

**Los Alamos**  
 NATIONAL LABORATORY  
 EST. 1943  
*Environmental Programs*  
 P.O. Box 1663, MS M991  
 Los Alamos, New Mexico 87545  
 (505) 606-2337/FAX (505) 665-1812



*National Nuclear Security Administration*  
 Los Alamos Site Office, MS A316  
 Environmental Restoration Program  
 Los Alamos, New Mexico 87544  
 (505) 667-4255/FAX (505) 606-2132

Date: **JUL 19 2010**  
 Refer To: EP2010-0286

James Bearzi, Bureau Chief  
 Hazardous Waste Bureau  
 New Mexico Environment Department  
 2905 Rodeo Park Drive East, Building 1  
 Santa Fe, NM 87505-6303

**Subject: Submittal of the Response to the Notice of Disapproval Documentation of Completion of Cross-Vane Structures Corrective Maintenance Actions in Pueblo Canyon**

Dear Mr. Bearzi:

In accordance with the New Mexico Environment Department's (NMED's) Notice of Disapproval Documentation of Completion of Cross-Vane Structures Located in Pueblo Canyon letter, dated June 4, 2010, Los Alamos National Laboratory (the Laboratory) is providing the as-built drawings that depict the dimensions and elevations of the cross-vane structures in Pueblo Canyon. As requested, the Laboratory will inspect the cross-vane structures monthly between April and October and after rain events when total precipitation within a 24-h period exceeds 0.5 in. to assess their effectiveness. The results of these inspections and any recommendations to modify or replace the structures will be included in the annual monitoring report documenting geomorphic changes in Los Alamos and Pueblo Canyons due May 30 of each year beginning in 2011.

If you have any questions, please contact Steve Veenis at (505) 667-0013 (veenis@lanl.gov) or Nancy Werdel at (505) 665-3619 (nwerdel@doeal.gov).

Sincerely,

Michael J. Graham, Associate Director  
 Environmental Programs  
 Los Alamos National Laboratory

Sincerely,

George J. Rael, Manager  
 Environmental Project Office  
 Los Alamos Site Office



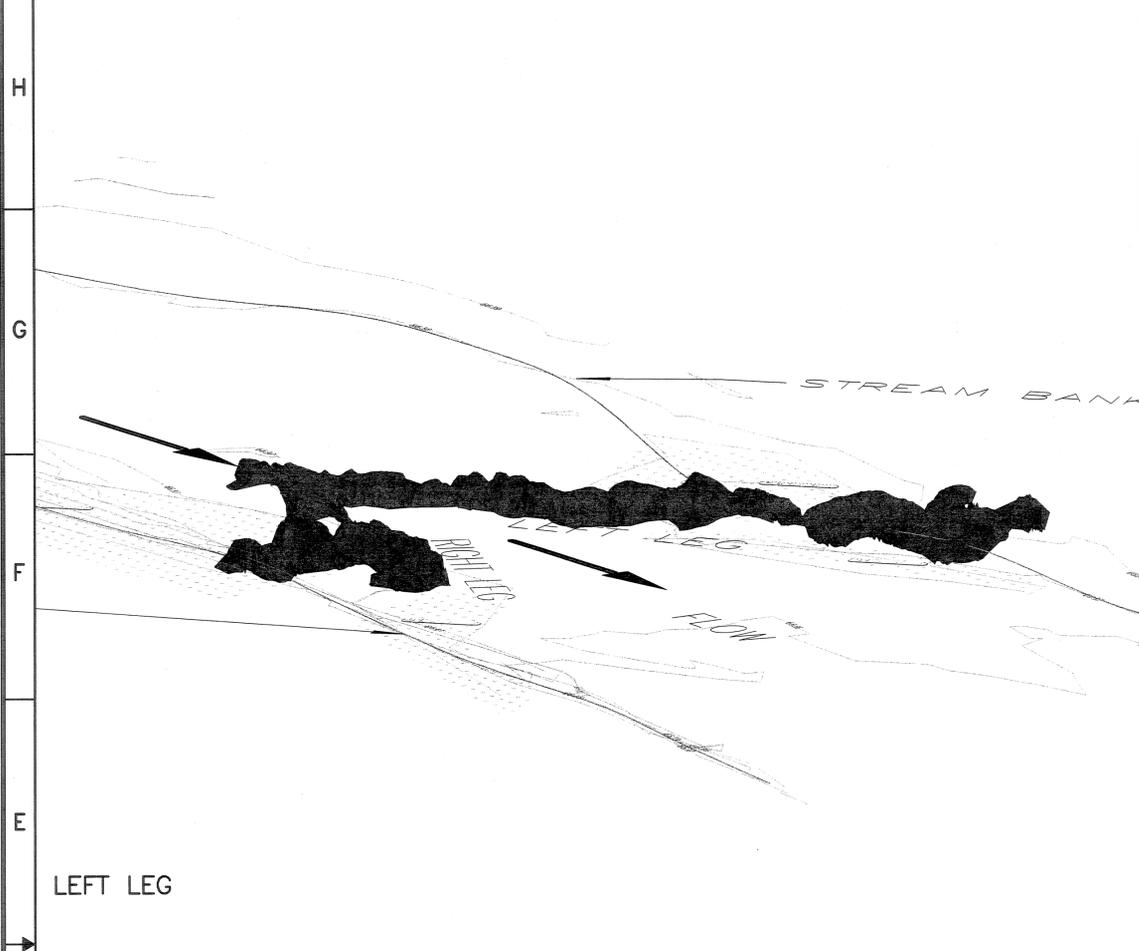
MG/GR/DM/SV:sm

Attachment: Two hard copies with electronic files – Documentation of Completion of Cross-Vane Structures Corrective Maintenance Actions in Pueblo Canyon (LA-UR-10-4360)

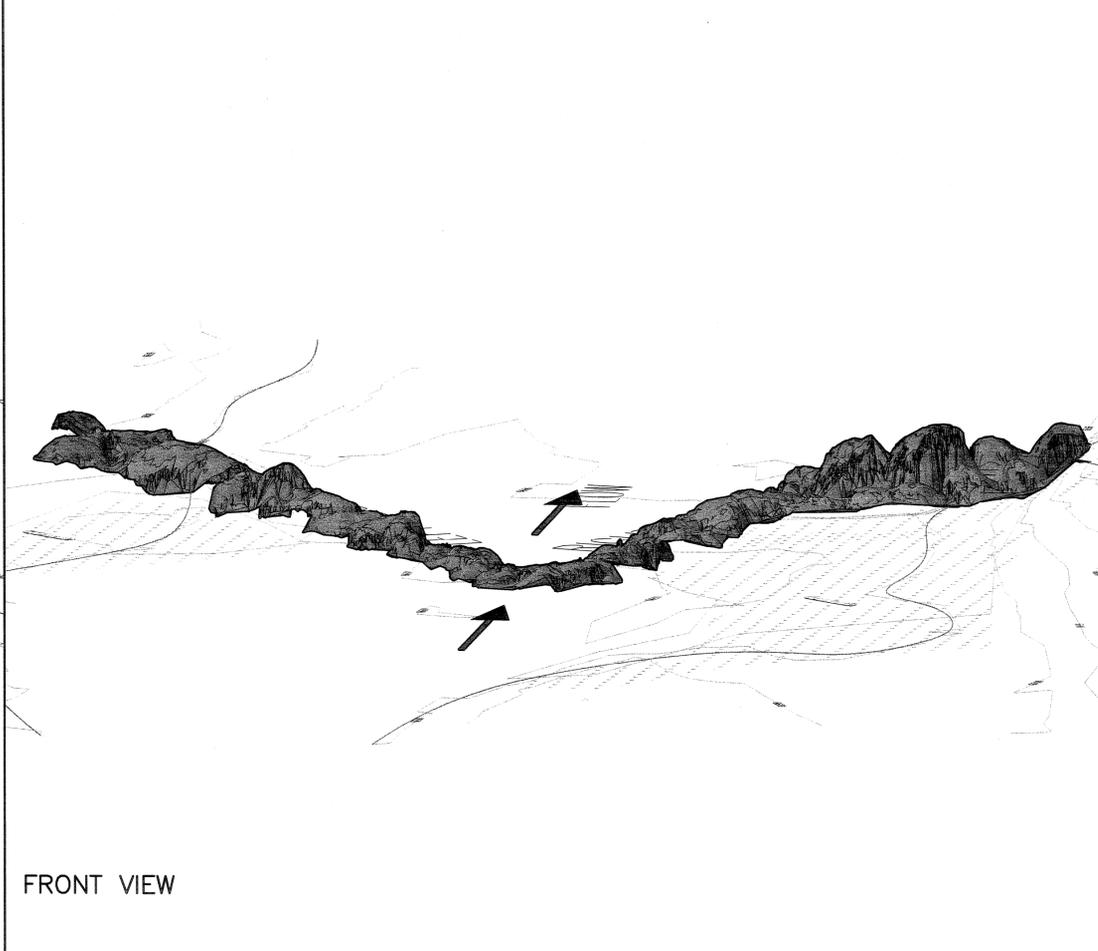
Cy: (w/enc.)  
Neil Weber, San Ildefonso Pueblo  
Nancy Werdel, DOE-LASO, MS A316  
Steve Veenis, EP-CAP, MS K490  
RPF, MS M707 (w/ two CDs)  
Public Reading Room, MS M992

