENT AND DEBRIS SHALL BE REMOVED WHEN THEY REACH HALF THE BMP HEIGHT OR IMPACT THE FUNCTION OF THE BMP.
5. SOIL STOCKPILES SHALL BE PROTECTED FROM SEDIMENT TRANSPORT BY SURFACE ROUGHENING, WATERING AND PERIMETER SILT FENCING. SOILS THAT WILL BE STOCKPILED FOR MORE THAN 30 DAYS SHALL BE MULCHED AND SEEDED WITH A GRASS COVER WITHIN 14 DAYS OF STOCKPILE CONSTRUCTION.
6. THE CONTRACTOR SHALL INSURE THAT ALL LOADS OF CUT AND FILL SOILS IMPORTED TO OR EXPORTED FROM THE SITE ARE PROPERLY LOADED AND COVERED TO PREVENT LOSS DURING TRANSPORT.
7. THE CONTRACTOR SHALL REMOVE ALL SEDIMENT, MUD, AND CONSTRUCTION DEBRIS RESULTING FROM THIS PROJECT FROM FLOWLINES AND PAVEMENT OF PUBLIC STREETS IN A TIMELY MANNER.
8. SOILS EXPOSED DURING LAND DISTURBING ACTIVITY SHALL BE KEPT IN A ROUGHENED CONDITION BY RIPPING OR DISCING ALONG LAND CONTOURS UNTIL MULCH, VEGETATION OR OTHER PERMANENT EROSION CONTROL IS IN PLACE. NO SOILS SHALL REMAIN EXPOSED BY LAND DISTURBING ACTIVITY FOR MORE THAN THIRTY (30) DAYS BEFORE REQUIRED TEMPORARY OR PERMANENT EROSION CONTROL IS INSTALLED UNLESS OTHERWISE APPROVED.
9. ALL TEMPORARY SEDIMENT CONTROLS WILL BE REMOVED WITHIN 30 DAYS AFTER THE FINAL STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, WHICHEVER OCCURS FIRST.
10. NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED WHENEVER POSSIBLE. EXPOSURE OF SOIL TO EROSION BY REMOVAL OR DISTURBANCE OF VEGETATION SHALL BE LIMITED TO THE AREA REQUIRED FOR IMMEDIATE CONSTRUCTION OPERATIONS AND FOR THE SHORTEST PRACTICAL PERIOD OF TIME.



1000 500 0 1000
SCALE IN FEET

VICINITY MAP
SCALE 1" = 1000

SHEET INDEX

LEGEND:

- PROPERTY LINE
- SECTION LINE
- FENCE LINE
- OVERHEAD ELECTRIC LINES
- UNDERGROUND TELECOM LINE
- UNDERGROUND GAS LINE
- EXISTING SANITARY FORCE MAIN
- MINING LIMIT
- DIRT ROAD
- EXISTING WATER/DITCH
- EXISTING CONTOURS
- 3590 PROPOSED CONTOURS
- FUTURE HIGHWAY REALIGNMENT PARCEL
- PERMIT BOUNDARY
- ELECTRIC RISER BOX
- GUY WIRE
- POWER POLE
- WATER PUMP
- PHASE LIMITS
- BORING LOCATION
- SLURRY WALL DELINEATION POST

OWNER
GP Resources, LLC
Karl Nyquist
7991 Shaffer Parkway, Ste. 200
Littleton, CO 80127
303–369–5100

SURVEYOR
Bear Creek Surveying, Inc.
402 Santa Fe Ave., Ste. 108
La Junta, CO 81050
303–659–1532

GEOPHYSICAL SURVEY
Zapata Incorporated
301 Commercial Rd., Ste. B
Golden, CO 80401
303–278–8700

ENGINEER
J&T Consulting, Inc.
J.C. York
305 Denver Ave., Ste. D
Fort Lupton, CO 80621
303–857–6222
Fax: 303–857–6224

GEOTECHNICAL/SOIL INVESTIGATIONS
Cesare, Inc.
7108 S Alton Way, Bldg. B
Centennial, CO 80112
303–220–0300

811 Know what's below. Call before you dig.

Engineer's Certification

I hereby certify that these plans for the construction of the West Farm Pit Slurry Wall and Reservoir were prepared by me or under my direct supervision for GP Resources, LLC.

James C. York, P.E.
Colorado Registration No. 36846

J&T Consulting, Inc.
305 Denver Avenue - Suite D
Fort Lupton, CO 80621
Ph: 303-857-6222 Fax: 303-857-6224
www.jtconsulting.com

Slurry Wall & Reservoir Construction Plans
Cover Sheet

GP Resources, LLC
West Farm Pit

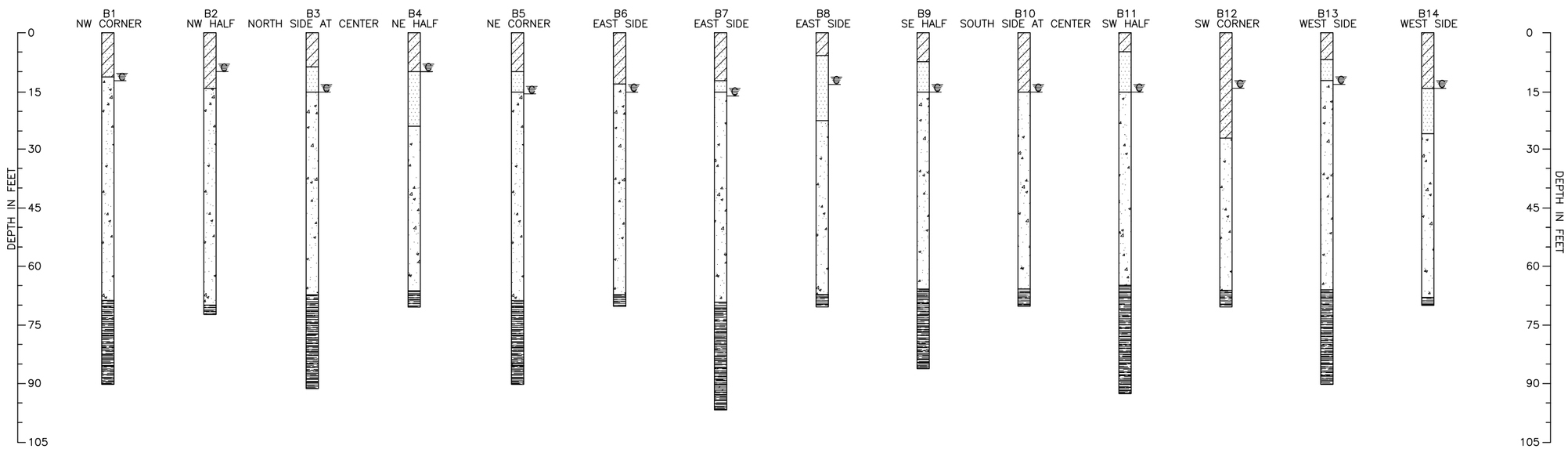
REVISIONS

No	Description	Date	By	Chk

COLORADO REGISTERED JAMES C. YORK 36846 5.30.13 PROFESSIONAL ENGINEER

Job #	07115
Date	4/1/13
Drawn By	WSS
Designed By	TPY
Checked By	JCY
File	JT-Cover sheet
Scale	As Shown

Sheet: 1 Of: 9



SYMBOL DESCRIPTION

Strata symbols

CLAY, sandy to SAND, clayey, medium to high plasticity (clay, fine to medium grained (sand), moist to very moist, light brown (CL to SC)

SAND with silt and gravel, poorly graded, moist to wet, light brown (SP to SM–SP)

SAND, gravelly to GRAVEL, sandy, poorly to well graded, wet, light brown to brown (SP, SW, GP, GW)

SHALE (top 2 to 5 feet weathered), thinly bedded, with Sandstone and Limestone lenses, Bentonite seams, cemented (calcite), slightly moist to moist, light gray to gray.

Water table during drilling

C Depth to caving

NOTES;
1. EXPLORATORY BORINGS WERE DRILLED ON JULY 18, 2011.
2. BORING LOCATIONS WERE SURVEYED BY OTHERS PRIOR TO DRILLING.
3. THESE LOGS ARE SUBJECT TO LIMITATIONS, CONCLUSIONS, AND RECOMMENDATIONS IN THE GEOTECHNICAL REPORT BY J.A. CESARE AND ASSOCIATES DATED AUGUST 10, 2011.

J&T Consulting, Inc.
305 Denver Avenue - Suite D
Fort Lupton, CO 80621
Ph: 303-857-8222 Fax: 303-857-8224
www.jtconsulting.com

Slurry Wall & Reservoir Construction Plans

Geotechnical Information

GP Resources, LLC

West Farm Pit

REVISIONS

No	Date	By	Chk	Description

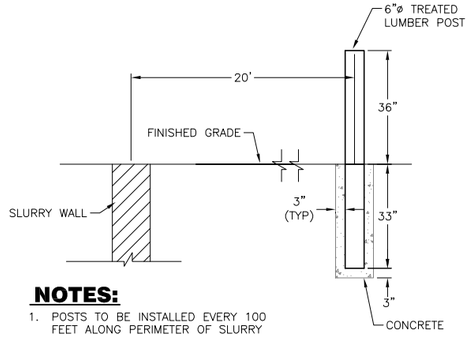
COLORADO REGISTERED JAMES C. YORK 36846 5.30.13 PROFESSIONAL ENGINEER

Job #	07115
Date	4/1/13
Drawn By	WSS
Designed By	TPY
Checked By	JCY
File	JT-Slurry Horiz
Scale	N.T.S.

Sheet: 2 Of: 9

LEGEND:

- PROPERTY LINE
- SECTION LINE
- FENCE LINE
- DIRT ROAD
- EXISTING WATER/DITCH
- EXISTING CONTOURS (3597)
- PROPOSED CONTOURS (3597)

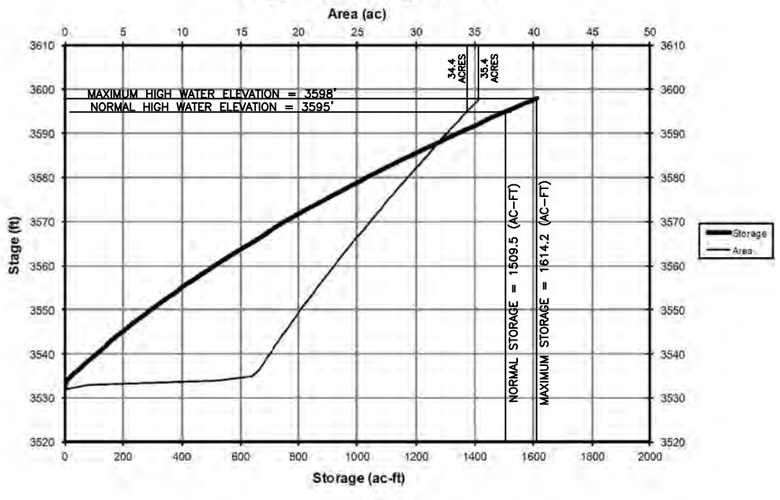


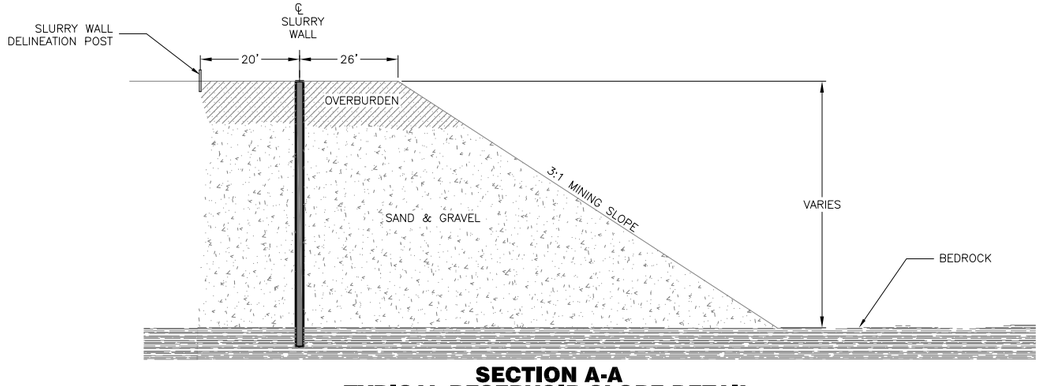
NOTES:

1. POSTS TO BE INSTALLED EVERY 100 FEET ALONG PERIMETER OF SLURRY WALL.
2. POSTS TO BE SET 20 FEET OUTSIDE SLURRY WALL ALIGNMENT.
3. POSTS TO BE INSTALLED AT THE 4 CORNER "GAPS."

