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

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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: MAY 3 0 2012
Refer To: EP2012-0091

John Kieling, 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 2011 Geomorphic Changes at Sediment Transport Mitigation Sites in the Los Alamos and Pueblo Canyon Watersheds

Dear Mr. Kieling:

Enclosed please find two hard copies with electronic files of the 2011 Geomorphic Changes at Sediment Transport Mitigation Sites in the Los Alamos and Pueblo Canyon Watersheds. This report is being submitted in accordance with the New Mexico Environment Department's Approval with Modifications, 2010 Geomorphic Changes at Sediment Transport Mitigation Sites in the Los Alamos and Pueblo Canyon Watersheds, dated July 1, 2011, requiring a report by May 31, 2012, that documents geomorphic changes at sediment transport mitigation sites in these canyons.

If you have any questions, please contact Steve Veenis at (505) 667-0013 (veenis@lanl.gov) or Cheryl Rodriguez at (505) 665-5330 (Cheryl.rodriguez@nnsa.doe.gov).

Sincerely,

for MJG

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

Sincerely,

Peter Maggiore, Assistant Manager
Environmental Projects Office
Los Alamos Site Office

35261

MG/PM/CD/SV:sm

Enclosures: Two hard copies with electronic files – 2011 Geomorphic Changes at Sediment Transport Mitigation Sites in the Los Alamos and Pueblo Canyon Watersheds (LA-UR-12-21330)

Cy: (w/enc.)
Cheryl Rodriguez, DOE-LASO, MS A316
Steve Veenis, EP-CAP, MS M997
Public Reading Room, MS M992 (hard copy)
RPF, MS M707 (electronic copy)

Cy: (Letter and CD and/or DVD)
Laurie King, EPA Region 6, Dallas, TX
Steve Rydeen, San Ildefonso Pueblo
Joe Chavarria, Santa Clara Pueblo
Steve Yanicak, NMED-DOE-OB, MS M894
Emily Schultz-Fellenz. MS D452 (w/ MS Word files on CD)
William Alexander, EP-BPS, MS M992

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

LA-UR-12-21330
May 2012
EP2012-0091

2011 Geomorphic Changes at Sediment Transport Mitigation Sites in the Los Alamos and Pueblo Canyon Watersheds

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Prepared by the Environmental Programs Directorate

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EP2012-0091

2011 Geomorphic Changes at Sediment Transport Mitigation Sites in the Los Alamos and Pueblo Canyon Watersheds

May 2012

Responsible project manager:

Printed Name	Signature	Title	Organization	Date
Steve Veenis	Steve Veenis	Project Manager	Environmental Programs	5·24·12

Responsible LANS representative:

Printed Name	Signature	Title	Organization	Date
Michael J. Graham	B. G. Schappell	Associate Director	Environmental Programs	5-25-12

Responsible DOE representative:

Printed Name	Signature	Title	Organization	Date
Peter Maggiore	S. Rhodes for	Assistant Manager	DOE-LASO	5-30-2012

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Appendix

Appendix A Photographs of Sediment Transport Mitigation Sites

Attachment

Attachment 1 Cross-Section Survey Data (on CD included with this document)

1.0 INTRODUCTION

This report evaluates geomorphic changes that occurred in 2011 at sediment transport mitigation sites in the Los Alamos and Pueblo Canyon watersheds within and near Los Alamos National Laboratory (LANL or the Laboratory). Survey data reported previously (LANL 2011, 200902) are compared with subsequent survey data obtained in fall 2011 and winter 2012, following the summer 2011 monsoon season, as specified in the "2011 Monitoring Plan for Los Alamos and Pueblo Canyons Sediment Transport Mitigation Project" (LANL 2011, 201578). These surveys will be repeated after the 2012 monsoon season, and results will be presented in a report to the New Mexico Environment Department (NMED) by May 31, 2013. NMED has specified that results of inspections of stream bank armoring in the south fork of Acid Canyon be included in the annual report on geomorphic changes in the Los Alamos and Pueblo Canyon watersheds (NMED 2010, 109693), and these results are included herein. NMED has also specified that future reports include information on the health and success of willow plantings and photographic documentation of willow plantings, grade-control structures (GCSs), and examples of erosion and deposition at surveyed cross-sections (NMED 2011, 204349), and these are also included herein. Figure 1.0-1 shows the locations of sites discussed in this report, and Appendix A presents photographs of the sediment transport mitigation sites.