Cy: (Letter and CD and/or DVD only)  
Laurie King, EPA Region 6, Dallas, TX  
Steve Yanicak, NMED-DOE-OB, MS M894  
David Cobrain, NMED-HWB, Santa Fe, NM  
Danny Katzman, EP-ET-DO, MS M992  
Dennis Romero, EP-ET-DO, MS K490  
Kristine Smeltz, EP-BPS, MS M992

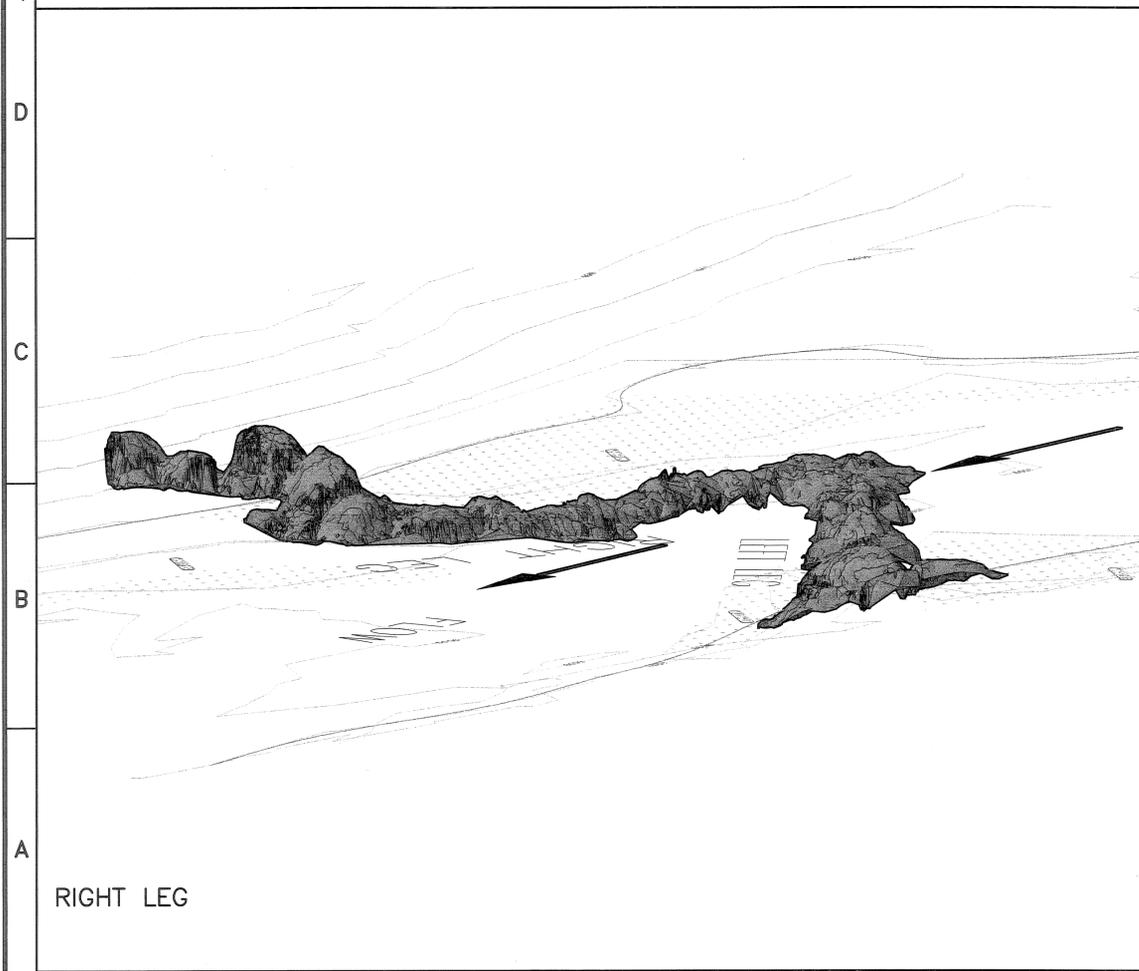
Cy: (w/o enc.)  
Tom Skibitski, NMED-OB, Santa Fe, NM  
Annette Russell, DOE-LASO (date-stamped letter emailed)  
Dave McInroy, EP-CAP, MS M992  
Michael J. Graham, ADEP, MS M991  
IRM-RMMSO, MS A150 (date-stamped letter emailed)



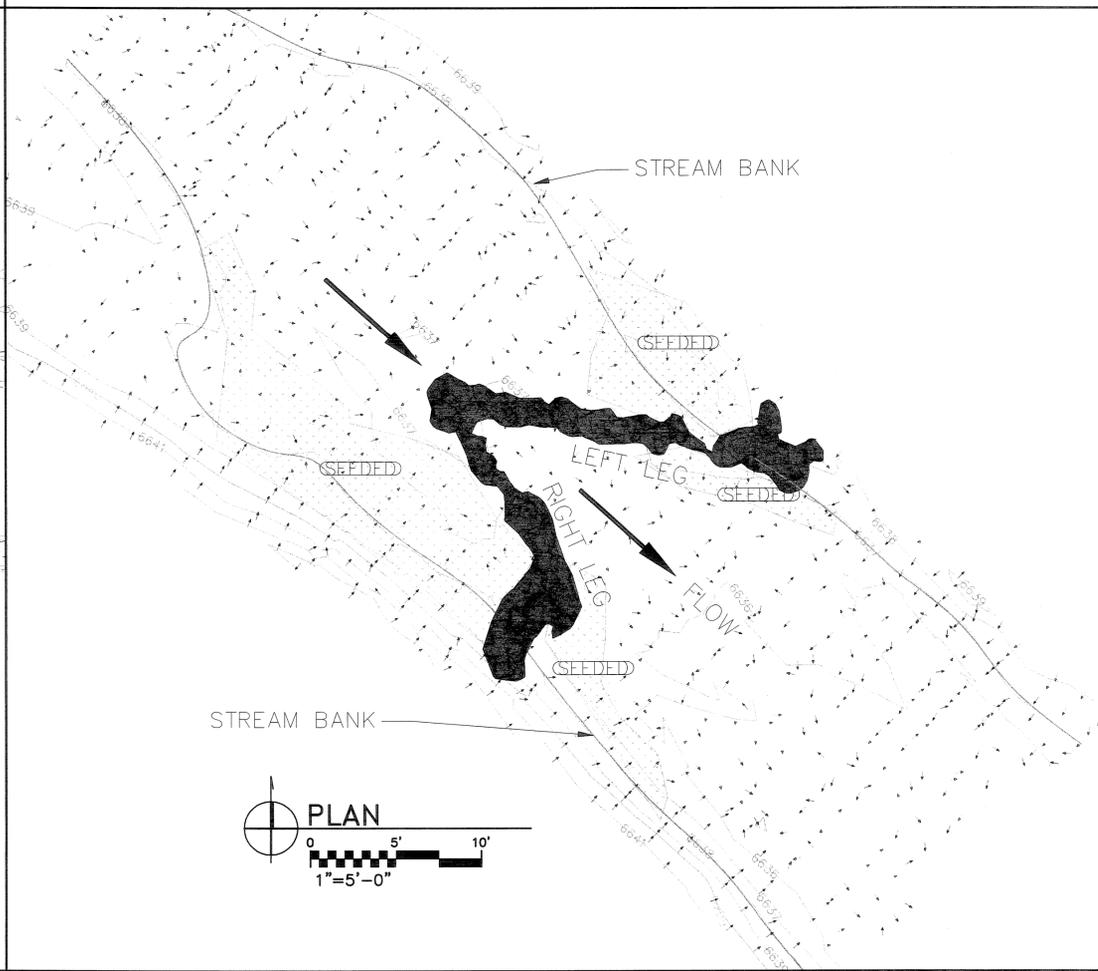
LEFT LEG



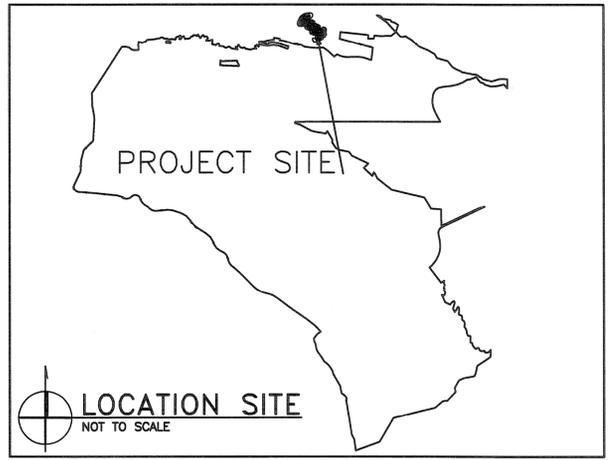
FRONT VIEW



RIGHT LEG



PLAN  
0 5' 10'  
1"=5'-0"