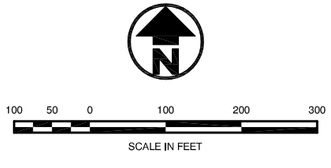
SLURRY WALL DELINEATION POST
N.T.S

Stage-Area-Storage Curves





SECTION A-A
TYPICAL RESERVOIR SLOPE DETAIL
N.T.S



ISSUED FOR CONSTRUCTION

J&T Consulting, Inc.
305 Denver Avenue - Suite D
Fort Lupton, CO 80621
Ph: 303-857-6222 Fax: 303-857-6224
www.jtconsulting.com

Slurry Wall & Reservoir Construction Plans
Site, Reservoir Grading, & Boring Location Plan

GP Resources, LLC
West Farm Pit

REVISIONS

No	Date	By	Chk	Description

COLORADO REGISTERED JAMES C. YORK 36846 5.30.13 PROFESSIONAL ENGINEER

Job #	07115
Date	4/1/13
Drawn By	WSS
Designed By	TPY
Checked By	JCY
File	JT-Slurry Grading
Scale	1" = 300'

Sheet: 3 Of: 9

HORIZONTAL & VERTICAL CONTROL

POINT	NORTH	EAST	ELEVATION	DESCRIPTION
43	1532536.60	3841355.78	3603.08	SRB BC-1
44	1536020.82	3841335.50	3598.39	FND RBR / ERC CP 03
45	1534550.77	3838397.50	3603.44	FND ALC 1.5 12103
46	1532302.28	3838489.68	3603.95	FND ALC 1.5 30087
47	1532225.34	3835849.49	3609.79	FND ALC 3.5 1/4 COR
5000	1533830.08	3839941.53	3603.75	AWCP1
28904	1535991.32	3840169.18	3598.68	AWCP2
28905	1535857.36	3838372.08	3603.82	AMCP3

ISSUED FOR CONSTRUCTION

J&T Consulting, Inc.
305 Denver Avenue - Suite D
Fort Lupton, CO 80621
Ph: 303-857-8222 Fax: 303-857-8224
www.jtconsulting.com

Slurry Wall & Reservoir Construction Plans

Horizontal & Vertical Control

GP Resources, LLC

West Farm Pit

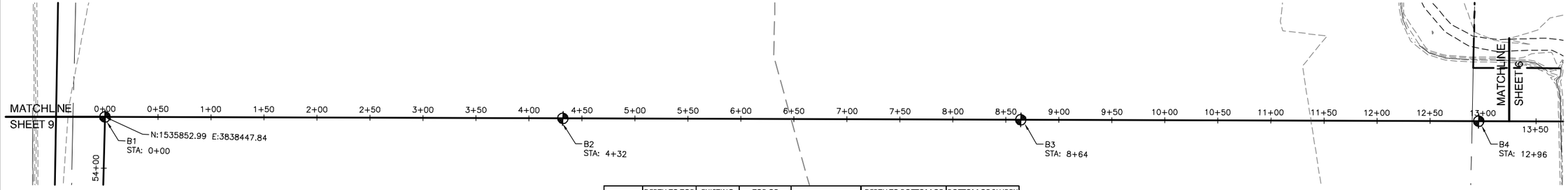
REVISIONS

No	Description	Date	By	Chk

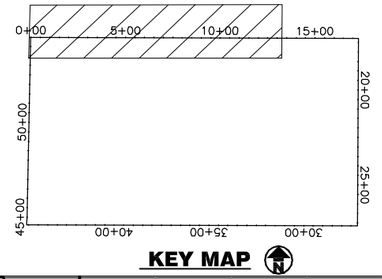
COLORADO REGISTERED JAMES C. YORK 36846 5.30.13 PROFESSIONAL ENGINEER

Job #	07115
Date	4/1/13
Drawn By	WSS
Designed By	TPY
Checked By	JCY
File	JT-Slurry Horiz
Scale	1" = 300'

Sheet: 4 Of: 9

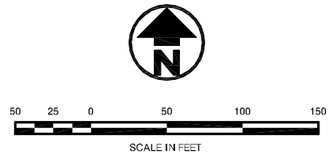


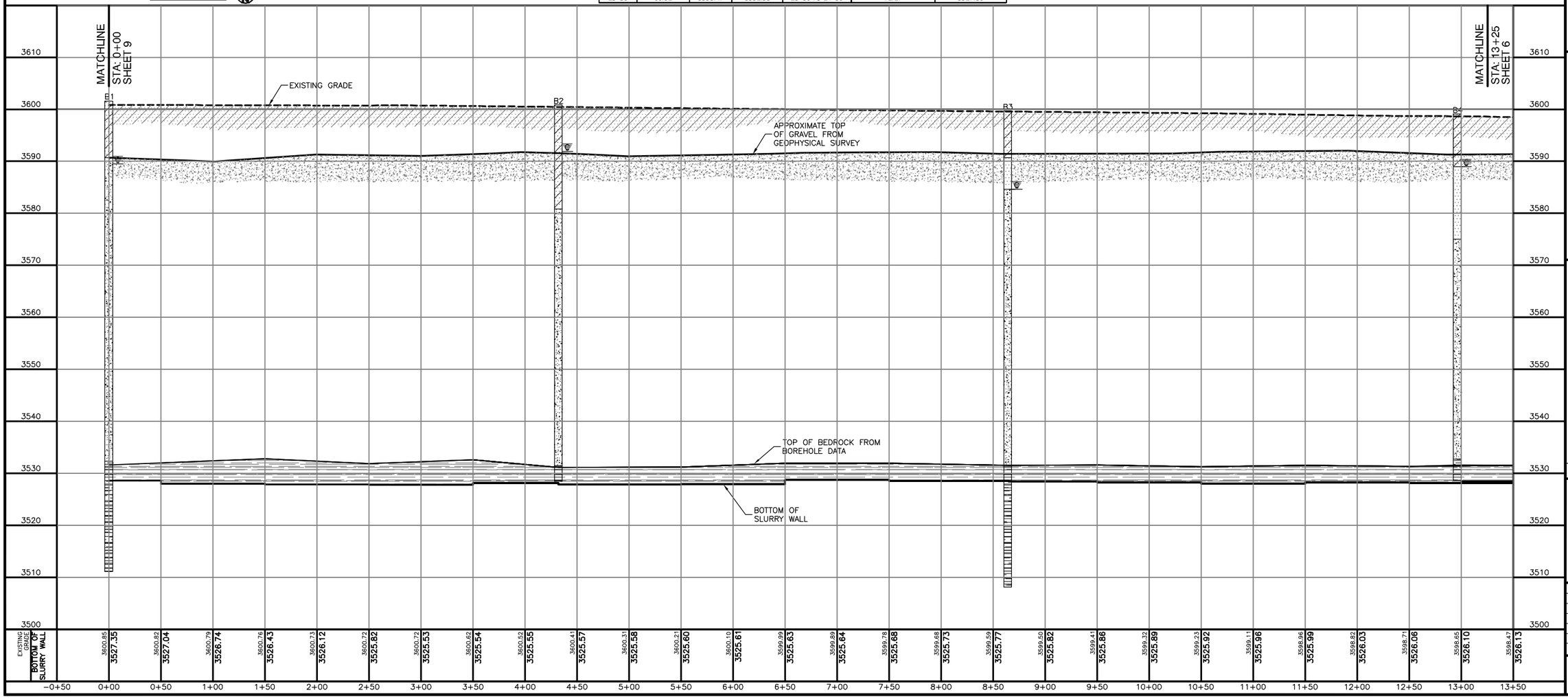
STATION	DEPTH TO TOP OF BEDROCK (FT.)	EXISTING GRADE (EL.)	TOP OF BEDROCK (EL.)	SLURRY WALL SEGMENT	DEPTH TO BOTTOM OF SLURRY WALL SEGMENT (FT.)	BOTTOM OF SLURRY WALL SEGMENT (EL.)
0+00	69.2	3600.85	3531.65	0+00 TO 0+50	72.2	3528.62
0+50	68.8	3600.82	3532.02	0+50 TO 1+50	71.80	3528.96
1+50	67.9	3600.76	3532.86	1+50 TO 2+50	71.80	3528.92
2+50	68.8	3600.72	3531.92	2+50 TO 3+50	71.80	3528.82
3+50	68.00	3600.62	3532.62	3+50 TO 4+32	71.30	3529.15
4+32	69.30	3600.45	3531.15	4+32 TO 5+50	72.30	3527.91
5+50	69.00	3600.21	3531.21	5+50 TO 6+50	72.00	3527.99
6+50	68.00	3599.99	3531.99	6+50 TO 7+50	71.00	3528.78
7+50	67.83	3599.78	3531.95	7+50 TO 8+65	71.00	3528.56
8+65	68.00	3599.56	3531.56	8+65 TO 9+50	71.00	3528.41
9+50	67.75	3599.41	3531.66	9+50 TO 10+50	70.92	3528.31
10+50	67.92	3599.23	3531.31	10+50 TO 11+50	70.92	3528.04
11+50	67.42	3598.96	3531.54	11+50 TO 12+50	70.42	3528.29
12+50	67.33	3598.71	3531.38	12+50 TO 13+00	70.33	3528.32
13+00	67.00	3598.65	3531.65	13+00 TO 13+50	70.00	3528.47
13+50	66.92	3598.47	3531.55	13+50 TO 14+50	71.17	3527.30



KEY MAP

ISSUED FOR CONSTRUCTION





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Fort Lupton, CO 80621
Ph: 303-857-2222 Fax: 303-857-2224
www.jtconsulting.com

Slurry Wall & Reservoir Construction Plans
Slurry Wall Plan and Profile
Sta: 0+00 to 13+50

GP Resources, LLC
West Farm Pit

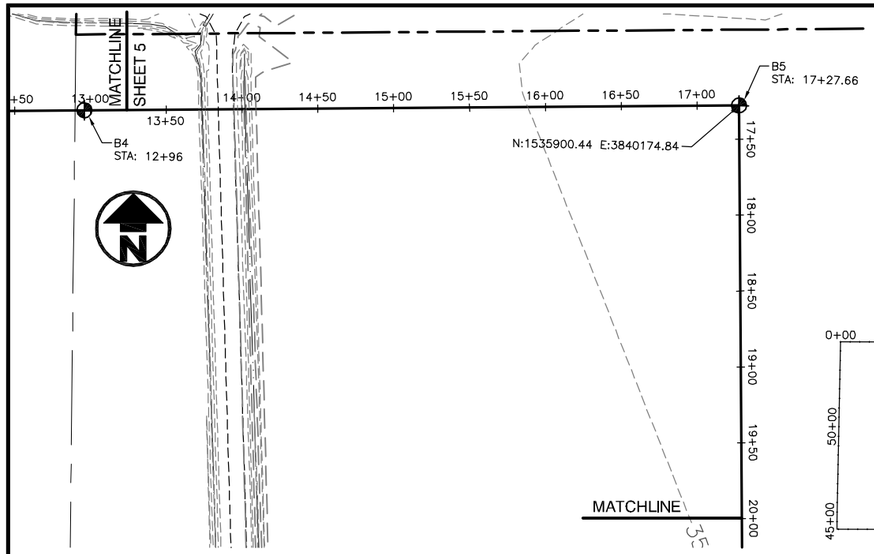
REVISIONS

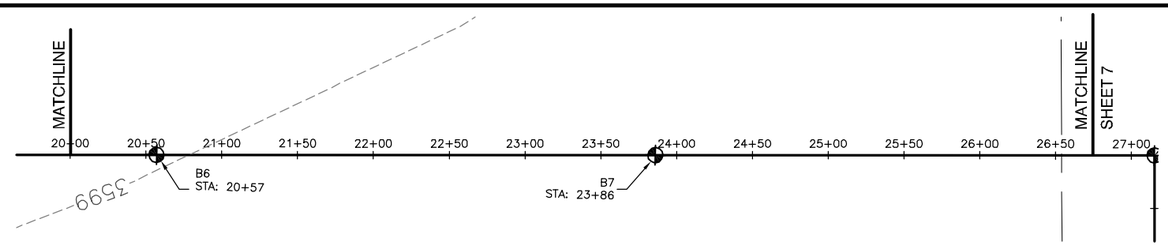
No	Date	By	Chk	Description
1	5/30/13	ALS	JCY	REVISED TOP OF BEDROCK AND BOTTOM OF SLURRY WALL

COLORADO REGISTERED
JAMES C. YORK
36846
5.30.13
PROFESSIONAL ENGINEER

Job #	07115
Date	4/1/13
Drawn By	WSS
Designed By	TPY
Checked By	JCY
File	JT-Slurry pro/file
Scale	1" = 50ft/10ft

Sheet: 5 of 9





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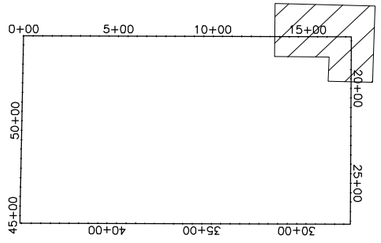

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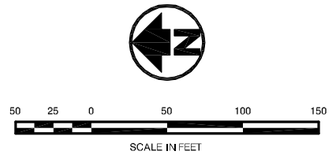

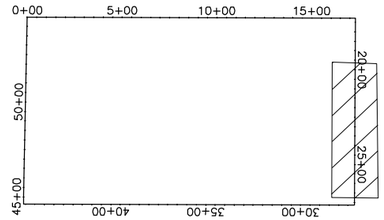

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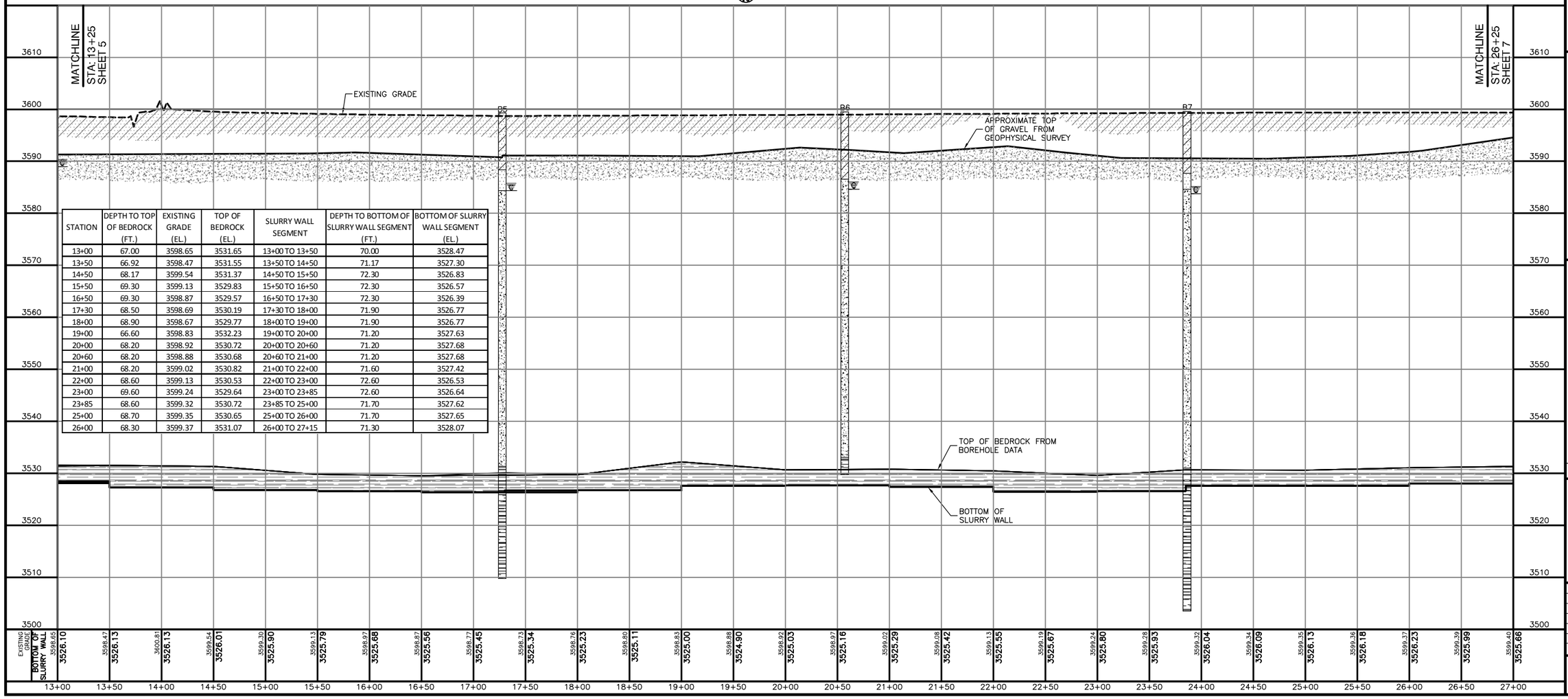