A previous study used repeat cross-section surveys between 1998 and 2001 to document geomorphic changes in sediment investigation reaches in Pueblo Canyon associated with the Cerro Grande fire (Lyman et al. 2005, 089414). Some of these cross-sections were relocated and resurveyed in fall 2011 and spring 2012 to provide a longer-term perspective on the geomorphic changes documented in the current study, and potential future geomorphic changes, and these resurveys are also included in this report.

2.0 HYDROLOGIC EVENTS DURING 2011 MONSOON SEASON

The largest runoff events in 2011 at the sediment transport mitigation sites in the Los Alamos and Pueblo Canyon watersheds occurred following heavy rain on the Los Alamos townsite (for events in Acid, DP, and Pueblo Canyons) or the Las Conchas burn area (for events in Los Alamos Canyon) (LANL 2012, 211396). The maximum measured discharge at these sites occurred on August 21, 2011, at the E039.1 gaging station below the DP Canyon GCS. The peak discharge at E039.1 was 290 cubic feet per second (cfs), slightly less than measured in 2010 (315 cfs; LANL 2011, 207072). Other gages near the sediment transport mitigation sites also had maximum measured discharges on August 21, 2011:

- In Pueblo Canyon above the Los Alamos County wastewater treatment plant (WWTP) outfall at gage E059, peak discharge is estimated at 131 cfs, which is less than measured in 2010 (250 cfs; LANL 2011, 207072). This event did not reach the E060.1 gaging station, below the Pueblo Canyon GCS.
- In the south fork of Acid Canyon at gage E055.5, peak discharge is estimated at 20 cfs, which is less than measured in 2010 (69 cfs; LANL 2011, 207072).

At gages E042.1 and E050.1, above and below the Los Alamos Canyon low-head weir, estimated peak annual discharges are 207 and 188 cfs, respectively, on September 4, 2011. This event involved runoff from the Las Conchas burn area in the upper Los Alamos Canyon watershed and was the largest event measured in this part of Los Alamos Canyon since 2006, when a peak discharge of 240 cfs was estimated at the gage above the low-head weir (Romero et al. 2007, 100140).

Gaging station E060.1, in Pueblo Canyon below the GCS, had only one measured runoff event in 2011, with an estimated peak discharge of 4 cfs on September 7 (LANL 2012, 211396). There was no flow measured at E059 that day, indicating that the source of the E060.1 event was local precipitation.

3.0 SURVEYS AT SEDIMENT TRANSPORT MITIGATION SITES

Surveys were conducted at all sediment transport mitigation sites specified in the 2011 monitoring plan (LANL 2011, 201578). Surveys were conducted using a combination of a differentially corrected global positioning system (GPS) and a total station tied to GPS control points, depending on tree cover. Surveys were supplemented with sediment thickness measurements obtained from hand-dug or hand-augered holes at some locations. The general locations of all survey areas are shown in Figure 1.0-1, and these surveys are discussed below. Surveyed cross-sections are shown in figures with a vertical exaggeration (VE) of 2.5 times, and channel thalweg profiles are shown with a VE of 5 times, 15 times, or 20 times. Raw survey data (x and y coordinates using the New Mexico State Plane coordinate system and elevations of all survey points) for surveyed cross-sections are included electronically as Attachment 1 (on CD included with this document). The calculated distances along each cross-section and along each thalweg profile that are used for the figures in this report are also included in Attachment 1. These calculations involved basic trigonometry (Pythagorean theorem). The figures showing cross-sections include prior survey data and the latest resurvey data, indicating where erosion and deposition have occurred along each section over the last year. Each surveyed cross-section was field checked to confirm that elevational differences between surveys indicated erosion or deposition and were not artifacts of the surveys (such as can result from different survey point spacing or slight differences in survey location) or topographic changes not related to flooding (e.g., gopher mounds or road blading outside the floodplain). The net changes in cross-sectional area along each section were calculated and used to estimate total deposition or erosion over the surveyed area, normalized as m^3 per km of channel for comparison with previous studies. In tables, the net deposition or erosion that occurred in each area in 2011 is compared with changes that occurred in 2010. At each cross-section, the changes in thalweg elevation from 2009 to 2010 and from 2010 to 2011 are also compiled in tables and used to indicate whether, on average, the channel elevation has been stable, aggrading, or incising. In the figures showing channel thalwegs, the distance along the survey can vary between the original survey and the resurvey because of changes in thalweg sinuosity, resulting in changes in thalweg gradient. These changes in thalweg gradient are also summarized in this report.