1. ALL BEARINGS AND DISTANCES ARE BASED ON THE NAD83 NEW MEXICO STATE PLANE, CENTRAL ZONE, US SURVEY FOOT. SHOWN DISTANCES ARE GRID DISTANCES. COMBINED PROJECT SCALE FACTOR IS 0.9995528350, MULTIPLY BY 1.00044491436 TO CONVERT FROM GRID TO GROUND DISTANCE. ELEVATIONS ARE BASED ON NGVD29 DATUM.
2. ALL AREAS OF SOIL DISTURBANCE ALONG STREAM BANK WERE STABILIZED WITH HYDROSEEDING AND HYDROMULCH PER LANL SPECIFICATION 32 9219.
3. BOULDERS OF 1 TO 1.5 FT IN DIAMETER WERE USED TO FILL IN EXISTING GAPS IN STRUCTURE.
4. ADDITIONAL BOULDERS WERE ADDED TO ANCHOR STRUCTURES INTO STREAM BANK. ANCHOR BOULDERS ARE 2 TO 4 FT IN DIAMETER AND WERE ANCHORED IN AT EXISTING STREAM BANK ELEVATION.
5. CROSS VANE #1 IS THE WESTERNMOST STRUCTURE IN PUEBLO CANYON AND IS LOCATED NEXT TO TEST WELL 1.
6. SCALE SHOWN APPLIES TO PLAN VIEW ONLY.
7. STREAM BANK DELINEATIONS SHOWN ARE BEST JUDGEMENT OF PROJECT ENGINEER.

**SURVEYORS CERTIFICATION**

I, CHARLES P. MALONE, NEW MEXICO PROFESSIONAL SURVEYOR NO. 13611, DO HEREBY CERTIFY THAT THIS DRAWING NO. ENG SK-10579 AND THE ACTUAL SURVEY ON THE GROUND IN JULY 2010 UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.



CHARLES P. MALONE, PS NO. 13611 DATE

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

**UTILITIES AND INFRASTRUCTURE**

**PUEBLO CANYON CROSS VANE STRUCTURE #1 AS-BUILT**

PROJECT ENGINEER: DENNIS ROMERO P.E. APPROVED FOR RELEASE: STEVE VEENIS

DATE: 07-12-10

SHEET: V-1000

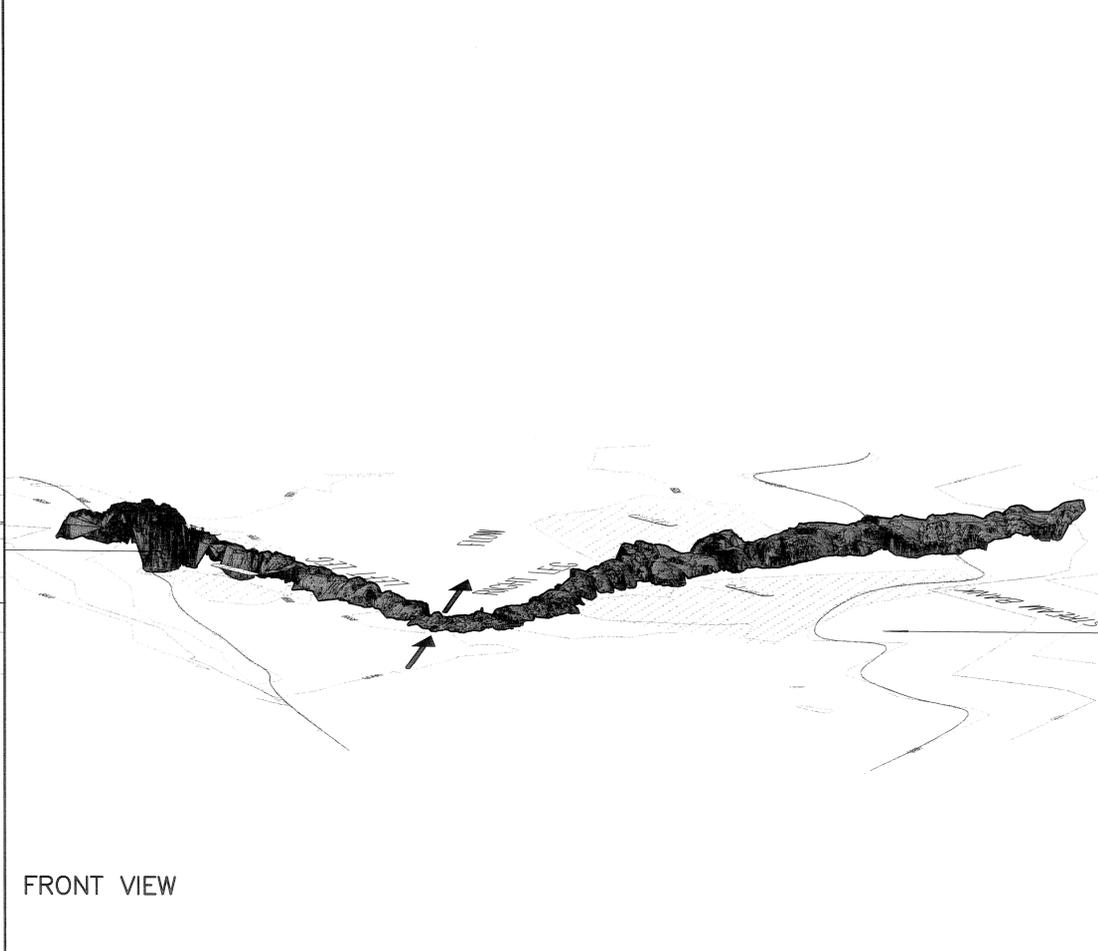
1 OF 3

CLASSIFICATION: U ADC: H SALAZAR DATE: 07-12-10

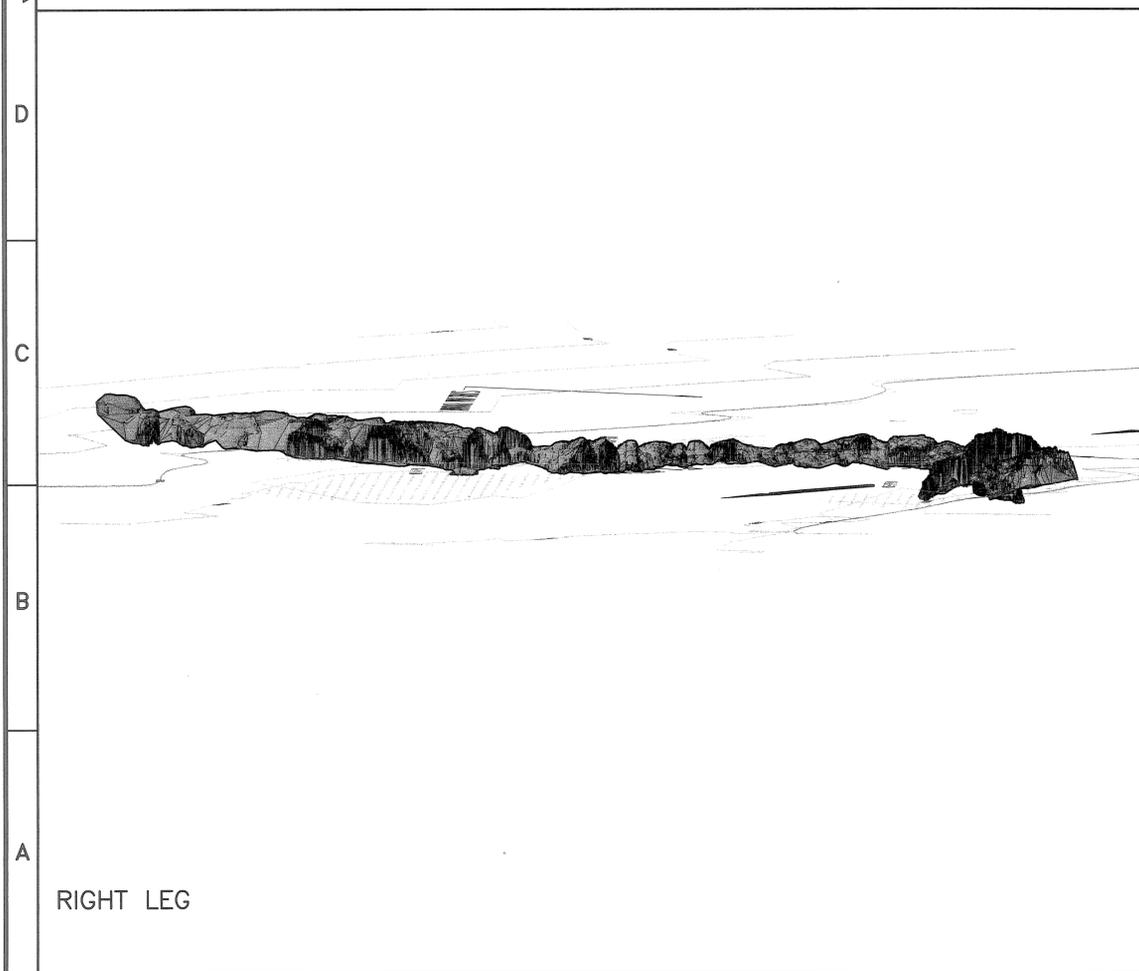
PROJECT ID: 102435 DRAWING NO: ENG SK-10579 REV: 0