STATION	DEPTH TO TOP OF BEDROCK (FT.)	EXISTING GRADE (EL.)	TOP OF BEDROCK (EL.)	SLURRY WALL SEGMENT	DEPTH TO BOTTOM OF SLURRY WALL SEGMENT (FT.)	BOTTOM OF SLURRY WALL SEGMENT (EL.)
13+00	67.00	3598.65	3531.65	13+00 TO 13+50	70.00	3528.47
13+50	66.92	3598.47	3531.55	13+50 TO 14+50	71.17	3527.30
14+50	68.17	3599.54	3531.37	14+50 TO 15+50	72.30	3526.83
15+50	69.30	3599.13	3529.83	15+50 TO 16+50	72.30	3526.57
16+50	69.30	3598.87	3529.57	16+50 TO 17+30	72.30	3526.39
17+30	68.50	3598.69	3530.19	17+30 TO 18+00	71.90	3526.77
18+00	68.90	3598.67	3529.77	18+00 TO 19+00	71.90	3526.77
19+00	66.60	3598.83	3532.23	19+00 TO 20+00	71.20	3527.63
20+00	68.20	3598.92	3530.72	20+00 TO 20+60	71.20	3527.68
20+60	68.20	3598.88	3530.68	20+60 TO 21+00	71.20	3527.68
21+00	68.20	3599.02	3530.82	21+00 TO 22+00	71.60	3527.42
22+00	68.60	3599.13	3530.53	22+00 TO 23+00	72.60	3526.53
23+00	69.60	3599.24	3529.64	23+00 TO 23+85	72.60	3526.64
23+85	68.60	3599.32	3530.72	23+85 TO 25+00	71.70	3527.62
25+00	68.70	3599.35	3530.65	25+00 TO 26+00	71.70	3527.65
26+00	68.30	3599.37	3531.07	26+00 TO 27+15	71.30	3528.07

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Slurry Wall & Reservoir Construction Plans

Slurry Wall Plan and Profile

Sta: 13+50 to 27+00

GP Resources, LLC

West Farm Pit

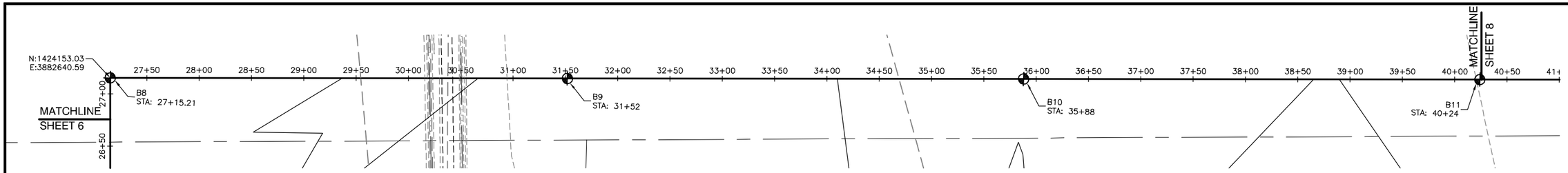
REVISIONS

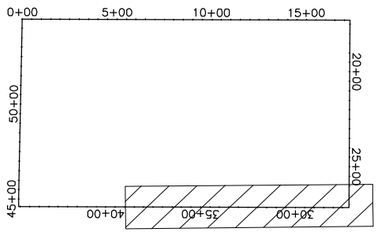
No	Description	Date	By	Chk

COLORADO REGISTERED JAMES C. YORK 36846 5.30.13 PROFESSIONAL ENGINEER

Job #	07115
Date	4/1/13
Drawn By	WSS
Designed By	TPY
Checked By	JCY
File	JT-Slurry Profile
Scale	1" = 50h/10v

Sheet: 6 of 9

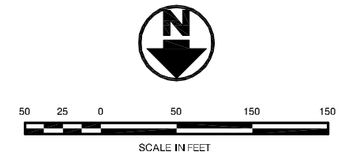


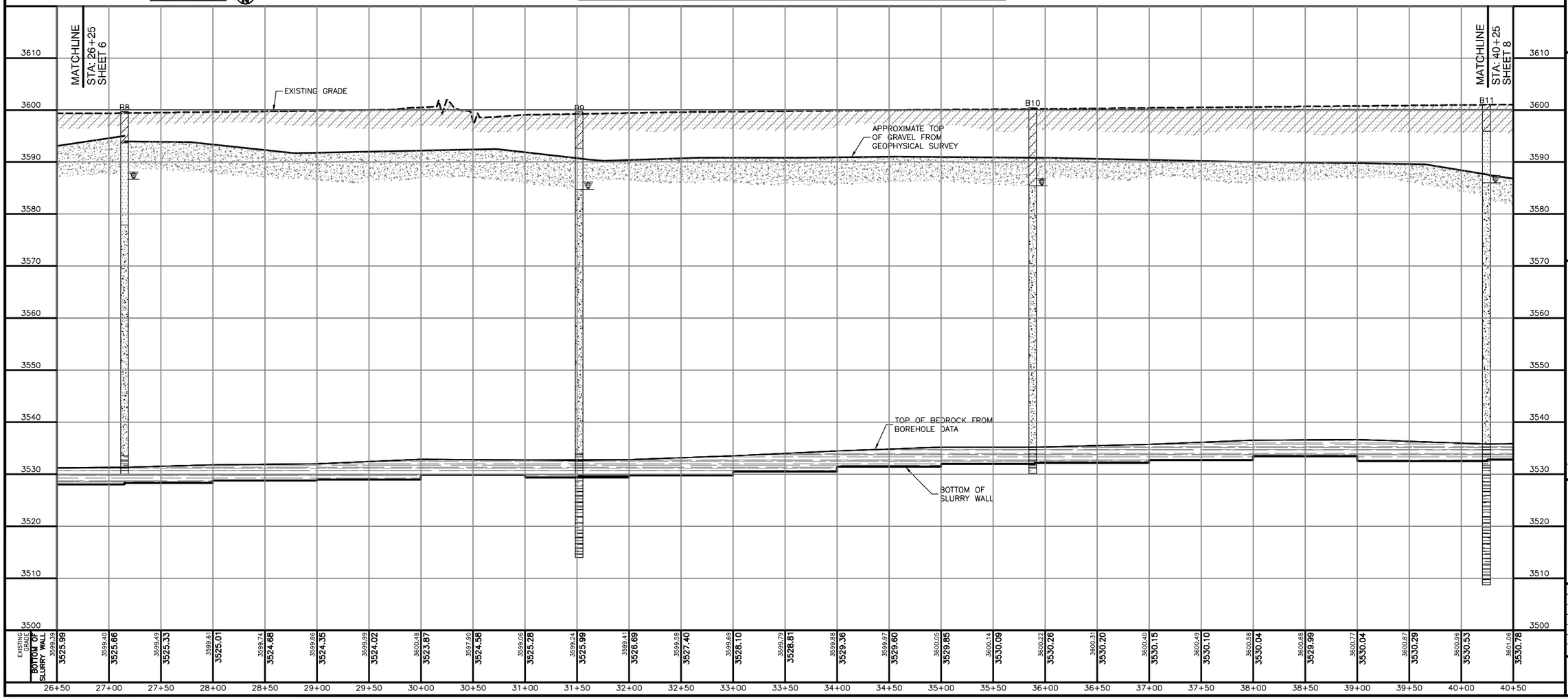


KEY MAP

STATION	DEPTH TO TOP OF BEDROCK (FT.)	EXISTING GRADE (EL.)	TOP OF BEDROCK (EL.)	SLURRY WALL SEGMENT	DEPTH TO BOTTOM OF SLURRY WALL SEGMENT (FT.)	BOTTOM OF SLURRY WALL SEGMENT (EL.)
27+15	68.00	3599.40	3531.40	27+15 TO 28+00	71.00	3528.40
28+00	67.80	3599.61	3531.81	28+00 TO 29+00	70.80	3528.81
29+00	67.80	3599.86	3532.06	29+00 TO 30+00	70.80	3529.06
30+00	67.60	3600.48	3532.88	30+00 TO 31+00	70.60	3528.46
31+00	66.30	3599.06	3532.76	31+00 TO 31+50	69.60	3529.46
31+50	66.60	3599.24	3532.64	31+50 TO 32+00	69.60	3529.64
32+00	66.60	3599.41	3532.81	32+00 TO 33+00	69.60	3529.81
33+00	66.10	3599.69	3533.59	33+00 TO 34+00	69.10	3530.59
34+00	65.40	3599.88	3534.48	34+00 TO 35+00	68.40	3531.48
35+00	64.80	3600.05	3535.25	35+00 TO 35+90	68.00	3532.05
35+90	65.00	3600.22	3535.22	35+90 TO 37+00	68.00	3532.22
37+00	64.60	3600.40	3535.80	37+00 TO 38+00	67.60	3532.80
38+00	64.00	3600.58	3536.58	38+00 TO 39+00	67.10	3533.48
39+00	64.10	3600.77	3536.67	39+00 TO 40+25	68.20	3532.57
40+25	65.20	3601.01	3535.81	40+25 TO 41+00	68.20	3532.81

ISSUED FOR CONSTRUCTION





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Slurry Wall & Reservoir Construction Plans

Slurry Wall Plan and Profile

Sta: 27+00 to 40+50

GP Resources, LLC

West Farm Pit

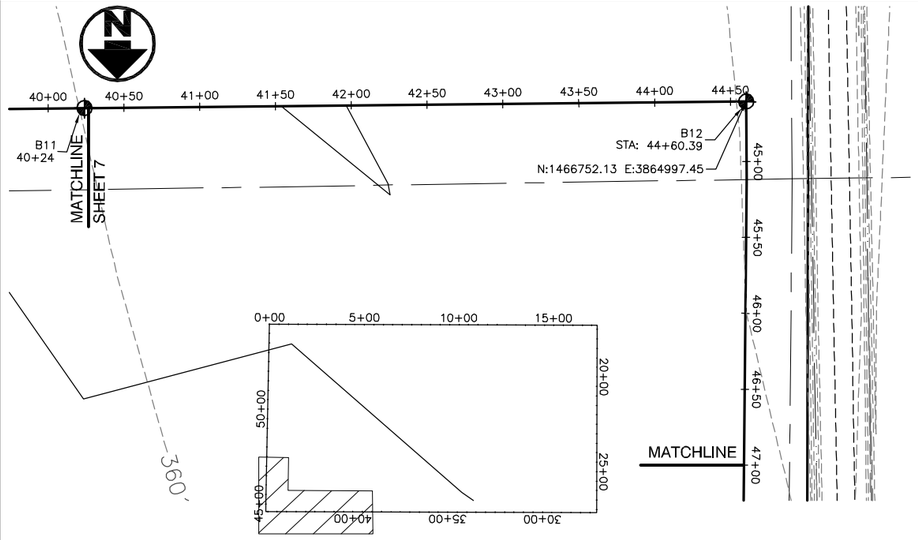
REVISIONS

No	Date	By	Chk	Description
1	5/30/13	ALS	JCY	REVISED TOP OF BEDROCK AND BOTTOM OF SLURRY WALL

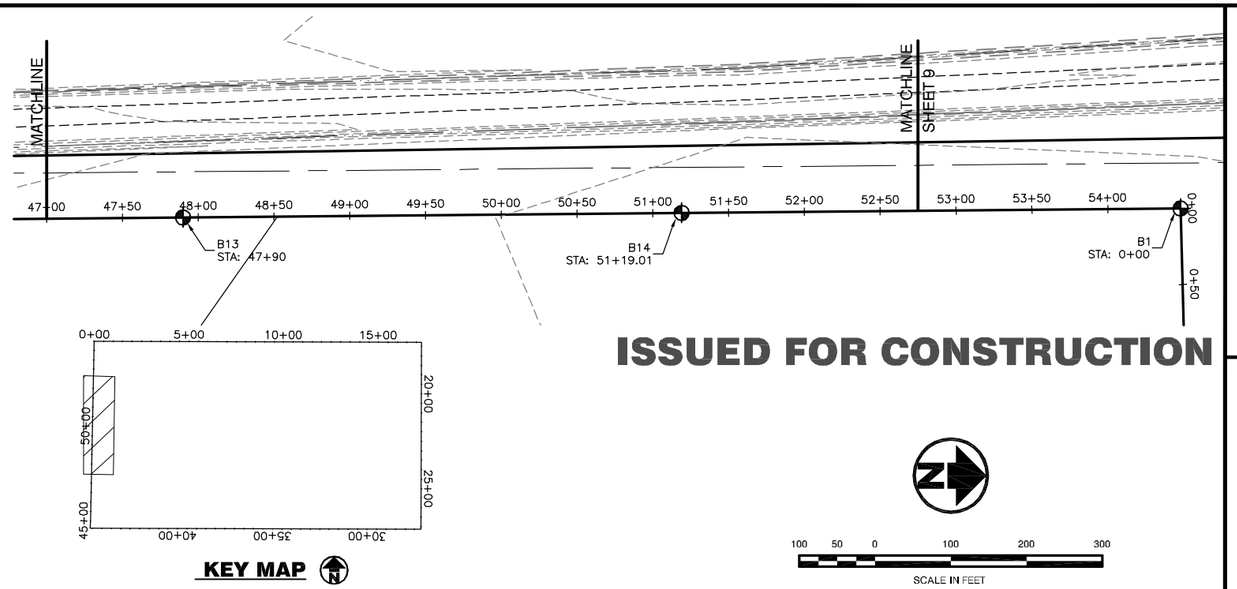
COLORADO REGISTERED
JAMES C. YORK
36846
5.30.13
PROFESSIONAL ENGINEER

Job #	07115
Date	4/1/13
Drawn By	WSS
Designed By	TPY
Checked By	JCY
File	JT-Slurry profile
Scale	1" = 50h/10v