3.1 Pueblo Canyon Cross-Vane Structures

Two cross-sections were originally surveyed in the vicinity of each of the three Pueblo Canyon cross-vane structures (CVSs) in April 2010, one 50 ft upcanyon and one 50 ft downcanyon of the apex rock of each structure. Channel thalweg profiles were also surveyed over these 100-ft distances. These cross-sections and thalweg profiles were resurveyed in December 2010 and October 2011. Cross-section and thalweg profile locations for all CVSs are shown on an orthophotograph in Figure 3.1-1, and the cross-sections and thalweg profile for the upper CVS (CVS #1) are also shown on a geomorphic map in Figure 3.1-2 (geomorphic mapping from 1997; LANL 2004, 087390). The cross-sections and thalweg profiles for CVS #1, CVS #2, and CVS #3 are shown in Figures 3.1-3, 3.1-4, and 3.1-5, respectively. Net sediment deposition occurred at five of the six CVS cross-sections during the summer 2011 monsoon season, as summarized in Table 3.1-1. Maximum aggradation (net sediment deposition) was 0.6 ft at CVS#1 +50 ft (Figure A-1, Appendix A), and the maximum incision (net erosion) was 0.4 ft at CVS#3 −50 ft (Figure A-2, Appendix A). Normalized net sediment deposition at the CVSs averaged 268 m^3/km, compared with an estimated 17,680 m^3/km of post-1942 sediment in reach P-2W, which contains CVS #1, as measured in 1997 (LANL 2004, 087390). This net deposition, 2% of the estimated 1942–1997 total, represents a

modest increase. Net deposition also occurred at these sites in 2010, and 2011 average net deposition is approximately 82% less than 2010 net deposition (Table 3.1-1). On average, the channel thalweg at the CVS cross-sections aggraded by 0.1 ft in 2011, compared with 0.2 ft of aggradation in 2010 (Table 3.1-1). Figures 3.1-3 through 3.1-5 also indicate changes to the channel thalweg that occurred during the summer 2010 monsoon season. At two of the three CVSs, the thalweg gradient increased associated with sediment deposition, incision, and slight decreases in sinuosity.

Four cross-sections had been previously surveyed in reach P-2W between 1998 and 2001 (Lyman et al. 2005, 089414), and two of these (P-2 West XS-2, or P2W-X2; and P-2 West XS-1, or P2W-X1; Figures 3.1-1 and 3.1-2) were relocated and resurveyed in fall 2011 and spring 2012. Figures 3.1-6 and 3.1-7 show geomorphic changes that occurred at these cross-sections between 1998 and 2001, which included floods that followed the Cerro Grande fire, and between 2001 and 2011, which included the largest flood recorded in Pueblo Canyon, on August 6, 2006 (Romero et al. 2007, 100140). At P2W-X1, the floods that followed the Cerro Grande fire resulted in net sediment deposition and 0.9 ft of channel aggradation, whereas subsequent floods resulted in an additional 2.5 ft of channel aggradation and net sediment deposition. At P2W-X2, net sediment deposition occurred in the floods following the Cerro Grande fire, and channel aggradation and minor net sediment deposition occurred between 2001 and 2011. These data indicate that this part of Pueblo Canyon has been relatively stable with net sediment deposition since 1998.