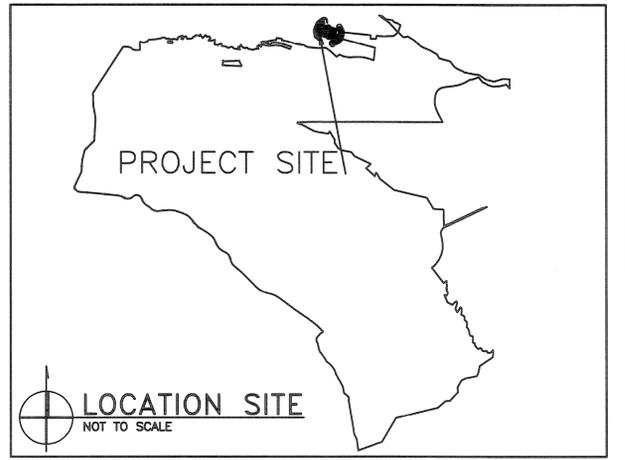
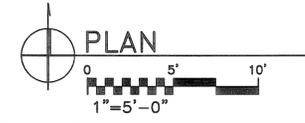
LEFT LEG



FRONT VIEW



RIGHT LEG



1. ALL BEARINGS AND DISTANCES ARE BASED ON THE NAD83 NEW MEXICO STATE PLANE, CENTRAL ZONE, US SURVEY FOOT. SHOWN DISTANCES ARE GRID DISTANCES. COMBINED PROJECT SCALE FACTOR IS 0.9995528350, MULTIPLY BY 1.0004491436 TO CONVERT FROM GRID TO GROUND DISTANCE. ELEVATIONS ARE BASED ON NGVD29 DATUM.
2. ALL AREAS OF SOIL DISTURBANCE ALONG STREAM BANK WERE STABILIZED WITH HYDROSEEDING AND HYDROMULCH PER LANL SPECIFICATION 32 9219.
3. BOULDERS OF 1 TO 1.5 FT IN DIAMETER WERE USED TO FILL IN EXISTING GAPS IN STRUCTURE.
4. ADDITIONAL BOULDERS WERE ADDED TO ANCHOR STRUCTURES INTO STREAM BANK. ANCHOR BOULDERS ARE 2 TO 4 FT IN DIAMETER AND WERE ANCHORED IN AT EXISTING STREAM BANK ELEVATION.
5. CROSS VANE #2 IS LOCATED IN THE PUEBLO CANYON STREAM CHANNEL MIDWAY BETWEEN CROSS VANES #1 AND #3.
6. SCALE SHOWN APPLIES TO PLAN VIEW ONLY.
7. STREAM BANK DELINEATIONS SHOWN ARE BEST JUDGEMENT OF PROJECT ENGINEER.

**SURVEYORS CERTIFICATION**

I, CHARLES P. MALONE, NEW MEXICO PROFESSIONAL SURVEYOR NO. 13611, DO HEREBY CERTIFY THAT THIS DRAWING NO. ENG SK-10579 AND THE ACTUAL SURVEY ON THE GROUND IN JULY 2010 UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.



CHARLES P. MALONE, PS NO. 13611 DATE

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

**UTILITIES AND INFRASTRUCTURE**

**PUEBLO CANYON CROSS VANE STRUCTURE #2 AS-BUILT**

BLDG 0000	TA-00
PROJECT ENGINEER DENNIS ROMERO P.E.	APPROVED FOR RELEASE STEVE VEENIS
DATE 07-12-10	SHEET V-1001
2 OF 3	

Los Alamos NATIONAL LABORATORY

PO Box 1663  
Los Alamos, New Mexico 87545

CLASSIFICATION: U ADC: H SALAZAR

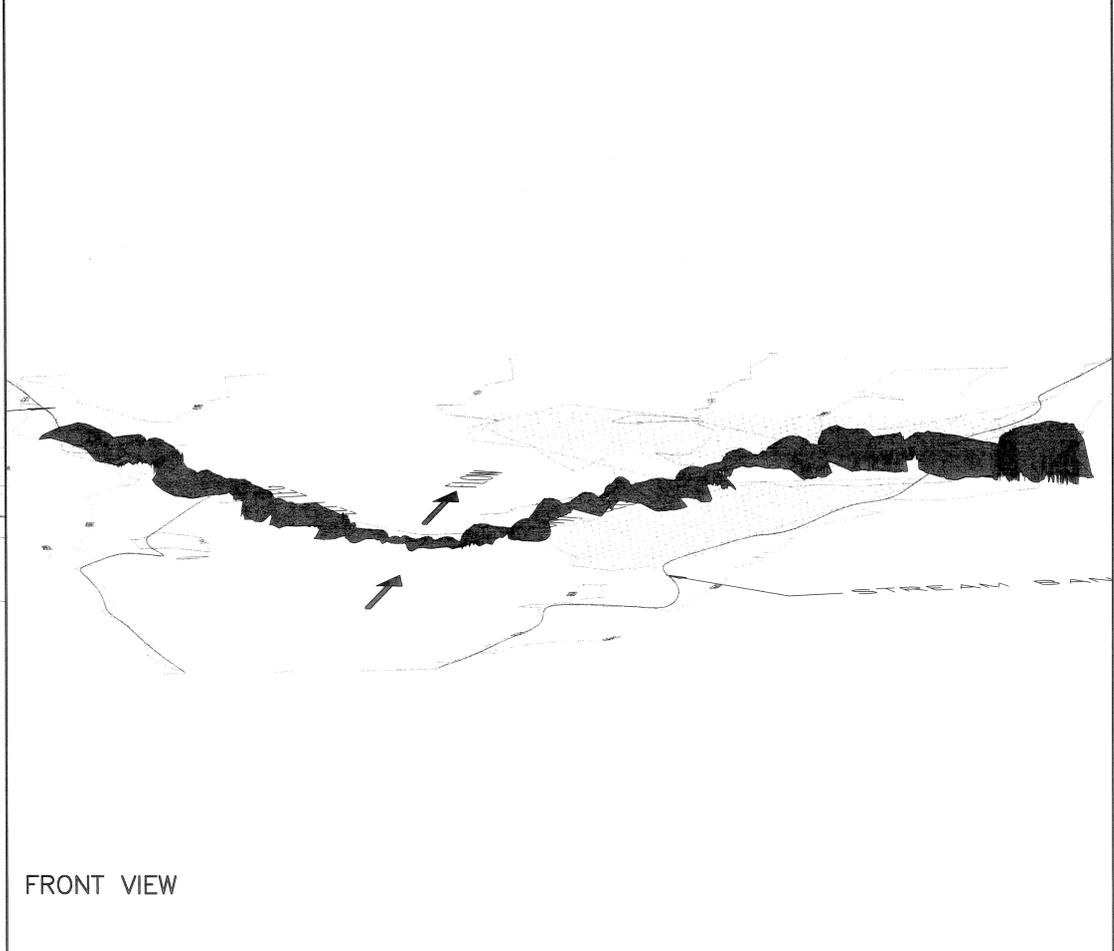
PROJECT ID 102435 DRAWING NO. ENG SK-10579