Sheet: 7 of 9



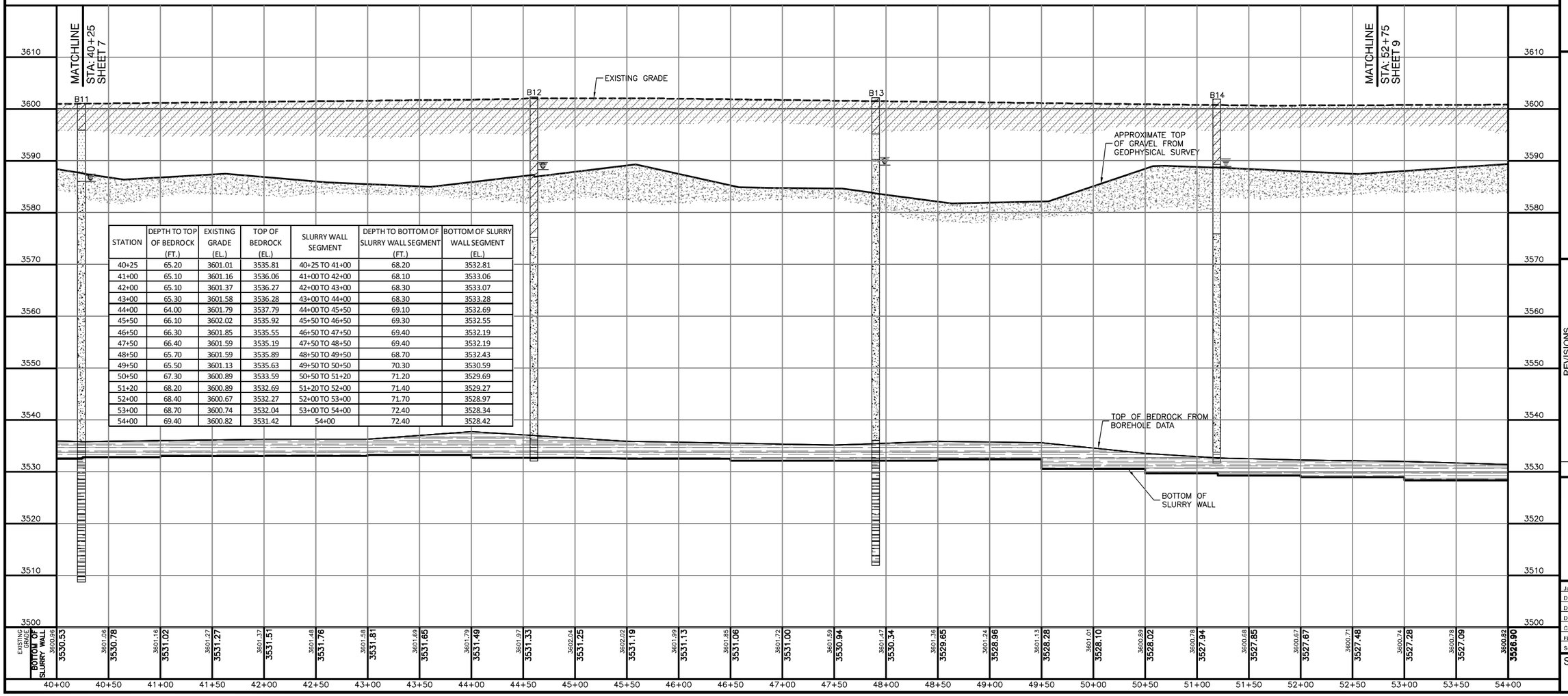
KEY MAP



KEY MAP

ISSUED FOR CONSTRUCTION

100 50 0 100 200 300
SCALE IN FEET



STATION	DEPTH TO TOP OF BEDROCK (FT.)	EXISTING GRADE (EL.)	TOP OF BEDROCK (EL.)	SLURRY WALL SEGMENT	DEPTH TO BOTTOM OF SLURRY WALL SEGMENT (FT.)	BOTTOM OF SLURRY WALL SEGMENT (EL.)
40+25	65.20	3601.01	3535.81	40+25 TO 41+00	68.20	3532.81
41+00	65.10	3601.16	3536.06	41+00 TO 42+00	68.10	3533.06
42+00	65.10	3601.37	3536.27	42+00 TO 43+00	68.30	3533.07
43+00	65.30	3601.58	3536.28	43+00 TO 44+00	68.30	3533.28
44+00	64.00	3601.79	3537.79	44+00 TO 45+50	69.10	3532.69
45+50	66.10	3602.02	3535.92	45+50 TO 46+50	69.30	3532.55
46+50	66.30	3601.85	3535.55	46+50 TO 47+50	69.40	3532.19
47+50	66.40	3601.59	3535.19	47+50 TO 48+50	69.40	3532.19
48+50	65.70	3601.59	3535.89	48+50 TO 49+50	68.70	3532.43
49+50	65.50	3601.13	3535.63	49+50 TO 50+50	70.30	3530.59
50+50	67.30	3600.89	3533.59	50+50 TO 51+20	71.20	3529.69
51+20	68.20	3600.89	3532.69	51+20 TO 52+00	71.40	3529.27
52+00	68.40	3600.67	3532.27	52+00 TO 53+00	71.70	3528.97
53+00	68.70	3600.74	3532.04	53+00 TO 54+00	72.40	3528.34
54+00	69.40	3600.82	3531.42	54+00	72.40	3528.42

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Slurry Wall Plan and Profile
Sta: 40+50 to 54+00

GP Resources, LLC
West Farm Pit

REVISIONS

No	Date	By	Chk	Description
1	5/30/13	ALS	JCY	REVISED TOP OF BEDROCK AND BOTTOM OF SLURRY WALL

COLORADO REGISTERED JAMES C. YORK 36846 5.30.13 PROFESSIONAL ENGINEER

Job #	07115
Date	4/1/43
Drawn By	WSS
Designed By	TPY
Checked By	JCY
File	JT-Slurry pro'file
Scale	1" = 50'h'10'v

Sheet: 8 of 9

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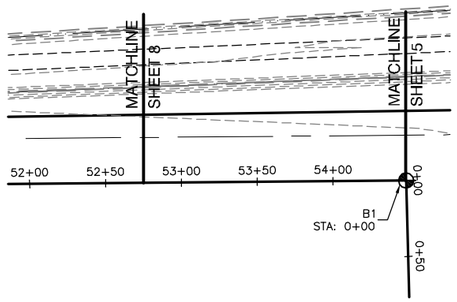
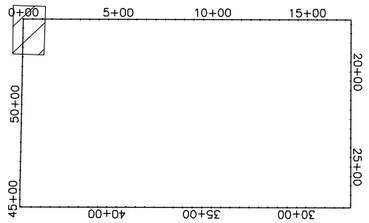
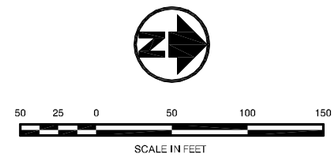
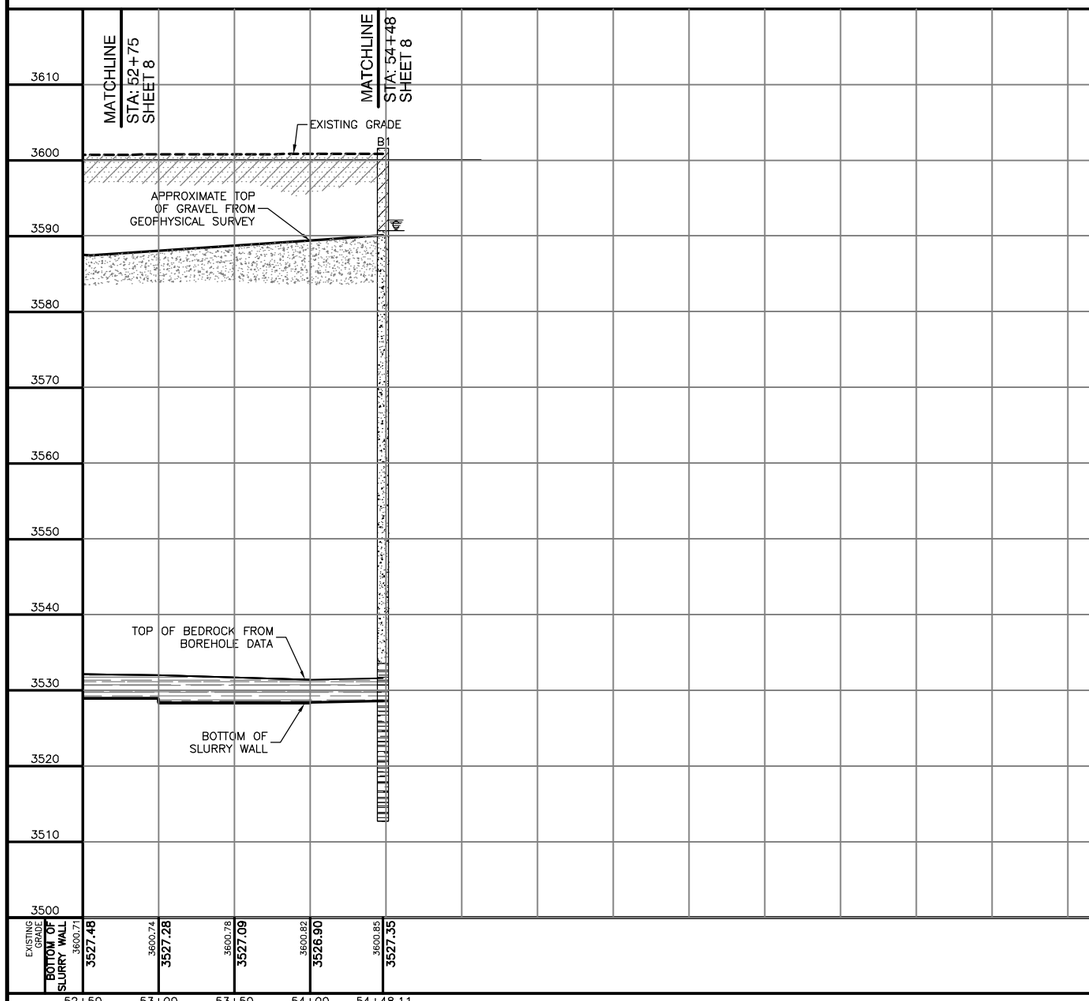




KEY MAP

STATION	DEPTH TO TOP OF BEDROCK (FT.)	EXISTING GRADE (EL.)	TOP OF BEDROCK (EL.)	SLURRY WALL SEGMENT	DEPTH TO BOTTOM OF SLURRY WALL SEGMENT (FT.)	BOTTOM OF SLURRY WALL SEGMENT (EL.)
52+00	68.40	3600.67	3532.27	52+00 TO 53+00	71.70	3528.97
53+00	68.70	3600.74	3532.04	53+00 TO 54+00	72.40	3528.34
54+00	69.40	3600.82	3531.42	54+00 TO 54+48	72.40	3528.42
54+48	69.20	3600.85	3531.65	54+48	72.20	3528.65





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Slurry Wall & Reservoir Construction Plans

Slurry Wall Plan and Profile

Sta: 53+00 to 54+48.11

GP Resources, LLC

West Farm Pit

REVISIONS

No	Date	By	Chk	Description
1	5/30/13	ALS	JCY	REVISED TOP OF BEDROCK AND BOTTOM OF SLURRY WALL

COLORADO REGISTERED
JAMES C. YORK
36846
5.30.13
PROFESSIONAL ENGINEER

Job #	07115
Date	4/1/13
Drawn By	WSS
Designed By	TPY
Checked By	JCY
File	JT-Slurry profile
Scale	1" = 50'h/10'v

Sheet: 9 of 9

J&T Consulting, Inc.

