



October 19, 2022

Mr. Mathew Smith
New Mexico Environment Department
Ground Water Quality Bureau
121 Tijeras Avenue NE
Albuquerque, NM 87102

**RE: Addendum to the Stage 2 Abatement Plan
La Cueva Patrol Yard, 2339 NM-518, Mora County, New Mexico 87732
NM DOT Contract 06164**

Dear Mr. Smith:

On behalf of the New Mexico Department of Transportation (NMDOT) Hazardous Materials Investigation Bureau (HMIB), EA Engineering, Science, and Technology, Inc., PBC (EA) has prepared this Addendum to the Stage 2 Abatement Plan (S2AP) for the La Cueva Patrol Yard located in La Cueva, Mora County, New Mexico.

The purpose of the addendum is to provide details to add a monitoring well along the Arroyo B to monitor concentrations of chloride and TDS in groundwater. Provided below is the approach.

Location. The proposed well MW-B-01 will be located near the soil boring B-2 by Arroyo B. The actual location will be based on accessibility by the drill rig. The area is shown in Figure 1.

Driller. A New Mexico-licensed driller will install the well. EA will determine the final selection after soliciting and evaluating the bids.

Drilling Method. The soil boring will be drilled using an air rotary method as shale and sandstone are present in the subsurface. A minimum 6.25-inch nominal diameter bit will be used to drill the borehole.

Monitoring Well Details. The monitoring well construction details are provided below.

- A 2-inch Schedule 40 flush-threaded well casing
- A 2-inch Schedule 40 flush-threaded well screen with 0.010-inch machined slots from 60 feet bgs to 80 feet bgs. The target depth was based on topography, MW-2 and MW-6 well depth, and water level in these wells (Figure 2).
- A 10/20 silica sand filter pack to 1-2 feet above the screen

- A 2-foot thick hydrated bentonite seal above the filter pack. The seal will be allowed to hydrate for at least 1 hour before placing a cement grout seal
- A cement grout seal from above the bentonite seal to 3 feet bgs
- A steel lockable surface casing from 5 feet bgs to 3 feet above the ground painted yellow using reflective paint
- A 3-foot by 3-foot by 4-inch concrete pad with rebar reinforcement
- After installation, the well will be developed using surge-and-bail, pumping, or airlifting.

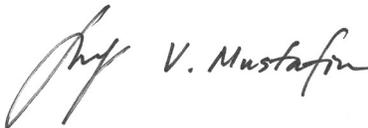
NMOSE Permit. Before well installation, the driller will submit to the New Mexico Office of State Engineer (NMOSE) a WR-07 application for a permit to drill a well with no consumptive use and obtain the permit. After installation, the driller will submit to the NMOSE a WR-11 proof of completion of the well.

NM811. At least 24 hours before drilling, the driller will request an NM811 underground utility clearance.

Notifications. Before drilling, EA will notify the NMDOT of the schedule.

If you have any questions or comments, please do not hesitate to contact me at (505) 296-1070 or vmustafin@eaest.com.

Respectfully,



Vener Mustafin, P.E.
Project Manager/Engineer

Attachments:

Figure 1 Site Layout and Soil Concentration Map – January 2021
Figure 2 Cross-Section
Appendix A MW-2 Soil Boring and Well Log
Appendix B Soil Boring Field Log Form

Cc: Mr. Larry Kemp, NMDOT HMIB
File

FIGURES

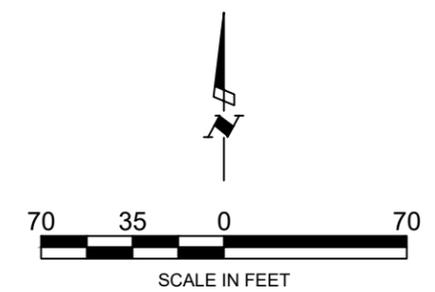


LEGEND:

	MW-1	MONITORING WELL
	MW-4	ABANDONED MONITORING WELL
	GARCIA WELL	WATER SUPPLY WELL
		APPROXIMATE PROPERTY BOUNDARY AS OF 9/10/15
	A-1	SOIL SAMPLE LOCATIONS

SAMPLE LOCATION	SAMPLE INTERVAL (FEET BGS)	DATE	CHLORIDE (mg/Kg)	SAMPLE LOCATION	SAMPLE INTERVAL (FEET BGS)	DATE	CHLORIDE (mg/Kg)	SAMPLE LOCATION	SAMPLE INTERVAL (FEET BGS)	DATE	CHLORIDE (mg/Kg)
A-1	1-2	1/21/2021	<59	A-2	1-2	1/21/2021	<60	A-3	1-2	1/21/2021	170
	5-6	1/21/2021	<60		5-6	1/21/2021	<60		5-6	1/21/2021	470
	9-10	1/21/2021	73		NOT SAMPLED DEEPER - REFUSAL	9-10	1/21/2021		180		
	11-12	1/21/2021	<60			ENCOUNTERED GROUNDWATER					
	NOT SAMPLED DEEPER - REFUSAL										
B-1	1-2	1/21/2021	110	B-2	1-2	1/21/2021	<60	B-3	1-2	1/21/2021	140
	3-4	1/21/2021	270		5-6	1/21/2021	340		5-6	1/21/2021	<60
	NOT SAMPLED DEEPER - REFUSAL				9-10	1/21/2021	970		NOT SAMPLED DEEPER - REFUSAL		
					13-14	1/21/2021	1200				
					17-18	1/21/2021	1100				
			NOT SAMPLED DEEPER - REFUSAL								