DATE: 07-12-10

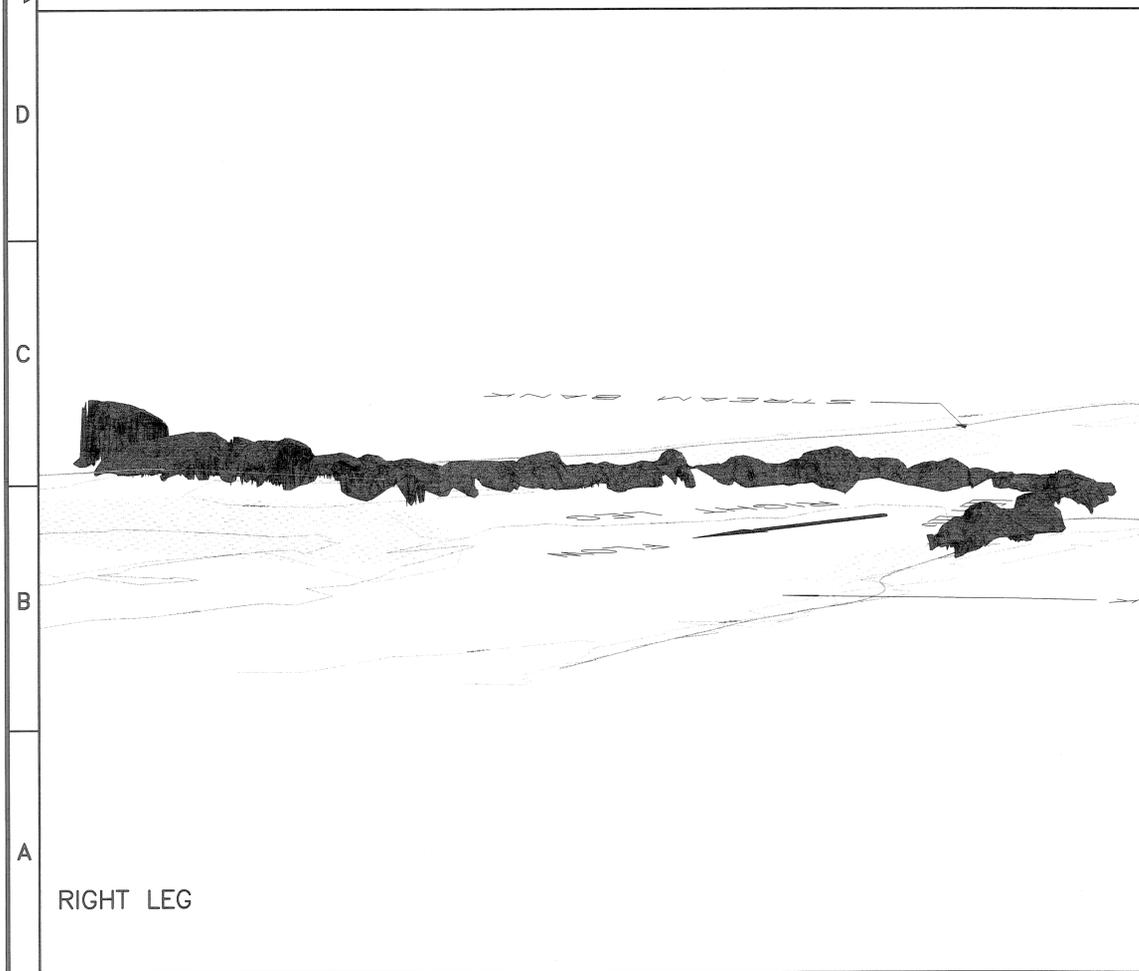
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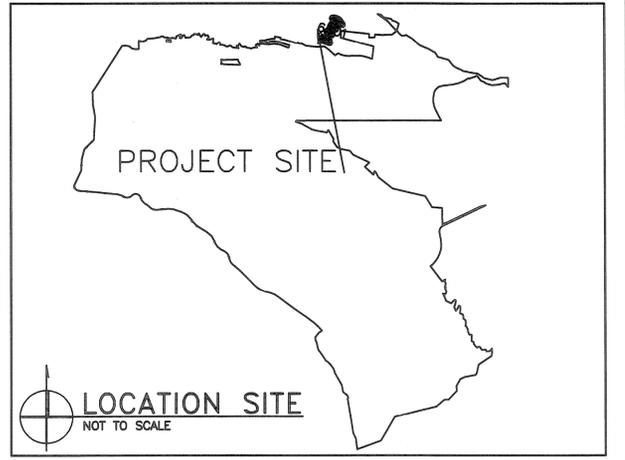
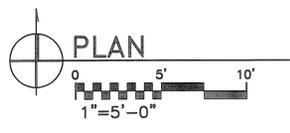
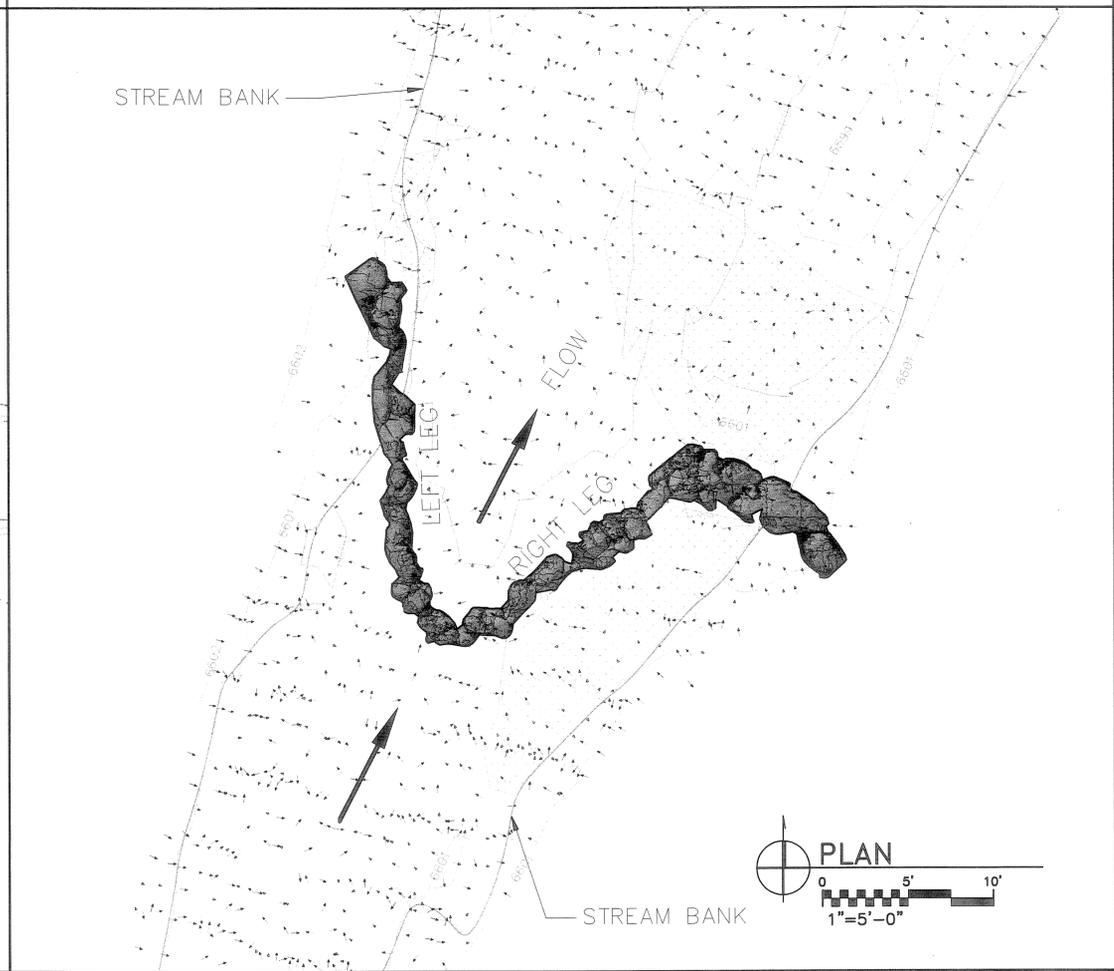
LEFT LEG