West Farm Pit - Lamar, CO

Slurry Wall Leak Test
2/12/15

Piezometer Data & Groundwater Level Summary

TABLE I

Well Designation	**I-1**			**X-1**				**X-2**				**X-3**				**X-4**			
Description	Interior - Center of Wall Area			Exterior - Sta 9+10 - 20' North of Wall				Exterior - Sta 22+20 - 20' East of Wall				Exterior - Sta 36+00 - 15' South of Wall				Exterior - Sta 49+50 - 30' West of Wall			
Top of Well Height (in)	40.25			40.5				38				39				40			
Top of Well Height (ft)	3.35			3.38				3.17				3.25				3.33			
Ground Elevation	3599.90			3599.47				3599.07				3600.23				3601.36			
Date	Depth to Groundwater from Top of Well (ft)	Depth to Groundwater from Ground (ft)	Elevation of Groundwater (ft)	Depth to Groundwater from Top of Well (ft)	Depth to Groundwater from Ground (ft)	Elevation of Groundwater (ft)	Change in Groundwater Level vs I-1 (ft)	Depth to Groundwater from Top of Well (ft)	Depth to Groundwater from Ground (ft)	Elevation of Groundwater (ft)	Change in Groundwater Level vs I-1 (ft)	Depth to Groundwater from Top of Well (ft)	Depth to Groundwater from Ground (ft)	Elevation of Groundwater (ft)	Change in Groundwater Level vs I-1 (ft)	Depth to Groundwater from Top of Well (ft)	Depth to Groundwater from Ground (ft)	Elevation of Groundwater (ft)	Change in Groundwater Level vs I-1 (ft)
August 30, 2014	39.10	35.75	3564.15	9.88	6.50	3592.97	28.82	9.85	6.68	3592.39	28.24	7.90	4.65	3595.58	31.43	8.84	5.51	3595.85	31.70
September 6, 2014	39.90	36.55	3563.35	10.15	6.77	3592.70	29.35	10.05	6.88	3592.19	28.84	8.02	4.77	3595.46	32.11	9.15	5.82	3595.54	32.19
September 13, 2014	42.93	39.58	3560.32	10.20	6.82	3592.65	32.33	10.27	7.10	3591.97	31.65	8.05	4.80	3595.43	35.11	9.23	5.90	3595.46	35.14
September 20, 2014	46.30	42.95	3556.95	10.38	7.00	3592.47	35.52	10.52	7.35	3591.72	34.77	8.25	5.00	3595.23	38.28	9.48	6.15	3595.21	38.26
September 27, 2014	NO READING			NO READING				NO READING				NO READING				NO READING			
October 4, 2014	47.17	43.82	3556.08	10.56	7.18	3592.29	36.21	10.65	7.48	3591.59	35.51	8.54	5.29	3594.94	38.86	9.71	6.38	3594.98	38.90
October 11, 2014	47.84	44.49	3555.41	10.52	7.14	3592.33	36.92	10.69	7.52	3591.55	36.14	8.48	5.23	3595.00	39.59	9.63	6.30	3595.06	39.65
October 18, 2014	48.75	45.40	3554.50	10.48	7.10	3592.37	37.87	11.06	7.89	3591.18	36.68	8.38	5.13	3595.10	40.60	9.64	6.31	3595.05	40.55
October 25, 2018	51.50	48.15	3551.75	10.39	7.01	3592.46	40.71	10.47	7.30	3591.77	40.02	8.40	5.15	3595.08	43.33	9.84	6.51	3594.85	43.10
November 1, 2014	51.88	48.53	3551.37	10.64	7.26	3592.21	40.84	10.75	7.58	3591.49	40.12	8.45	5.20	3595.03	43.66	9.78	6.45	3594.91	43.54
November 6, 2014	54.25	50.90	3549.00	10.45	7.07	3592.40	43.40	10.88	7.71	3591.36	42.36	8.65	5.40	3594.83	45.83	9.91	6.58	3594.78	45.78
November 15, 2014	53.63	50.28	3549.62	10.57	7.19	3592.28	42.66	10.89	7.72	3591.35	41.73	8.63	5.38	3594.85	45.23	9.95	6.62	3594.74	45.12
November 22, 2014	53.98	50.63	3549.27	10.61	7.23	3592.24	42.97	10.91	7.74	3591.33	42.06	8.70	5.45	3594.78	45.51	10.05	6.72	3594.64	45.37
November 29, 2014	54.30	50.95	3548.95	10.68	7.30	3592.17	43.22	11.12	7.95	3591.12	42.17	8.90	5.65	3594.58	45.63	10.12	6.79	3594.57	45.62
December 6, 2014	54.05	50.70	3549.20	10.73	7.35	3592.12	42.92	11.07	7.90	3591.17	41.97	8.95	5.70	3594.53	45.33	10.19	6.86	3594.50	45.30
December 13, 2014	54.20	50.85	3549.05	10.74	7.36	3592.11	43.06	11.10	7.93	3591.14	42.09	8.97	5.72	3594.51	45.46	13.28	9.95	3591.41	42.36
December 19, 2014	54.35	51.00	3548.90	10.78	7.40	3592.07	43.17	11.17	8.00	3591.07	42.17	9.04	5.79	3594.44	45.54	10.33	7.00	3594.36	45.46
December 27, 2014	54.45	51.10	3548.80	10.82	7.44	3592.03	43.23	11.26	8.09	3590.98	42.18	9.11	5.86	3594.37	45.57	10.35	7.02	3594.34	45.54
January 3, 2015	54.65	51.30	3548.60	10.88	7.50	3591.97	43.37	11.37	8.20	3590.87	42.27	9.20	5.95	3594.28	45.68	10.43	7.10	3594.26	45.66
January 10, 2015	54.65	51.30	3548.60	10.89	7.51	3591.96	43.36	11.47	8.30	3590.77	42.17	9.25	6.00	3594.23	45.63	10.43	7.10	3594.26	45.66
January 16, 2015	54.70	51.35	3548.55	10.87	7.49	3591.98	43.43	11.48	8.31	3590.76	42.21	9.35	6.10	3594.13	45.58	10.48	7.15	3594.21	45.66
January 21, 2015	54.69	51.34	3548.56	10.94	7.56	3591.91	43.35	11.56	8.39	3590.68	42.12	9.37	6.12	3594.11	45.55	10.55	7.22	3594.14	45.58
January 31, 2015	54.65	51.30	3548.60	11.03	7.65	3591.82	43.22	11.53	8.36	3590.71	42.11	9.40	6.15	3594.08	45.48	10.72	7.39	3593.97	45.37

Indicates Overall Test Period (92 days)

Length of the perimeter slurry wall constructed to full height.	5,448	
Average vertical depth of the perimeter slurry wall as measured from the ground surface to the top of bedrock.	67	
Area of the natural bedrock bounded by the perimeter slurry wall constructed to full height.	1,716,060	(39.40 acres)
Resulting area affected by the precipitation. 30% credit to the 39.32 dry acres and 100% to the 0.0735 acres of water.	517,058	

Groundwater Inflow through Perimeter slurry wall

Design		Performance	
q (cu.ft./day/sq.ft)=	0.03	q (cu.ft./day/sq.ft)=	0.09
Area (sq.ft.)=	365,016	Area (sq.ft.)=	365,016
Q (cu.ft./day)=	10,950	Q (cu.ft./day)=	32,851
Q (gpm)=	57	Q (gpm)=	171

q = flow rate per unit area
Area = total vertical area of slurry wall
Q = total flow rate

Groundwater Inflow through Natural Bedrock Pit Bottom

Design		Performance	
q (cu.ft./day/sq.ft)=	0.0015	q (cu.ft./day/sq.ft)=	0.0045
Area (sq.ft.)=	1,716,060	Area (sq.ft.)=	1,716,060
Q (cu.ft./day)=	2,574	Q (cu.ft./day)=	7,722
Q (gpm)=	13	Q (gpm)=	40

q = flow rate per unit area
Area = total area of pit bottom
Q = total flow rate

Total Allowable Groundwater Inflow

Design	**13,525**	cubic feet per day
Standard	**1,244,260**	cubic-feet in 92 days
	70.3	gallons per minute
	9,308,312	gallons in 92 days
Performance	**40,574**	cubic feet per day
Standard	**3,732,781**	cubic-feet in 92 days
	210.8	gallons per minute
	27,924,937	gallons in 92 days

J&T Consulting, Inc.

West Farm Pit - Lamar, CO

Slurry Wall Leak Test

2/12/2015

Monthly Evaporation Data

TABLE III

Month	Percent of Total Evaporation	Monthly Evaporation (CF/SF)	Daily Evaporation (CF/SF)	Daily Evaporation (CF)
January	3.0%	0.15	0.0048	15.5
February	3.5%	0.18	0.0063	20.0
March	5.5%	0.28	0.0089	28.4
April	9.0%	0.45	0.0150	48.0
May	12.0%	0.60	0.0194	61.9
June	14.5%	0.73	0.0242	77.3
July	15.0%	0.75	0.0242	77.4
August	13.5%	0.68	0.0218	69.7
September	10.0%	0.50	0.0167	53.3
October	7.0%	0.35	0.0113	36.1
November	4.0%	0.20	0.0067	21.3
December	3.0%	0.15	0.0048	15.5
	100.0%	5.00		

60	Annual Free Water Surface Evaporation (Shallow Lake) (inches)
5.00	Annual Free Water Surface Evaporation (Shallow Lake) (feet)
3,200	Water Surface exposed (8ft x 400 ft trench) with water elevation at 3549 feet (square-feet)

J&T Consulting, Inc.

West Farm Pit - Lamar, CO

Slurry Wall Leak Test
2/12/2015

Precipitation and Pumping Data

TABLE IV

		Precipitation Data	Pump Totalizer Data				
Date	Test Day	NOAA Weather Station GHCND:USC00054770 Rainfall (in)	Previous Period Pump Totalizer Reading (ac-ftl)(reading)	Previous Period Pump Totalizer Reading (cu-ft)(calculated)	This Period Pump Totalizer Reading (ac-ft)(reading)	This Period Pump Totalizer Reading (cu-ft)(calculated)	Total Pumped (cu-ft)
31-Oct-14	0	0.00			192.897	8,402,593	
1-Nov-14	1	0.00					
2-Nov-14	2	0.00					
3-Nov-14	3	0.02					
4-Nov-14	4	0.00					
5-Nov-14	5	0.00					
6-Nov-14	6	0.00					
7-Nov-14	7	0.00					
8-Nov-14	8	0.00					
9-Nov-14	9	0.00					
10-Nov-14	10	0.00					
11-Nov-14	11	0.10					
12-Nov-14	12	0.03					
13-Nov-14	13	0.05					
14-Nov-14	14	0.00					
15-Nov-14	15	0.00					
16-Nov-14	16	0.12					
17-Nov-14	17	0.00					
18-Nov-14	18	0.00					
19-Nov-14	19	0.00					
20-Nov-14	20	0.00					
21-Nov-14	21	0.00					
22-Nov-14	22	0.00					
23-Nov-14	23	0.00					
24-Nov-14	24	0.00					
25-Nov-14	25	0.00					
26-Nov-14	26	0.00					
27-Nov-14	27	0.00					
28-Nov-14	28	0.00					
29-Nov-14	29	0.00					
30-Nov-14	30	0.00	192.897	8,402,593	199.561	8,692,877	290,284
1-Dec-14	31	0.00					
2-Dec-14	32	0.00					
3-Dec-14	33	0.00					
4-Dec-14	34	0.00					
5-Dec-14	35	0.00					
6-Dec-14	36	0.00					
7-Dec-14	37	0.00					
8-Dec-14	38	0.00					
9-Dec-14	39	0.00					
10-Dec-14	40	0.00					
11-Dec-14	41	0.00					
12-Dec-14	42	0.00					
13-Dec-14	43	0.00					
14-Dec-14	44	0.00					
15-Dec-14	45	0.15					
16-Dec-14	46	0.00					
17-Dec-14	47	0.00					
18-Dec-14	48	0.00	199.561	8,692,877	205.033	8,931,237	238,360

J&T Consulting, Inc.

West Farm Pit - Lamar, CO

Slurry Wall Leak Test
2/12/2015

Precipitation and Pumping Data

TABLE IV

		Precipitation Data	Pump Totalizer Data				
Date	Test Day	NOAA Weather Station GHCND:USC00054770 Rainfall (in)	Previous Period Pump Totalizer Reading (ac-ftl)(reading)	Previous Period Pump Totalizer Reading (cu-ft)(calculated)	This Period Pump Totalizer Reading (ac-ft)(reading)	This Period Pump Totalizer Reading (cu-ft)(calculated)	Total Pumped (cu-ft)
19-Dec-14	49	0.00					
20-Dec-14	50	0.00					
21-Dec-14	51	0.00					
22-Dec-14	52	0.00					
23-Dec-14	53	0.00					
24-Dec-14	54	0.00					
25-Dec-14	55	0.00					
26-Dec-14	56	0.00					
27-Dec-14	57	0.03					
28-Dec-14	58	0.00					
29-Dec-14	59	0.00					
30-Dec-14	60	0.25					
31-Dec-14	61	0.00					
1-Jan-15	62	0.00					
2-Jan-15	63	0.00					
3-Jan-15	64	0.00					
4-Jan-15	65	0.05					
5-Jan-15	66	0.00					
6-Jan-15	67	0.00	205.033	8,931,237	210.982	9,190,376	259,138
7-Jan-15	68	0.00					
8-Jan-15	69	0.00					
9-Jan-15	70	0.00					
10-Jan-15	71	0.00					
11-Jan-15	72	0.00					
12-Jan-15	73	0.00					
13-Jan-15	74	0.00					
14-Jan-15	75	0.00					
15-Jan-15	76	0.00					
16-Jan-15	77	0.00					
17-Jan-15	78	0.00					
18-Jan-15	79	0.00					
19-Jan-15	80	0.00					
20-Jan-15	81	0.00					
21-Jan-15	82	0.00					
22-Jan-15	83	0.12					
23-Jan-15	84	0.00					
24-Jan-15	85	0.00					
25-Jan-15	86	0.00					
26-Jan-15	87	0.00					
27-Jan-15	88	0.00					
28-Jan-15	89	0.00					
29-Jan-15	90	0.00					
30-Jan-15	91	0.00					
31-Jan-15	92	0.15	210.982	9,190,376	215.160	9,372,370	181,994
Totals		**1.07**					**969,776**

Indicates Test Period 1
Indicates Test Period 2
Indicates Test Period 3
Indicates Test Period 4
Indicates Overall Test Period (92 days)

J&T Consulting, Inc.