3.2 Upper Pueblo Canyon Willow-Planting Area

A total of 18 cross-sections were surveyed in November 2009 in the part of Pueblo Canyon downstream from the new Los Alamos WWTP outfall and upstream from the access road to the WWTP where willows were planted in spring 2008 and spring 2009. These cross-sections were divided into groups of six within the upper, middle, and lower thirds of the willow-planting area, and within each group the cross-sections were spaced at 100-ft intervals. Longitudinal channel thalweg profiles were also surveyed over 500-ft intervals through each of these three areas. These cross-sections and thalweg profiles were resurveyed in April 2011 and October 2011. Stream banks in this area were surveyed in March 2012. Cross-section locations, thalweg profile locations, and stream banks are shown on an orthophotograph in Figure 3.2-1, and the cross-sections, thalweg profile, and stream banks for the middle and lower thirds of the area are also shown on a geomorphic map in Figure 3.2-2 (geomorphic mapping from 1997; LANL 2004, 087390). The cross-sections and thalweg profiles in the upper, middle, and lower thirds of the willow-planting area are shown in Figures 3.2-3, 3.2-4, and 3.2-5, respectively. Geomorphic changes that occurred at these cross-sections during the summer 2011 monsoon season are summarized in Table 3.2-1.

Maximum deposition of new sediment was 1.7 ft at section UW-3 in the upper third of the upper Pueblo Canyon willow-planting area (also referred to as the upper willow-planting area), and the maximum erosion was 5.5 ft at section LW-4 in the lower third of this area. The new sediment at section UW-3 was associated with burial of the previous channel in an area of extensive sediment deposition immediately downstream from a southside tributary draining the new Los Alamos Entrada Park (Figure A-3, Appendix A). The erosion at section LW-4 was associated with lateral migration of the stream bank [Figure A-4(a), Appendix A], and bank migration was also recorded at several other sections (UW-3, LW-3, LW-5, and LW-6). Much of the erosion was into young sediment deposits that postdated the May 2000 Cerro Grande fire [Figure A-4(b), Appendix A]. Thirteen of the cross-sections had net sediment deposition during the summer 2010 monsoon season, and five had net erosion. Normalized net sediment deposition in the upper willow-planting area averaged 12 m^3/km, compared with an estimated 33,570 m^3/km of post-1942 sediment in reach P-3W, which includes part of the surveyed area, as measured in 1997 (LANL 2004, 087390). This net deposition, <0.1% of the estimated 1942–1997 total, represents an insignificant increase that is probably within the measurement error. On average, the

channel thalweg in the upper third of the upper willow-planting area aggraded by 0.4 ft in 2011, whereas the channel thalweg incised by 0.2 to 0.3 ft in the middle and lower thirds of this area (Table 3.2-1). This general pattern of upstream aggradation and downstream incision also occurred in 2010. Figures 3.2-3 through 3.2-5 also indicate changes to the channel thalweg gradient that occurred during the summer 2010 monsoon season. In the upper third of the willow-planting area, the thalweg gradient increased since the previous survey; and at the other two areas, the thalweg gradient decreased, associated with changes in sinuosity and bed elevation.

One cross-section in reach P-3W previously surveyed between 1998 and 2001 (P3 West, XS-1, or P3W-X1); and one cross-section surveyed in 2001 (P3 West, X-8, or P3W-PUX8) (Figures 3.2-1 and 3.2-2; Lyman et al. 2005, 089414) were relocated and resurveyed in spring 2012. Figures 3.2-6 and 3.2-7 show geomorphic changes that occurred at these cross-sections between 1998 and 2001, which included floods that followed the Cerro Grande fire, and between 2001 and 2011, including the record August 6, 2006, flood event (Romero et al. 2007, 100140). At P3W-X1, the floods that followed the Cerro Grande fire in 2001 resulted in net sediment deposition. At P3W-PUX8, extensive sediment deposition occurred between 2001 and 2011. These data indicate that this part of Pueblo Canyon has been relatively stable with net sediment deposition since 1998, consistent with the deposition measured in 2010 and 2011.