FRONT VIEW



RIGHT LEG



1. ALL BEARINGS AND DISTANCES ARE BASED ON THE NAD83 NEW MEXICO STATE PLANE, CENTRAL ZONE, US SURVEY FOOT. SHOWN DISTANCES ARE GRID DISTANCES. COMBINED PROJECT SCALE FACTOR IS 0.9995528350, MULTIPLY BY 1.00044491436 TO CONVERT FROM GRID TO GROUND DISTANCE. ELEVATIONS ARE BASED ON NGVD29 DATUM.
2. ALL AREAS OF SOIL DISTURBANCE ALONG STREAM BANK WERE STABILIZED WITH HYDROSEEDING AND HYDROMULCH PER LANL SPECIFICATION 32 9219.
3. BOULDERS OF 1 TO 1.5 FT IN DIAMETER WERE USED TO FILL IN EXISTING GAPS IN STRUCTURE.
4. ADDITIONAL BOULDERS WERE ADDED TO ANCHOR STRUCTURES INTO STREAM BANK. ANCHOR BOULDERS ARE 2 TO 4 FT IN DIAMETER AND WERE ANCHORED IN AT EXISTING STREAM BANK ELEVATION.
5. CROSS VANE #3 IS THE EASTERNMOST STRUCTURE IN PUEBLO CANYON.
6. SCALE SHOWN APPLIES TO PLAN VIEW ONLY.
7. STREAM BANK DELINEATIONS SHOWN ARE BEST JUDGEMENT OF PROJECT ENGINEER.

**SURVEYORS CERTIFICATION**

I, CHARLES P. MALONE, NEW MEXICO PROFESSIONAL SURVEYOR NO. 13611, DO HEREBY CERTIFY THAT THIS DRAWING NO. ENG SK-10579 AND THE ACTUAL SURVEY ON THE GROUND IN JULY 2010 UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.



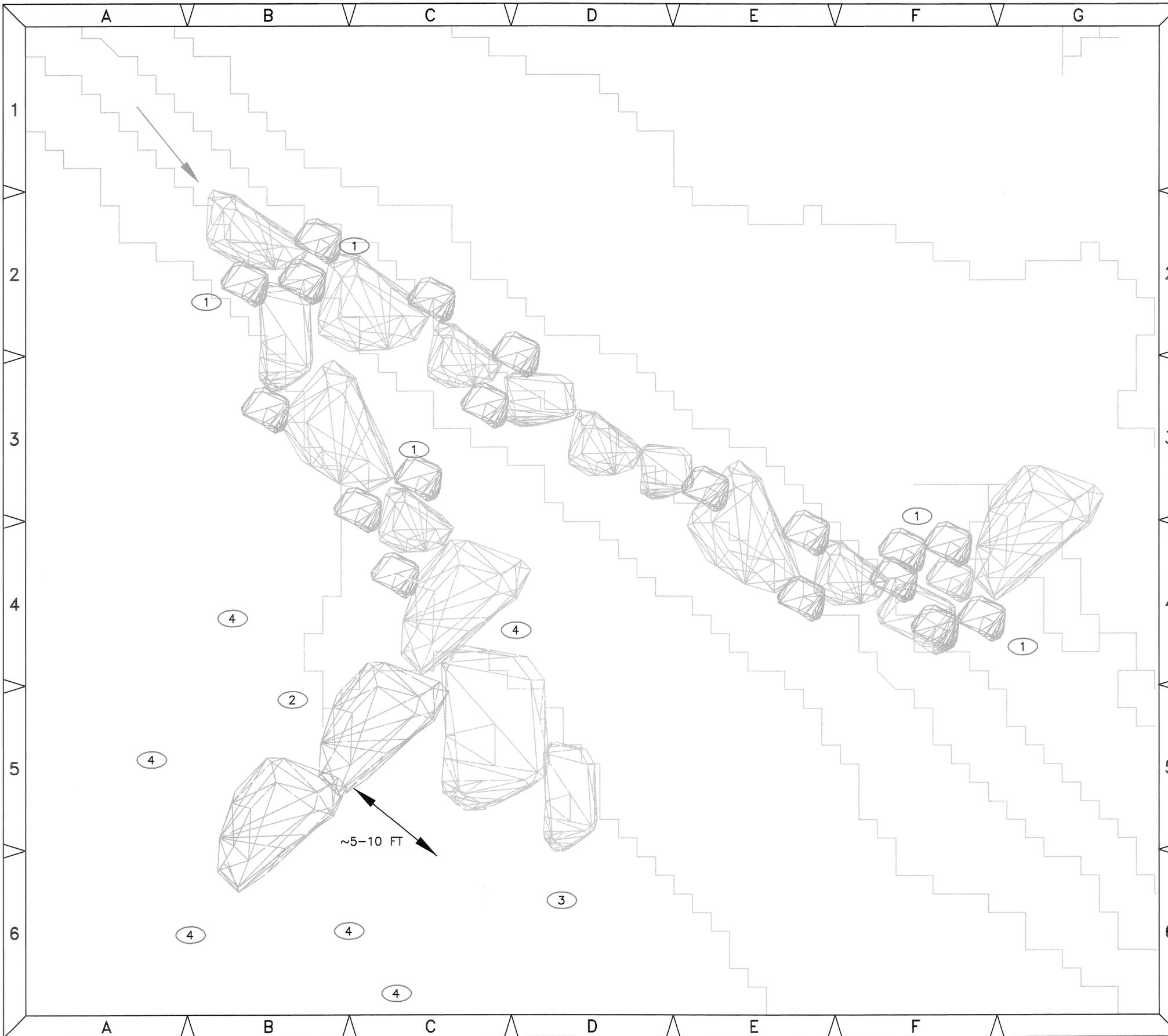
CHARLES P. MALONE, PS NO. 13611 DATE

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

**UTILITIES AND INFRASTRUCTURE**

**PUEBLO CANYON CROSS VANE STRUCTURE #3 AS-BUILT**

BLDG 0000	TA-00
PROJECT ENGINEER DENNIS ROMERO P.E. <i>[Signature]</i>	APPROVED FOR RELEASE STEVE VEENIS <i>[Signature]</i>
SHEET <b>V-1002</b>	
3 OF 3	
CLASSIFICATION: U	ADC: H SALAZAR <i>[Signature]</i>
PROJECT ID <b>102435</b>	DRAWING NO <b>ENG SK-10579</b>
DATE 07-12-10	REV 0



**GENERAL NOTES**

1. NO GRAPHIC SCALE PROVIDED.
2. CROSS-VANE #1 IS THE WESTERNMOST STRUCTURE IN PUEBLO CANYON. LOCATED NEXT TO TEST WELL 1.
3. ALL AREAS OF SOIL DISTURBANCE MUST BE STABILIZED WITH PERMANENT VEGETATION PER LANL SPECIFICATION 32 9219.
4. SEE TYPICAL CROSS-VANE CROSS SECTION SHEET FOR DETAIL ON BOULDER ELEVATION.