West Farm Pit - Lamar, CO

Slurry Wall Leak Test
2/12/2015

Water Accounting

TABLE V

	Inflow Volumes				Outflow Volumes					Leak Volume (per pump cycle)		Leak Rate (per pump cycle)
	Precipitation				Evaporation		Pumping					
Date	(in)	(ft)	Daily Inflow (cu-ft)	Cumulative Inflow (cu-ft)	Daily (cu-ft)	Cumulative (cu-ft)	Water Pumped Out (cu-ft)	Total Outflow (cu-ft)	Cumulative Outflow (cu-ft)	Net Outflow (cu-ft)	Net Outflow (gal)	(gpm)
01-Nov-14	0.00	0.00	0	0	21.3	21.3	0	21	21			
02-Nov-14	0.00	0.00	0	0	21.3	42.7	0	43	64			
03-Nov-14	0.02	0.00	862	862	21.3	64.0	0	64	128			
04-Nov-14	0.00	0.00	0	862	21.3	85.3	0	85	213			
05-Nov-14	0.00	0.00	0	862	21.3	106.7	0	107	320			
06-Nov-14	0.00	0.00	0	862	21.3	128.0	0	128	448			
07-Nov-14	0.00	0.00	0	862	21.3	149.3	0	149	597			
08-Nov-14	0.00	0.00	0	862	21.3	170.7	0	171	768			
09-Nov-14	0.00	0.00	0	862	21.3	192.0	0	192	960			
10-Nov-14	0.00	0.00	0	862	21.3	213.3	0	213	1,173			
11-Nov-14	0.10	0.01	4,309	5,171	21.3	234.7	0	235	1,408			
12-Nov-14	0.03	0.00	1,293	6,463	21.3	256.0	0	256	1,664			
13-Nov-14	0.05	0.00	2,154	8,618	21.3	277.3	0	277	1,941			
14-Nov-14	0.00	0.00	0	8,618	21.3	298.7	0	299	2,240			
15-Nov-14	0.00	0.00	0	8,618	21.3	320.0	0	320	2,560			
16-Nov-14	0.12	0.01	5,171	13,788	21.3	341.3	0	341	2,901			
17-Nov-14	0.00	0.00	0	13,788	21.3	362.7	0	363	3,264			
18-Nov-14	0.00	0.00	0	13,788	21.3	384.0	0	384	3,648			
19-Nov-14	0.00	0.00	0	13,788	21.3	405.3	0	405	4,053			
20-Nov-14	0.00	0.00	0	13,788	21.3	426.7	0	427	4,480			
21-Nov-14	0.00	0.00	0	13,788	21.3	448.0	0	448	4,928			
22-Nov-14	0.00	0.00	0	13,788	21.3	469.3	0	469	5,397			
23-Nov-14	0.00	0.00	0	13,788	21.3	490.7	0	491	5,888			
24-Nov-14	0.00	0.00	0	13,788	21.3	512.0	0	512	6,400			
25-Nov-14	0.00	0.00	0	13,788	21.3	533.3	0	533	6,933			
26-Nov-14	0.00	0.00	0	13,788	21.3	554.7	0	555	7,488			
27-Nov-14	0.00	0.00	0	13,788	21.3	576.0	0	576	8,064			
28-Nov-14	0.00	0.00	0	13,788	21.3	597.3	0	597	8,661			
29-Nov-14	0.00	0.00	0	13,788	21.3	618.7	0	619	9,280			
30-Nov-14	0.00	0.00	0	13,788	21.3	640.0	290,284	290,924	300,204	286,416	2,142,675	49.6

J&T Consulting, Inc.

West Farm Pit - Lamar, CO

Slurry Wall Leak Test
2/12/2015

Water Accounting

TABLE V

	Inflow Volumes				Outflow Volumes					Leak Volume (per pump cycle)		Leak Rate (per pump cycle)
	Precipitation				Evaporation		Pumping					
Date	(in)	(ft)	Daily Inflow (cu-ft)	Cumulative Inflow (cu-ft)	Daily (cu-ft)	Cumulative (cu-ft)	Water Pumped Out (cu-ft)	Total Outflow (cu-ft)	Cumulative Outflow (cu-ft)	Net Outflow (cu-ft)	Net Outflow (gal)	(gpm)
01-Dec-14	0.00	0.00	0	0	15.5	15.5	0	15	15			
02-Dec-14	0.00	0.00	0	0	15.5	31.0	0	31	46			
03-Dec-14	0.00	0.00	0	0	15.5	46.5	0	46	93			
04-Dec-14	0.00	0.00	0	0	15.5	61.9	0	62	155			
05-Dec-14	0.00	0.00	0	0	15.5	77.4	0	77	232			
06-Dec-14	0.00	0.00	0	0	15.5	92.9	0	93	325			
07-Dec-14	0.00	0.00	0	0	15.5	108.4	0	108	434			
08-Dec-14	0.00	0.00	0	0	15.5	123.9	0	124	557			
09-Dec-14	0.00	0.00	0	0	15.5	139.4	0	139	697			
10-Dec-14	0.00	0.00	0	0	15.5	154.8	0	155	852			
11-Dec-14	0.00	0.00	0	0	15.5	170.3	0	170	1,022			
12-Dec-14	0.00	0.00	0	0	15.5	185.8	0	186	1,208			
13-Dec-14	0.00	0.00	0	0	15.5	201.3	0	201	1,409			
14-Dec-14	0.00	0.00	0	0	15.5	216.8	0	217	1,626			
15-Dec-14	0.15	0.01	6,463	6,463	15.5	232.3	0	232	1,858			
16-Dec-14	0.00	0.00	0	6,463	15.5	247.7	0	248	2,106			
17-Dec-14	0.00	0.00	0	6,463	15.5	263.2	0	263	2,369			
18-Dec-14	0.00	0.00	0	6,463	15.5	278.7	238,360	238,639	241,008	234,545	1,754,630	67.7

J&T Consulting, Inc.

West Farm Pit - Lamar, CO

Slurry Wall Leak Test
2/12/2015

Water Accounting

TABLE V

	Inflow Volumes				Outflow Volumes					Leak Volume (per pump cycle)		Leak Rate (per pump cycle)
	Precipitation				Evaporation		Pumping					
Date	(in)	(ft)	Daily Inflow (cu-ft)	Cumulative Inflow (cu-ft)	Daily (cu-ft)	Cumulative (cu-ft)	Water Pumped Out (cu-ft)	Total Outflow (cu-ft)	Cumulative Outflow (cu-ft)	Net Outflow (cu-ft)	Net Outflow (gal)	(gpm)
19-Dec-14	0.00	0.00	0	0	15.5	15.5	0	15	15			
20-Dec-14	0.00	0.00	0	0	15.5	31.0	0	31	46			
21-Dec-14	0.00	0.00	0	0	15.5	46.5	0	46	93			
22-Dec-14	0.00	0.00	0	0	15.5	61.9	0	62	155			
23-Dec-14	0.00	0.00	0	0	15.5	15.5	0	15	15			
24-Dec-14	0.00	0.00	0	0	15.5	31.0	0	31	46			
25-Dec-14	0.00	0.00	0	0	15.5	46.5	0	46	93			
26-Dec-14	0.00	0.00	0	0	15.5	61.9	0	62	155			
27-Dec-14	0.03	0.00	1,293	1,293	15.5	77.4	0	77	232			
28-Dec-14	0.00	0.00	0	1,293	15.5	92.9	0	93	325			
29-Dec-14	0.00	0.00	0	1,293	15.5	108.4	0	108	434			
30-Dec-14	0.25	0.02	10,772	12,065	15.5	123.9	0	124	557			
31-Dec-14	0.00	0.00	0	12,065	15.5	139.4	0	139	697			
01-Jan-15	0.00	0.00	0	12,065	15.5	154.8	0	155	852			
02-Jan-15	0.00	0.00	0	12,065	15.5	170.3	0	170	1,022			
03-Jan-15	0.00	0.00	0	12,065	15.5	185.8	0	186	1,208			
04-Jan-15	0.05	0.00	2,154	14,219	15.5	201.3	0	201	1,409			
05-Jan-15	0.00	0.00	0	14,219	15.5	216.8	0	217	1,626			
06-Jan-15	0.00	0.00	0	14,219	15.5	232.3	259,138	259,371	260,997	246,777	1,846,142	67.5

J&T Consulting, Inc.

West Farm Pit - Lamar, CO

Slurry Wall Leak Test
2/12/2015

TABLE V

Water Accounting

	Inflow Volumes				Outflow Volumes					Leak Volume (per pump cycle)		Leak Rate (per pump cycle)
	Precipitation				Evaporation		Pumping					
Date	(in)	(ft)	Daily Inflow (cu-ft)	Cumulative Inflow (cu-ft)	Daily (cu-ft)	Cumulative (cu-ft)	Water Pumped Out (cu-ft)	Total Outflow (cu-ft)	Cumulative Outflow (cu-ft)	Net Outflow (cu-ft)	Net Outflow (gal)	(gpm)
07-Jan-15	0.00	0.00	0	0	15.5	15.5	0	15	15			
08-Jan-15	0.00	0.00	0	0	15.5	31.0	0	31	46			
09-Jan-15	0.00	0.00	0	0	15.5	46.5	0	46	93			
10-Jan-15	0.00	0.00	0	0	15.5	61.9	0	62	155			
11-Jan-15	0.00	0.00	0	0	15.5	77.4	0	77	232			
12-Jan-15	0.00	0.00	0	0	15.5	92.9	0	93	325			
13-Jan-15	0.00	0.00	0	0	15.5	108.4	0	108	434			
14-Jan-15	0.00	0.00	0	0	15.5	123.9	0	124	557			
15-Jan-15	0.00	0.00	0	0	15.5	139.4	0	139	697			
16-Jan-15	0.00	0.00	0	0	15.5	154.8	0	155	852			
17-Jan-15	0.00	0.00	0	0	15.5	170.3	0	170	1,022			
18-Jan-15	0.00	0.00	0	0	15.5	185.8	0	186	1,208			
19-Jan-15	0.00	0.00	0	0	15.5	201.3	0	201	1,409			
20-Jan-15	0.00	0.00	0	0	15.5	216.8	0	217	1,626			
21-Jan-15	0.00	0.00	0	0	15.5	232.3	0	232	1,858			
22-Jan-15	0.12	0.01	5,171	5,171	15.5	247.7	0	248	2,106			
23-Jan-15	0.00	0.00	0	5,171	15.5	263.2	0	263	2,369			
24-Jan-15	0.00	0.00	0	5,171	15.5	278.7	0	279	2,648			
25-Jan-15	0.00	0.00	0	5,171	15.5	294.2	0	294	2,942			
26-Jan-15	0.00	0.00	0	5,171	15.5	309.7	0	310	3,252			
27-Jan-15	0.00	0.00	0	5,171	15.5	325.2	0	325	3,577			
28-Jan-15	0.00	0.00	0	5,171	15.5	340.6	0	341	3,917			
29-Jan-15	0.00	0.00	0	5,171	15.5	356.1	0	356	4,274			
30-Jan-15	0.00	0.00	0	5,171	15.5	371.6	0	372	4,645			
31-Jan-15	0.15	0.01	6,463	11,634	15.5	387.1	181,994	182,381	187,026	175,392	1,312,109	36.4
Totals	**1.07**	**0.09**		**46,104**		**1,538**	**969,776**		**989,234**	**943,130**	**7,055,556**	**53.3**

Indicates Test Period 1
Indicates Test Period 2
Indicates Test Period 3
Indicates Test Period 4
Indicates Overall Test Period (92 days)

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and Information Service

Record of Climatological Observations

These data are quality controlled and may not be identical to the original observations.

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: **LAMAR, CO US** GHCND:USC00054770

Observation Time Temperature: 0700 Observation Time Precipitation: 0700 Elev: 3627 ft. Lat: 38.094° N Lon: 102.631° W

Preliminary	Year	Month	Day	Temperature (F)			Precipitation(see **)					Evaporation		Soil Temperature (F)					
				24 hrs. ending at observation time		at Observation	24 Hour Amounts ending at observation time				At Obs Time			4 in depth			8 in depth		
				Max.	Min.		Rain, melted snow, etc. (in)	Flag	Snow, ice pellets, hail (in)	Flag	Snow, ice pellets, hail, ice on ground (in)	24 Hour Wind Movement (mi)	Amount of Evap. (in)	Ground Cover (see *)	Max.	Min.	Ground Cover (see *)	Max.	Min.
	2014	11	1	58	33	39	0.00		0.0		0								
	2014	11	2	78	37	38	0.00		0.0		0								
	2014	11	3	80	38	53	0.02		0.0		0								
	2014	11	4	63	27	29	0.00		0.0		0								
	2014	11	5	59	26	28	0.00		0.0		0								
	2014	11	6	67	27	28	0.00		0.0		0								
	2014	11	7	69	28	43	0.00		0.0		0								
	2014	11	8	77	37	38	0.00		0.0		0								
	2014	11	9	63	31	33	0.00		0.0		0								
	2014	11	10	77	33	44	0.00		0.0		0								
	2014	11	11	77	18	18	0.10		2.0		2								
	2014	11	12	22	11	11	0.03		1.0		2								
	2014	11	13	14	-5	-5	0.05		1.0		3								
	2014	11	14	17	-5	13	0.00		0.0		3								
	2014	11	15	33	13	15	0.00		0.0		0								
	2014	11	16	37	12	13	0.12		3.0		3								
	2014	11	17	26	1	2	0.00		0.0		2								
	2014	11	18	33	2	9	0.00		0.0		0								
	2014	11	19	48	9	19	0.00		0.0		0								
	2014	11	20	51	19	26	0.00		0.0		0								
	2014	11	21	53	24	24	0.00		0.0		0								
	2014	11	22	54	23	24	0.00		0.0		0								
	2014	11	23	66	24	43	0.00		0.0		0								
	2014	11	24	49	20	21	0.00		0.0		0								
	2014	11	25	50	15	16	0.00		0.0		0								
	2014	11	26	53	16	24	0.00		0.0		0								
	2014	11	27	47	19	20	0.00		0.0		0								
	2014	11	28	62	20	26	0.00		0.0		0								
	2014	11	29	75	26	32	0.00		0.0		0								
	2014	11	30	73	29	30	0.00		0.0		0								
			Summary	54.4	20.3		0.32		7.0										

The '*' flags in Preliminary indicate the data have not completed processing and qualitycontrol and may not be identical to the original observation
Empty, or blank, cells indicate that a data observation was not reported.
***Ground Cover: 1=Grass; 2=Fallow; 3=Bare Ground; 4=Brome grass; 5=Sod; 6=Straw mulch; 7=Grass muck; 8=Bare muck; 0=Unknown**
"s" This data value failed one of NCDC's quality control tests.
"T" values in the Precipitation category above indicate a TRACE value was recorded.
"A" values in the Precipitation Flag or the Snow Flag column indicate a multiday total, accumulated since last measurement, is being used.
Data value inconsistency may be present due to rounding calculations during the conversion process from SI metric units to standard imperial units.