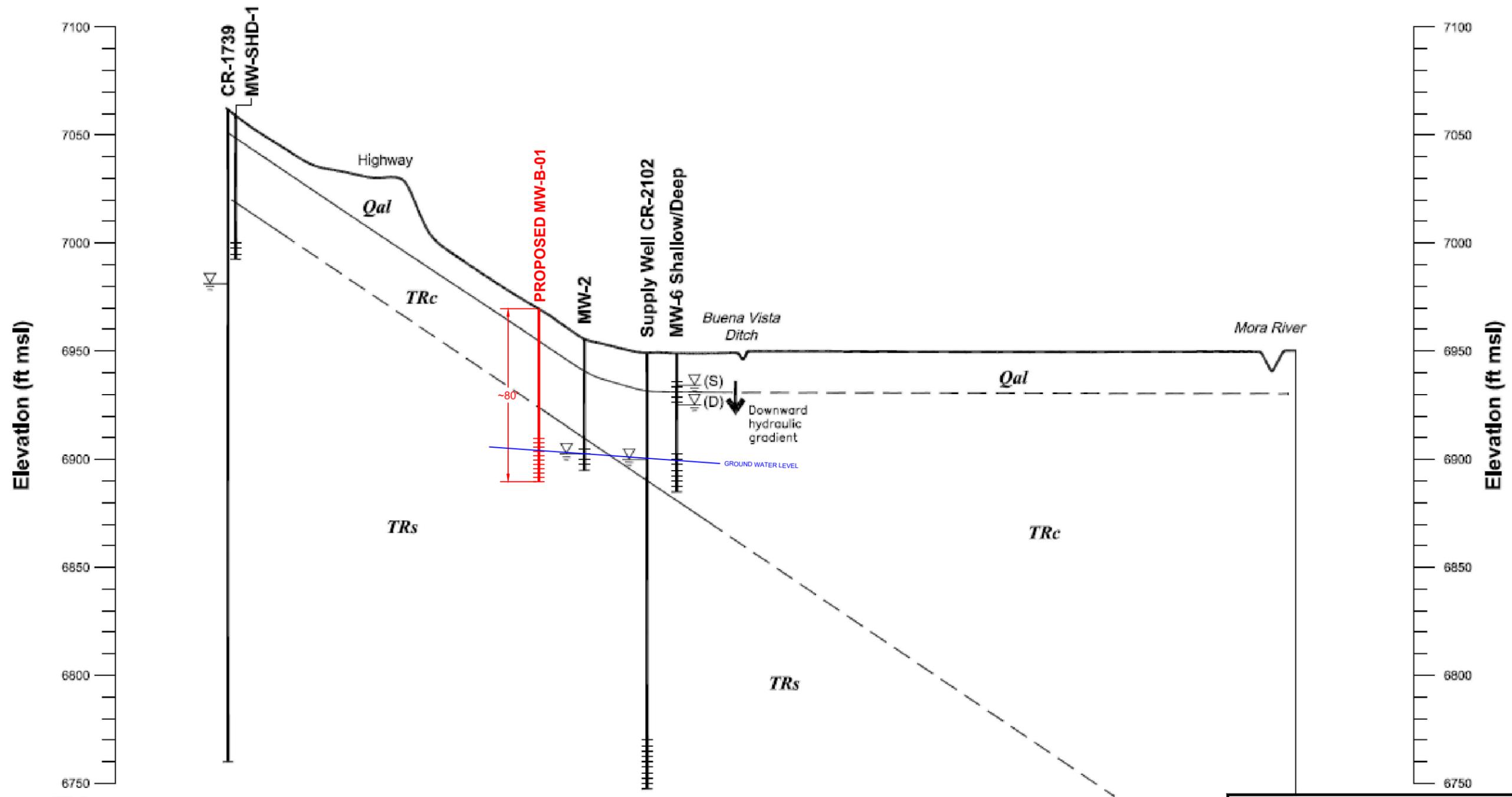
NOTES:
 CHLORIDE BY EPA METHOD 300.0
 mg/Kg = MILLIGRAMS PER KILOGRAM
 BGS = BELOW GROUND SURFACE