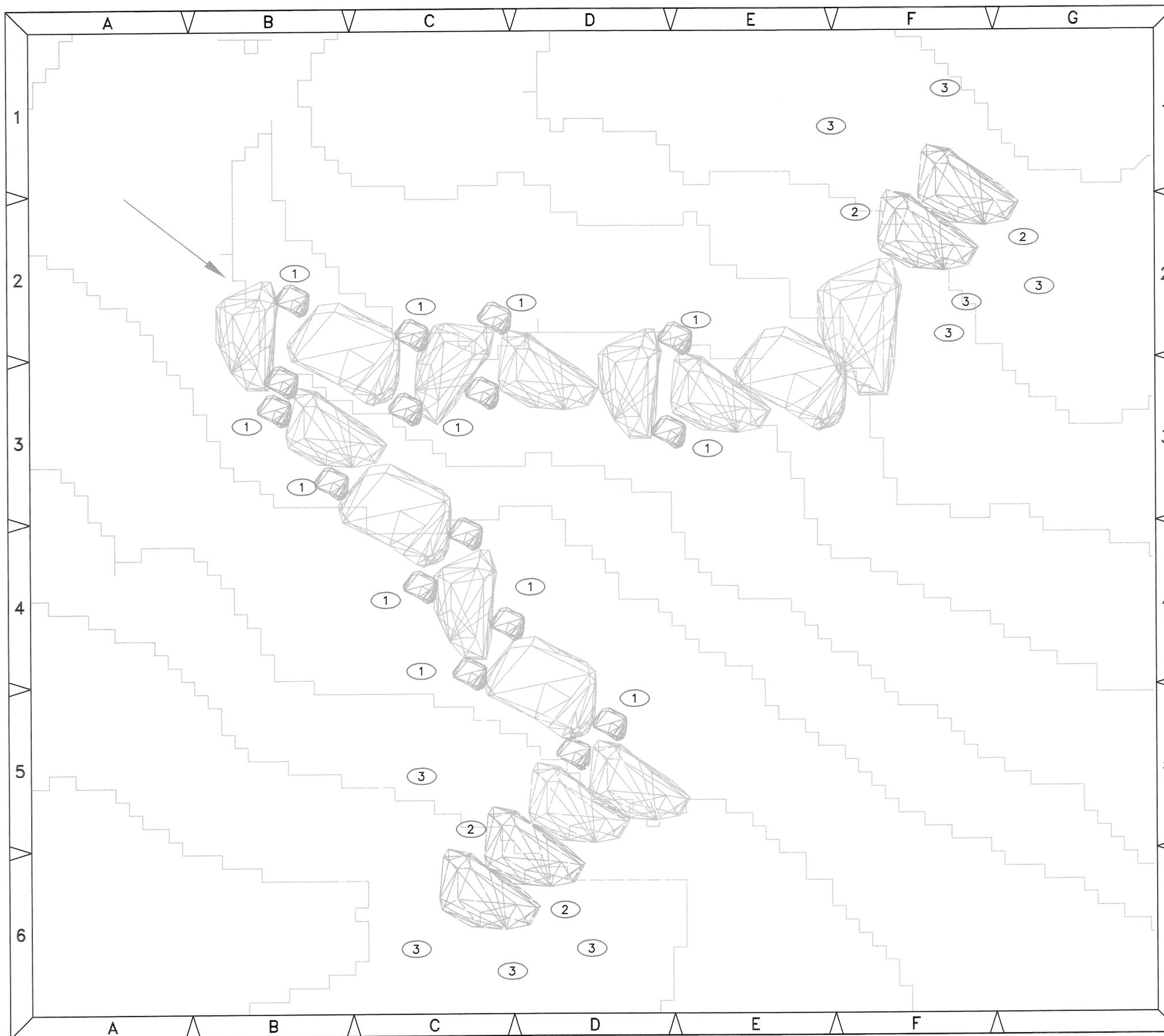
**KEYED NOTES**

- ① ANCHOR 1-1.5-FT BOULDERS INTO STREAMBED WHERE GAPS EXIST. TOP OF INSERTED BOULDERS MUST BE 6-INCHES BELOW TOPS OF EXISTING BOULDERS.
- ② ADD ADDITIONAL BOULDERS TO ANCHOR STRUCTURES INTO STREAM BANKS. SIZE OF BOULDERS MUST BE 3 TO 5 FEET IN DIAMETER. MUST BE ANCHORED IN AT EXISTING STREAM BANK ELEVATION.
- ③ EXISTING TREE. DO NOT TRENCH THROUGH ROOT SYSTEM.
- ④ ALL DISTURBED AREAS ALONG STREAM BANK MUST BE STABILIZED VIA HYDROSEEDING AND HYDROMULCHING.

**LEGEND**

-  FLOW
-  EXISTING BOULDER
-  BOULDERS TO BE ADDED FOR CORRECTIVE MAINTENANCE.
-  AREA TO BE HYDROSEEDED/HYDROMULCHED.

NO		DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
ET-DO		Environmental Programs Directorate Engineering & Technology Pueblo Canyon							
<p style="text-align: center;">PUEBLO CANYON CROSS-VANE STRUCTURE #1 CORRECTIVE MAINTENANCE PLAN</p>					DRAWN	D. ROMERO <i>[Signature]</i>			
					VERIFIED	J. SALAZAR <i>[Signature]</i>			
					CHECKED	S. VEENIS <i>[Signature]</i>			
					DATE	4-15-2010			
SUBMITTED		APPROVED FOR RELEASE							
DENNIS ROMERO, P.E.		APPROVED STEVE VEENIS <i>[Signature]</i>							
Los Alamos		Los Alamos National Laboratory Los Alamos, New Mexico 87545			SHEET		1 / 4		
CLASSIFICATION U		REVIEWER H. SALAZAR <i>[Signature]</i>		DATE 7-12-10					
PROJECT ID 102345		DRAWING NO ENG SK-10579			REV 0				



**GENERAL NOTES**

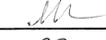
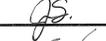
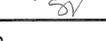
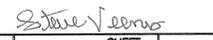
1. NO GRAPHIC SCALE PROVIDED.
2. CROSS-VANE #2 LOCATED IN PUEBLO CANYON BETWEEN CROSS-VANES #1 AND #3.
3. ALL AREAS OF SOIL DISTURBANCE MUST BE STABILIZED WITH PERMANENT VEGETATION PER LANL SPECIFICATION 32 9219.
4. SEE TYPICAL CROSS SECTION SHEET FOR DETAILS ON BOULDER ELEVATIONS.

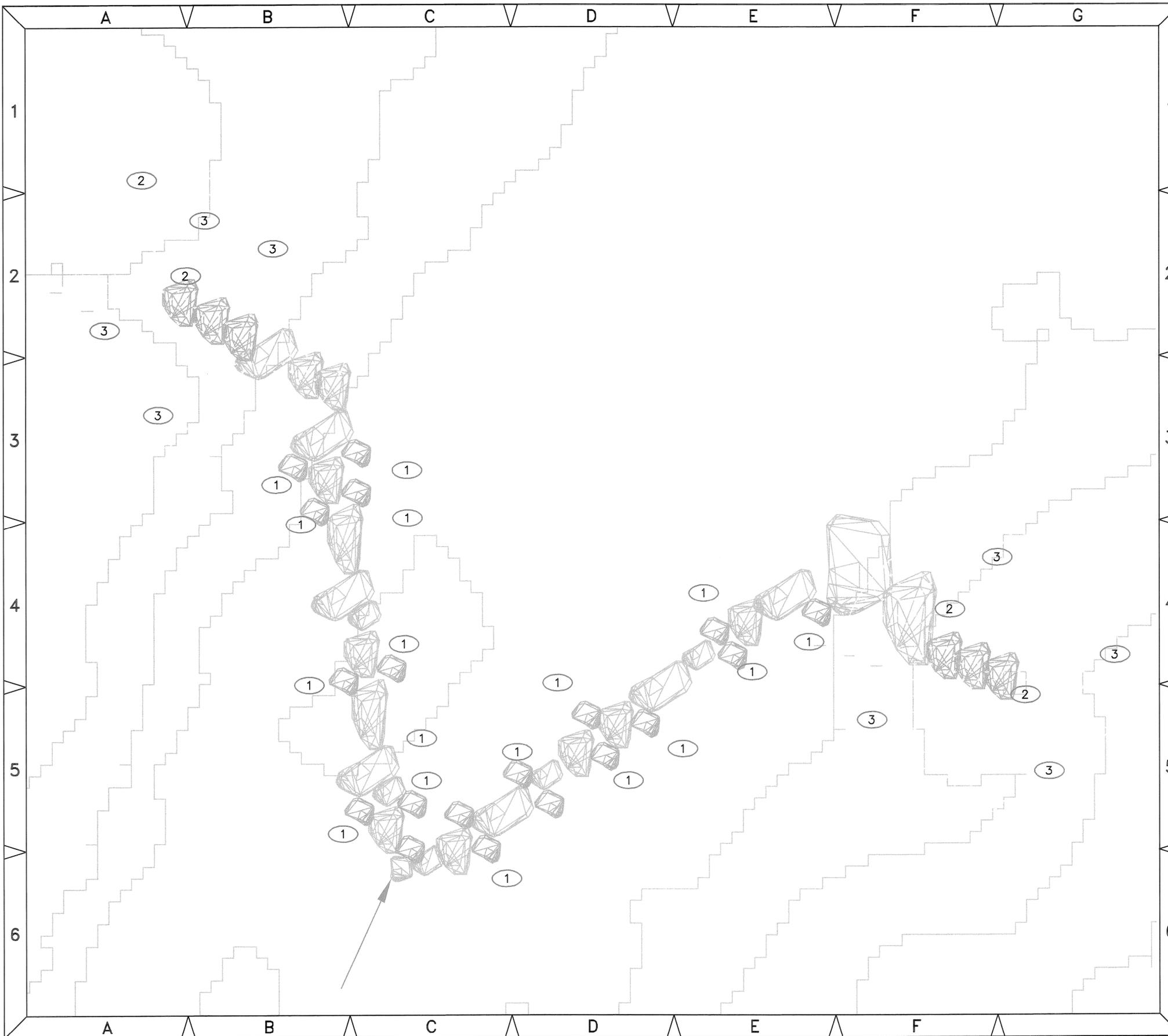
**KEYED NOTES**

- ① ANCHOR 1-1.5-FT BOULDERS INTO STREAMBED WHERE GAPS EXIST. TOP OF INSERTED BOULDERS MUST BE 6-INCHES EXISTING BOULDERS.
- ② ADD ADDITIONAL BOULDERS TO ANCHOR STRUCTURES INTO STREAM BANKS. SIZE OF BOULDERS MUST BE 3 TO 5 FEET IN DIAMETER. MUST BE ANCHORED IN AT EXISTING STREAM BANK ELEVATION.
- ③ ALL DISTURBED AREAS ALONG STREAM BANK MUST BE STABILIZED VIA HYDROSEEDING AND HYDROMULCHING.