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and Information Service

Record of Climatological Observations

These data are quality controlled and may not be identical to the original observations.

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: **LAMAR, CO US** GHCND:USC00054770

Observation Time Temperature: 0700 Observation Time Precipitation: 0700 Elev: 3627 ft. Lat: 38.094° N Lon: 102.631° W

Preliminary	Year	Month	Day	Temperature (F)			Precipitation(see **)					Evaporation		Soil Temperature (F)					
				24 hrs. ending at observation time		at Observation	24 Hour Amounts ending at observation time				At Obs Time			4 in depth			8 in depth		
				Max.	Min.		Rain, melted snow, etc. (in)	Flag	Snow, ice pellets, hail (in)	Flag	Snow, ice pellets, hail, ice on ground (in)	24 Hour Wind Movement (mi)	Amount of Evap. (in)	Ground Cover (see *)	Max.	Min.	Ground Cover (see *)	Max.	Min.
	2014	12	1	35	12	12	0.00		0.0		0								
	2014	12	2	32	11	15	0.00		0.0		0								
	2014	12	3	56	15	28	0.00		0.0		0								
	2014	12	4	42	22	25	0.00		0.0		0								
	2014	12	5	48	25	26	0.00		0.0		0								
	2014	12	6	64	23	23	0.00		0.0		0								
	2014	12	7	51	23	26	0.00		0.0		0								
	2014	12	8	62	21	21	0.00		0.0		0								
	2014	12	9	54	18	19	0.00		0.0		0								
	2014	12	10	53	19	23	0.00		0.0		0								
	2014	12	11	59	20	20	0.00		0.0		0								
	2014	12	12	63	20	22	0.00		0.0		0								
	2014	12	13	50	22	33	0.00		0.0		0								
	2014	12	14	55	30	47	0.00		0.0		0								
	2014	12	15	55	31	31	0.15		0.0		0								
	2014	12	16	41	20	20	0.00		0.0		0								
	2014	12	17	39	19	26	0.00		0.0		0								
	2014	12	18	30	25	28	0.00		0.0		0								
	2014	12	19	43	20	20	0.00		0.0		0								
	2014	12	20	45	20	20	0.00		0.0		0								
	2014	12	21	46	20	21	0.00		0.0		0								
	2014	12	22	54	21	38	0.00		0.0		0								
	2014	12	23	47	30	33	0.00		0.0		0								
	2014	12	24	35	16	16	0.00		0.0		0								
	2014	12	25	49	16	29	0.00		0.0		0								
	2014	12	26	62	25	25	0.00		0.0		0								
	2014	12	27	26	6	7	0.03		0.0		0								
	2014	12	28	31	6	9	0.00		0.0		0								
	2014	12	29	37	9	11	0.00		0.0		0								
	2014	12	30	24	3	3	0.25		5.0		5								
	2014	12	31	6	-9	-7	0.00		0.0		5								
			Summary	45.0	18.0		0.43		5.0										

The '*' flags in Preliminary indicate the data have not completed processing and qualitycontrol and may not be identical to the original observation
Empty, or blank, cells indicate that a data observation was not reported.
***Ground Cover: 1=Grass; 2=Fallow; 3=Bare Ground; 4=Brome grass; 5=Sod; 6=Straw mulch; 7=Grass muck; 8=Bare muck; 0=Unknown**
"s" This data value failed one of NCDC's quality control tests.
"T" values in the Precipitation category above indicate a TRACE value was recorded.
"A" values in the Precipitation Flag or the Snow Flag column indicate a multiday total, accumulated since last measurement, is being used.
Data value inconsistency may be present due to rounding calculations during the conversion process from SI metric units to standard imperial units.

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and Information Service

Record of Climatological Observations

These data are quality controlled and may not be identical to the original observations.

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Station: **LAMAR, CO US** GHCND:USC00054770

Observation Time Temperature: 0700 Observation Time Precipitation: 0700 Elev: 3627 ft. Lat: 38.094° N Lon: 102.631° W

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				24 hrs. ending at observation time		at Observation	24 Hour Amounts ending at observation time				At Obs Time			4 in depth			8 in depth		
				Max.	Min.		Rain, melted snow, etc. (in)	Flag	Snow, ice pellets, hail (in)	Flag	Snow, ice pellets, hail, ice on ground (in)	24 Hour Wind Movement (mi)	Amount of Evap. (in)	Ground Cover (see *)	Max.	Min.	Ground Cover (see *)	Max.	Min.
	2015	1	1	12	-7	3	0.00		0.0		0								
	2015	1	2	26	2	3	0.00		0.0		0								
	2015	1	3	33	3	19	0.00		0.0		0								
	2015	1	4	37	-1	0	0.05		2.0		2								
	2015	1	5	20	-1	4	0.00		0.0		0								
	2015	1	6	37	4	15	0.00		0.0		0								
	2015	1	7	47	14	15	0.00		0.0		0								
	2015	1	8	21	13	18	0.00		0.0		0								
	2015	1	9	54	17	23	0.00		0.0		0								
	2015	1	10	30	15	15	0.00		0.0		0								
	2015	1	11	37	15	17	0.00		0.0		0								
	2015	1	12	51	17	23	0.00		0.0		0								
	2015	1	13	25	18	18	0.00		0.0		0								
	2015	1	14	36	18	24	0.00		0.0		0								
	2015	1	15	40	19	20	0.00		0.0		0								
	2015	1	16	53	20	20	0.00		0.0		0								
	2015	1	17	64	20	37	0.00		0.0		0								
	2015	1	18	56	21	26	0.00		0.0		0								
	2015	1	19	63	21	24	0.00		0.0		0								
	2015	1	20	62	24	35	0.00		0.0		0								
	2015	1	21	42	29	33	0.00		0.0		0								
	2015	1	22	33	8	8	0.12		4.0		4								
	2015	1	23	29	4	5	0.00		0.0		3								
	2015	1	24	48	5	26	0.00		0.0		0								
	2015	1	25	53	26	32	0.00		0.0		0								
	2015	1	26	57	30	31	0.00		0.0		0								
	2015	1	27	70	30	31	0.00		0.0		0								
	2015	1	28	74	31	38	0.00		0.0		0								
	2015	1	29	69	36	39	0.00		0.0		0								
	2015	1	30	53	33	40	0.00		0.0		0								
	2015	1	31	45	35	37	0.15		0.0		0								
			Summary	44.4	16.7		0.32		6.0										

The '*' flags in Preliminary indicate the data have not completed processing and qualitycontrol and may not be identical to the original observation
Empty, or blank, cells indicate that a data observation was not reported.
***Ground Cover: 1=Grass; 2=Fallow; 3=Bare Ground; 4=Brome grass; 5=Sod; 6=Straw mulch; 7=Grass muck; 8=Bare muck; 0=Unknown**
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Data value inconsistency may be present due to rounding calculations during the conversion process from SI metric units to standard imperial units.

WEST 4-7-12

Form 3.1 05/01/2014	S. Platte River – Division 1 970-352-8712 Fax 970-392-1816 810 9th Street, 2nd Floor, Greeley, CO 80631 Republican River – Division 1 970-352-8712 Fax 970-392-1816 810 9th Street, 2nd Floor, Greeley, CO 80631 Arkansas River – Division 2 719-542-3368 Fax 719-544-0800 310 E. Abriendo, Suite B, Pueblo, CO 81004 Rio Grande River – Division 3 719-589-6683 Fax 719-589-6685 P.O. Box 269, 301 Murphy Drive, Alamosa, CO 81101 Designated Basins – Division 8 303-866-3581 Fax 303-866-2223 1313 Sherman St. Rm. 818, Denver, CO 80237	For Office Use Only ☐ Passed ☐ Failed ☐ Variance Approved Date of variance _____
Colorado Division of Water Resources www.water.state.co.us		

NOTICE OF TOTALIZING FLOW METER RE-VERIFICATION, INSTALLATION OR REPLACEMENT

Check appropriate box

- ☐ To be filed in Compliance with Rule 16.5 of the Rules Governing the Measurement of Tributary Ground Water Diversions in the **Republican River Basin (Complete pages 1-6)**
- ☐ To be filed in Compliance with Rules 3.1 of the Amended Rules Governing the Measurement of Tributary Ground Water Diversions in the **Arkansas River Basin (Complete pages 1-5)**
- ☐ To be filed in Compliance with Rule 3.1 of the Rules Governing the Measurement of Tributary Ground Water Diversions in the **Rio Grande River Basin (Complete pages 1-5)**
- ☐ To be filed in Compliance with the Ground Water Commission Rules Governing **Designated Basins (Complete pages 1-5)**
- ☐ To be filed in Compliance with Rule 3.1 of the Rules Governing the Measurement of Tributary Ground Water Diversions in the **South Platte River Basin (Complete pages 1-5)**

Reason for meter verification (Check all that apply)

☐	Re-Verify Previously Verified TFM		**The following MUST be provided for new & replaced meters**		
☐	New TFM (No previous meter)		Date New TFM installed:		
☐	Replacing Previous TFM (also complete area at right)		Date Previous TFM removed:		7-14
	Previous TFM Serial No.: 14-05261-6		Previous TFM Reading (Estimate required if not readable):		380917 X100
☐	Change in Measurement Method from:	Hour Meter ☐	Slave Meter ☐	Power Co Meter ☐	Previous Meter SN
☐	Register seal replaced due to:	New Seal No.	Old Seal No.	TFM Reading	K-Factor (Test req'd. if changed)
☐	(Sensor) (meter) seal replaced due to:	New Seal No.	Old Seal No.	TFM Reading	

Contact Information:

Well Owner: GR Irrigated Farms		User (if not same as well owner): Cross Fire		
Name c/o Karl Nyquist		Name c/o		
Mailing Address 7991 Shaffer Pkwy Suite 200		Mailing Address 820 Airport Rd		
City Littleton	State CO Zip 80127	City Durango	State CO	Zip 81303
Phone 303-369-5100	Email	Phone	Email	

Well Information and Location (Provide Permit No. and/or Case or Decree No. if no WDID exists or is not known

WDID	Permit No.	Case or Decree No.	Location (¼,¼, Sec., T., R., PM)	GPS Coord. (UTM, meters, NAD 83) Northing	Easting	Zone (12/13)
Gravel Pit						

Power Supply

☐ Electric ☐ Artesian ☐ Solar ☐ Windmill ☒ Fossil Fuel ☐ Other (describe):

Provide the following for all wells with electric power:

Power Company Name	Power Company Service No.	Meter Manufacturer	Manufacturer's Serial No.
Power Company Meter Reading on Date of Test (including all rotating and leading zeroes):		Multiplier	Number of Rotating Digits:

Uses on power company meter:

Does the same Power Company Meter serve other devices, including other wells/pumps? If yes, describe system.
☐ Yes ☐ No

Installed TFM Information

Manufacturer: McCrometer		Model No.: MJ308	Meter GPS Coordinates (NAD83 UTM Zone 13N)
Sensor/Meter: Serial No.	06-8-1722	Reading on Test Date: 019.791	Northing: 4219918
Register			Easting: 711955

Provide sensor serial number ONLY if meter has a remote readout. Provide BOTH sensor and meter serial number only if different.

Beginning Remote Reading: N/A Time: _____ Ending Remote Reading: N/A Time: _____

Do these readings match the installed TFM readings? ☐ Yes ☐ No If no, explain:

Meter Type	Meter Size	Multiplier	No. of recording digits
PROP	8"	X .001	6

Meter Units: ☐ Gallons ☒ Acre Feet ☐ Cubic Feet ☐ Other, describe:

Meter Orientation	Diameters of Straight Pipe: Upstream	Diameters of Straight Pipe: Downstream	Diameter of Discharge Pipe: ID	Diameter of Discharge Pipe: OD
☒ Horizontal ☐ Vertical	16" (24)	48 (6)	8.027	8.625

Is the meter installed to manufacturer's specifications? ☒ Yes ☐ No If no, explain:

Test Meter Information

Test Meter Manufacturer:	Test Meter Serial Number:	Date of Last Calibration:
FUJI	AQP7492	1-7-14

Meter Orientation	Pipe Wall Thickness	Diameters of Straight Pipe: Upstream	Diameters of Straight Pipe: Downstream	Diameter of Discharge Pipe: ID	Diameter of Discharge Pipe: OD
☒ Horizontal ☐ Vertical	.299	17" (25.5)	48" (4.65)	8.027	8.625

Verification of Installed Meter (if more than one meter tested for same discharge, show all tests. Use second sheet if necessary)

Date of Test:	Time of Test (Begin):	Length of time pump has been running prior to Tester's arrival:
7-21-14	12:30	24 : +- (HH:MM)

Test Meter Calculations (Show All Work)

Collins Meter GPM Factor: N/A Stop Clamp Settings: N/A

FINISH − 17445.01 / START − 0 } = 17445.01 Gallons

Time − 1507.44 = 907.44 Seconds

17445.01 Gallons / 907.44 Seconds } = 1153.46 GPM

Installed Meter Calculations (Show All Work)

FINISH − 019.845 / START − 019.791 } = 0.054

0.054 × 325851 = 17595.95 Gallons

Time − 1507.06 = 907.06 Seconds

17595.95 Gallons / 907.06 Seconds } = 1163.93 GPM

Existing K-factor N/A

Adjusted K-factor N/A

Flow rate with Collins tube removed:

(Show Q to the nearest 0.00 GPM) Avg QT: 1153.46

(Show Q to the nearest 0.00 GPM) Avg QI: 1163.93

Correction Factor = AVG QT 1153.46 / AVG QI 1163.93 = 0.991

Calibration Coefficient must be shown to the nearest 0.000

If Correction Factor Is:	Div. 1, Div. 2 and Republican River Correction Factor Policies	Div. 3 Correction Factor Policies
0.950 to 1.050	The installed TFM is in accurate working condition. *No Request for Variance is required.* No Correction Factor is Applied.	
0.920 to 0.949 OR 1.051 to 1.080	**Test will be valid for a maximum of four years.** The Variance Request to Use Correction Factor portion of this Form must be completed and signed by the Owner/User. *Note: A Correction Factor will be applied to determine diversions.	May grant a request for a variance to allow the use of a Correction Factor. **Test will be valid for one year from the date of the test.** A variance will be allowed for a maximum of three years, after which the TFM must be repaired or replaced AND a new Test conducted. That Test must confirm an accuracy within ±5.0%. The Variance Request to Use Correction Factor for TFM portion of this Form must be completed and signed by the Owner/User. *Note: A Correction Factor will be applied to determine diversions.
0.900 to 0.919 OR 1.081 to 1.100	**Test will be valid for one year only.** No later than one year from the date of this Test the installed TFM must be repaired or replaced AND a new test conducted that confirms an accuracy of within ±5.0%. The Variance Request to Use Correction Factor portion of this Form must be completed and signed by the Owner/User. *Note: A Correction Factor will be applied to determine diversions.	**Test will be rejected** and the installed TFM must be repaired or replaced AND a new Test conducted. The second Test must confirm an accuracy of within ±5.0%. If TFM fails test and is re-calibrated (k-factor modified), show failed Test, indicate below k-factor before and after, AND show new test on additional duplicate page (include failed and passed test page 3).
<0.900 OR >1.100	Test will be **rejected** and the installed TFM must be repaired or replaced AND a new Test conducted.	