NEW MEXICO DOT
 LA CUEVA PATROL YARD
 MORA COUNTY, NEW MEXICO

FIGURE 1
SITE LAYOUTS AND
SOIL CONCENTRATIONS MAP
JANUARY 2021

10/18/22 C:\Users\vmustafin\OneDrive - EA Engineering, Science, and Technology, Inc. \PBC\Desktop\Corona\NMDOT\La Cueva NMDOT Yard\2022_S2AB_Addendum\Figures\La Cueva Addendum.dwg



0 200 ft
Vertical exaggeration: 4x

- Explanation
- Contact - dashed where inferred
 - Well with screen interval
 - Water level depth
 - Qal** Quaternary alluvium - gravel, sand, silt and clay
 - TRc** Triassic Chinle Formation - red shale and sandstone
 - TRs** Triassic Santa Rosa Sandstone - gray sandstone with minor intervals of red, purple and green shale

CROSS-SECTION SOURCE: DBS&A, MARCH 2009

LA CUEVA NMDOT PATROL YARD
2339 NM-518, MORA, NEW MEXICO

**FIGURE 2
CROSS-SECTION**

PROJECT #: YYYYYY PROJECT PHASE: 01 PROJECT MANAGER: VM

320 Gold Avenue, SW Suite 1300
Albuquerque, NM 87102
Phone: (505) 224-9013
Fax: (505) 224-9016

APPENDIX A
MW-2 SOIL BORING AND WELL LOG

SOIL BORING LOG

PROJECT NAME: La Cueva Patrol Yard	DATE: 10/16/2002	Page 3 of 10
PROJECT NO.: 1145/3.0	LOGGED BY: J. Bunch	
CLIENT NAME: NMSH & TD	SITE ELEV.:	DRILLING METHOD: HSA/AR
Monitor Well/Boring No.: MW-2		GW DEPTH: 54.5'

Depth	Blow count	PID (ppm)	Sample	Graphic	USCS	Geologic Description	Well Design
						Brown, silty loam w/ minor sand and small gravels - dry	
5				GM		Brown, silty loam w/ minor sand and small gravels - dry	
10				GM		Brown, silty loam w/ minor sand and small gravels - dry	
15				GM		Brown, silty loam w/ minor sand and small gravels - dry	
20			*			At ~ 18' - Light brown sand w/ angular gravels - Hard (Auger Refusal) Begin Air Rotary Drilling	
25						Angular Gravels and Sand - Hard (weathered sandstone ?) Light Gray Sandstone -(dry)	
30						Light Gray Sandstone -(dry)	
35						Light Gray Sandstone -(dry)	
40						Light Gray Sandstone -(dry)	

SOIL BORING LOG

PROJECT NAME: La Cueva Patrol Yard	DATE: 10/16/2002	Page 4 of 10
PROJECT NO.: 1145/3.0	LOGGED BY: J. Bunch	
CLIENT NAME: NMSH & TD	SITE ELEV.:	DRILLING METHOD: HSA/AR
Monitor Well/Boring No.: MW-2		GW DEPTH: 54.5'

Depth	Blow count	PID (ppm)	Sample	Graphic	USCS	Geologic Description	Well Design
45						Light Gray Sandstone -(dry)	
50						Light Gray Sandstone -(dry)	
55						Light Gray Sandstone -Saturated Water zone encountered @ 54.5'	
60						Light Gray Sandstone -Saturated	
61							
62							
						TD	
						Well Specification - Screened Interval - 61.5' - 41.5' Sand Interval - 61.5' - 39' Bentonite Seal - 39' - 37.5' Grout - 37.5' - ground surface	

**APPENDIX B
SOIL BORING FIELD LOG FORM**



EA Engineering, Science, and Technology, Inc.

BORING/WELL CONSTRUCTION LOG

Project:	Project Number:
Drilling Company:	Start Time/Date:
Drilling Rig/Bit:	Completion Time/Date:
Driller:	Final Depth:
Boring/Well ID:	Logged By: _____ Page _____ of _____

Sample Type	Blow Counts/6"	Sample Interval	PID Reading	USCS Soil Type	Depth, ft bgs	Soil Description (soil type, color, density/consistency, plasticity, moisture, grain size, angularity/minerology, other)	Boring and/or Well Details
					1		
					2		
					3		
					4		
					5		
					6		
					7		
					8		
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					39		
					40		



EA Engineering, Science, and Technology, Inc.

BORING/WELL CONSTRUCTION LOG

Project:	Project Number:
Drilling Company:	Start Time/Date:
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Driller:	Final Depth:
Boring/Well ID:	Logged By: _____ Page _____ of _____

Sample Type	Blow Counts/6"	Sample Interval	PID Reading	USCS Soil Type	Depth, ft bgs	Soil Description (soil type, color, density/consistency, plasticity, moisture, grain size, angularity/mineralogy, other)	Boring and/or Well Details
					41		
					42		
					43		
					44		
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