**LEGEND**

-  FLOW
-  EXISTING BOULDER
-  BOULDERS TO BE ADDED FOR CORRECTIVE MAINTENANCE.
-  AREA TO BE HYDROSEEDED/HYDROMULCHED.

NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
ET-DO			Environmental Programs Directorate Engineering & Technology Pueblo Canyon					
PUEBLO CANYON CROSS-VANE STRUCTURE #2 CORRECTIVE MAINTENANCE PLAN			DRAWN	D. ROMERO				
			VERIFIED	J. SALAZAR				
			CHECKED	S. VEENIS				
			DATE	4-15-2010				
SUBMITTED			APPROVED FOR RELEASE		APPROVED STEVE VEENIS			
DENNIS ROMERO, P.E.			APPROVED STEVE VEENIS					
Los Alamos			Los Alamos National Laboratory Los Alamos, New Mexico 87545		C-1		2 4	
CLASSIFICATION U			REVIEWER H. SALAZAR		DATE 7-12-10			
PROJECT ID 102435			DRAWING NO ENG SK-10579		REV 0			



**GENERAL NOTES**

1. NO GRAPHIC SCALE PROVIDED.
2. CROSS-VANE #3 IS EASTERNMOST STRUCTURE LOCATED IN PUEBLO CANYON.
3. ALL AREAS OF SOIL DISTURBANCE MUST BE STABILIZED WITH PERMANENT VEGETATION PER LANL SPECIFICATION 32 9219.
4. SEE TYPICAL CROSS-VANE CROSS SECTION SHEET FOR DETAIL ON BOULDER ELEVATION.

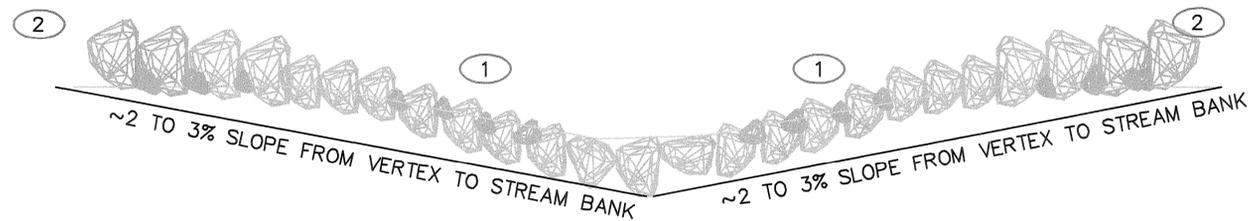
**KEYED NOTES**

- ① ANCHOR 1-1.5-FT BOULDERS INTO STREAMBED WHERE GAPS EXIST. TOP OF INSERTED BOULDERS MUST BE 6-INCHES BELOW TOP OF EXISTING BOULDERS.
- ② ADD ADDITIONAL BOULDERS TO ANCHOR STRUCTURES INTO STREAM BANKS. SIZE OF BOULDERS MUST BE 3 TO 5 FEET IN DIAMETER. THESE MUST BE ANCHORED IN AT EXISTING STREAM BANK ELEVATION.
- ③ ALL DISTURBED AREAS ALONG STREAM BANK MUST BE STABILIZED VIA HYDROSEEDING AND HYDROMULCHING.

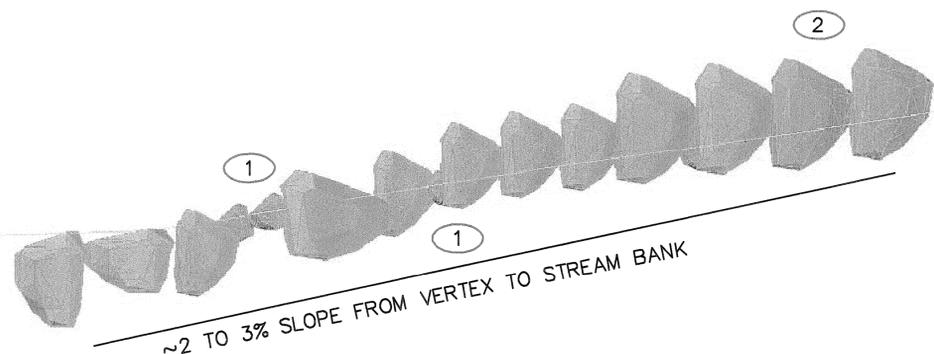
**LEGEND**

- FLOW
- EXISTING BOULDER
- BOULDERS TO BE ADDED FOR CORRECTIVE MAINTENANCE.
- AREA TO BE HYDROSEEDED/HYDROMULCHED.

NO		DATE	CLASS REV	DESCRIPTION	OWN	VER	CHKD	SUB	APP
ET-DO		Environmental Programs Directorate Engineering & Technology Pueblo Canyon							
PUEBLO CANYON CROSS-VANE STRUCTURE #3 CORRECTIVE MAINTENANCE PLAN					DRAWN	D. ROMERO			
					VERIFIED	J. SALAZAR			
					CHECKED	S. VEENIS			
					DATE	4-15-2010			
SUBMITTED		APPROVED FOR RELEASE							
DENNIS ROMERO, P.E.		APPROVED			STEVE VEENIS				
Los Alamos		Los Alamos National Laboratory Los Alamos, New Mexico 87545			SHEET		3		
CLASSIFICATION U		REVIEWER H. SALAZAR			DATE		7-12-10		
PROJECT ID		DRAWING NO			REV		4		
102435		ENG SK-10579			0				



FRONT VIEW



SIDE VIEW

**GENERAL NOTES**

1. NO GRAPHIC SCALE PROVIDED.
2. THREE ROCKS AT FRONT END OF STRUCTURE (VERTEX) TO BE BURIED BELOW EXISTING STREAM GRADE.
3. ALL GAPS BETWEEN EXISTING BOULDERS MUST BE FILLED IN WITH BOULDERS 1 - 1.5 FEET IN DIAMETER.
4. TOPS OF SMALLER BOULDERS MUST BE 6 INCHES BELOW TOPS OF EXISTING LARGER BOULDERS.

**KEYED NOTES**

- ① ANCHOR 1-1.5-FT BOULDERS INTO STREAMBED WHERE GAPS EXIST. TOP OF INSERTED BOULDERS MUST BE 6-INCHES BELOW TOPS OF EXISTING BOULDERS.
- ② ADD ADDITIONAL BOULDERS TO ANCHOR STRUCTURES INTO STREAM BANKS. SIZE OF BOULDERS MUST BE 3 TO 5 FEET IN DIAMETER. MUST BE ANCHORED IN AT EXISTING STREAM BANK ELEVATION.

**LEGEND**

-  EXISTING STREAM BED
-  EXISTING BOULDER
-  BOULDERS TO BE ADDED FOR CORRECTIVE MAINTENANCE.

NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
<p>ET-DO Environmental Programs Directorate Engineering &amp; Technology Pueblo Canyon</p>								
<p>PUEBLO CANYON TYPICAL CROSS-VANE CROSS SECTION CORRECTIVE MAINTENANCE PLAN</p>				<p>DRAWN D. ROMERO <i>DR</i></p>				
				<p>VERIFIED J. SALAZAR <i>JS</i></p>				
				<p>CHECKED S. VEENIS <i>SV</i></p>				
				<p>DATE 4-15-2010</p>				
<p>SUBMITTED DENNIS ROMERO, P.E.</p>			<p>APPROVED FOR RELEASE APPROVED STEVE VEENIS <i>Steve Veenis</i></p>					
<p>Los Alamos National Laboratory Los Alamos, New Mexico 87545</p>			<p>C-1</p>		<p>SHEET 4</p>			
<p>CLASSIFICATION U</p>		<p>REVIEWER H. SALAZAR <i>HMS</i></p>		<p>DATE 7-12-10</p>				
<p>PROJECT ID 102435</p>			<p>DRAWING NO ENG SK-10579</p>			<p>REV 0</p>		