Uses through this totalizing flow meter

Does well have multiple discharges measured through TFM? ☒ Yes ☐ No

If yes, check all that apply: ☒ Open ☒ Pressure ☐ Artesian ☐ Other

Use this space to describe all discharges DISCHARGES to A SETTLING POND AND to A TRUCK LOAD OUT

Meter Testing

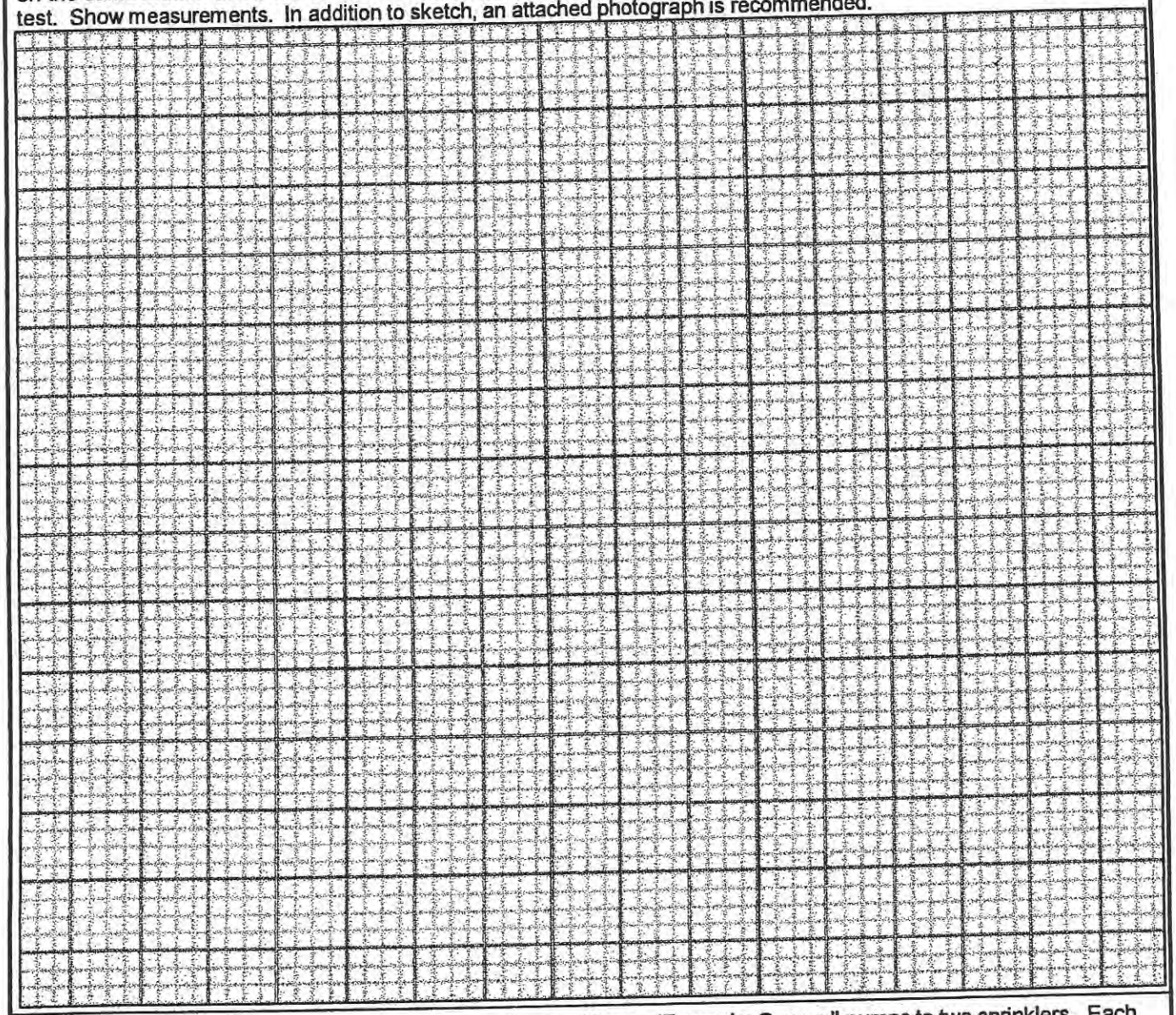
How was the well/meter tested with test equipment (open discharge, pressure, or more than one way)?

Show information in detailed sketch on next page or as an attachment

PUMP WAS RUNNING ON ARRIVAL to A SETTELING POND APPRO 4000' AWAY

Detailed Sketch:

Show total system from pump to discharge, other pumps in the same well, and electrical system including other devices on the same meter. Show where test meter and pressure gauge were placed and how system was modified to perform test. Show measurements. In addition to sketch, an attached photograph is recommended.



Detailed description of system under normal operating conditions. (Example: One well pumps to two sprinklers. Each sprinkler has an end gun that operates when the sprinkler is operating.) Include number of irrigated acres.

THIS METER IS USED FOR DEWATERING A GRAVEL PIT & FOR DUST CONTROL

Tester Verification

I, the undersigned, state that I am currently a person approved by the State Engineer to conduct well tests pursuant to the Rules Governing the Measurement of Ground Water Diversions as indicated on page 1 of this form. I have determined the installed Totalizing Flow Meter to either be in accurate working condition as defined by the Rules indicated on page 1 of this form OR have advised the Owner/User to complete the Variance Request below of this form.

I understand that "accurate working condition" is determined when the indicated flow through the Installed METER is within plus or minus 5% of an independent field measurement made using Calibrated Test Equipment. I understand that falsifying the accuracy and/or condition of a Totalizing Flow Meter can subject me to a fine of up to $500.00.

Signature of Tester: Dan Ri[signature] Date 7/21/14

Tester Name, Company, Phone, Email

Name: DAN RICHARDS	Company Name: RICHARDS' WELL CALIBRATIONS
Phone: 719-688-5451	Email:

Variance Request to Allow a Correction Factor to be used when calculating use with the installed TFM

I request a Variance to allow the use of the Correction Factor. I understand that a Variance WILL NOT be issued to allow a Correction Factor for a Totalizing Flow Meter (TFM) if the inaccuracy is due to the TFM or appurtenances being intentionally damaged or modified by the owner and/or user of the well/meter.

I understand that the Correction Factor as computed by the above Qualified Well Tester will be verified by or revised by the Division of Water Resources and that final Correction Factor will be applied to ALL use records until the TFM is repaired/replaced and/or a new test conducted for this Well.

I understand and agree to the required conditions of the variance as indicated below:

Division 1, Division 2 or Republican River Basin (Check only one)

☐	If Correction Factor is between 0.920 to 0.949 or is between 1.051 to 1.080, the Test will be valid for no more than four years. The Correction Factor will be applied to determine diversions from the well.
☐	If Correction Factor is between 0.900 to 0.919 or is between 1.081 to 1.100, the Test will be valid one year. No later than one year from the date of this Test, a new Measurement Test must be conducted and the accuracy of the new Test must be within ±5.0%. The Correction Factor will be applied to determine diversions from the well. Further, I acknowledge that repair and/or replacement of this Meter and/or portions of the Discharge System is required within that one year AND I agree to make the necessary changes within that time.

Division 3

☐	If Correction Factor is between 0.920 to 0.949 or 1.051 to 1.080, and Division 3 approves this Variance Request, the Test will be valid for no more than one year. A new variance including new correction factor computed by a Qualified Well Tester shall be required each year thereafter. A variance will only be allowed for TFM for a maximum of three years. After three years the TFM must be repaired or replaced and working within the required ± 5%. The Correction Factor will ~~be~~ applied to determine diversions from the well.

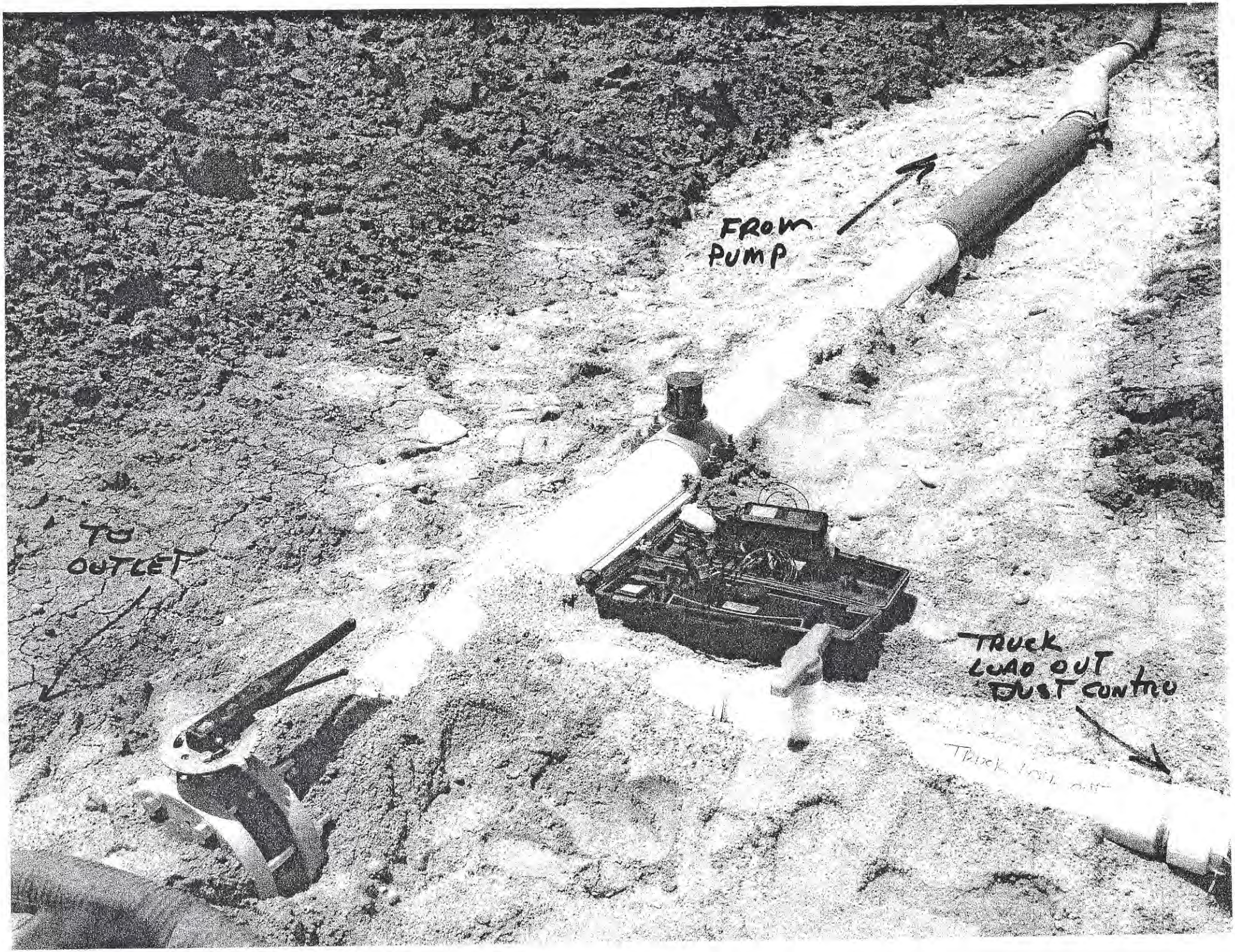
For Electrically Powered Wells/Pumps, I agree to the release of information pertaining to my Electric Service and Use, including Current Transformer Factor, Voltage/Potential Transformer Factor and Electric Meter Readings, to the Colorado Division of Water Resources by my electric supplier for the purposes of determining or verifying Water Use from the Well/Pump.

The above information is true to the best of my knowledge. I understand that falsifying the accuracy and/or condition of a Totalizing Flow Meter can subject me to a fine of up to $500.00. If any Variance is requested on my behalf to apply a Calibration Coefficient to my TFM, I agree to such Variance.

I am the ☐ Well Owner OR ☐ Well User

Signature of Well Owner/User Natalie Musick Date 7/21/14

Print Name of Well Owner/User


FROM PUMP
TO OUTLET
TRUCK LOAD OUT DUST CONTRO