3.3 Pueblo Canyon Wing Ditch

Five cross-sections were surveyed at 100-ft intervals downcanyon from the Pueblo Canyon wing ditch in November 2009. Longitudinal thalweg profiles of the active channel and a formerly abandoned channel to the south where the wing ditch directs water were also surveyed over this distance. These cross-sections and thalweg profiles were resurveyed in May 2011 and October 2011. The wing ditch is a short distance downstream from where the road to the Los Alamos County WWTP crosses the Pueblo Canyon stream channel, and the culverts at this crossing were plugged during a runoff event on August 16, 2010. In 2011, the County of Los Alamos rebuilt the road crossing to better withstand large runoff events and to pass flow more effectively (Figure 3.3-1). The formerly abandoned channel to the south now receives flow during periods of high effluent discharge and stormwater runoff, helping to effectively distribute water across this part of the wetland (a function that the wing ditch was designed to perform; it is no longer needed for this purpose). Figure A-5, Appendix A, shows flow in the north channel during high effluent discharge. Figure A-6, Appendix A, shows similar flow in the south channel. Cross-section and thalweg profile locations are shown on an orthophotograph in Figure 3.3-1, and the cross-sections and thalweg profile locations are also shown on a geomorphic map in Figure 3.3-2 (geomorphic mapping from 1996–1997; LANL 2004, 087390). The cross-sections are shown in Figure 3.3-3, and the thalweg profiles are shown in Figure 3.3-4. Geomorphic changes that occurred at these cross-sections during the summer 2011 monsoon season are summarized in Table 3.3-1.

Maximum sediment deposition was 1.3 ft in the main channel at cross-section WD-1 (Figure A-5, Appendix A), and the maximum incision (net erosion) was 0.9 ft along the southern channel at cross-section WD-3 (Figure A-6, Appendix A). Four of the cross-sections had net sediment deposition during the summer 2011 monsoon season, and one had net erosion. Normalized net sediment deposition over the surveyed area below the wing ditch averaged 137 m^3/km, compared with an estimated 69,910 m^3/km of post-1942 sediment in reach P-3E, a short distance east of the surveyed area, as measured in 1997 (LANL 2004, 087390). This net deposition, 0.2% of the estimated 1942–1997 total, represents a small increase. On average, the main channel thalweg near the wing ditch aggraded by 0.4 ft in 2011, compared with 1.3 ft of aggradation in 2010 (Table 3.3-1). As presented in Figure 3.3-4, the average thalweg gradient of the active channel remained essentially constant in 2011, whereas the gradient of the abandoned channel to the south increased slightly.

3.4 Lower Pueblo Canyon Willow-Planting Area

A total of 23 cross-sections were surveyed in September 2009 at 100-ft intervals within reaches P-3FE and P-4W in an area where willows were planted in spring 2009. The surveys extended for 1100 ft above and below a transition area separating a broad upcanyon wetland (P-3FE) from a narrower downcanyon wetland within incised geomorphic surfaces (P-4W). A longitudinal channel thalweg profile was also surveyed over this 2200-ft interval. These cross-sections and thalweg profiles were resurveyed in April and May 2011 and in October and November 2011. Stream banks in this area were surveyed in January and March 2012. Cross-section and thalweg profile locations and stream banks are shown on an orthophotograph in Figure 3.4-1, and these are also shown on a geomorphic map in Figure 3.4-2 (geomorphic mapping from 1996–1997; LANL 2004, 087390). The cross-sections are shown in Figure 3.4-3, and the channel thalweg profiles are shown in Figure 3.4-4. Geomorphic changes that occurred at these cross-sections during the summer 2011 monsoon season are summarized in Table 3.4-1.

In the upper half of the lower Pueblo Canyon willow-planting area (also referred to as the lower willow-planting area, which is reach P-3FE), maximum deposition of new sediment was 0.8 ft at cross-section PU −1000 ft (1000 ft upstream from the transition zone), and the maximum erosion was 2.6 ft at cross-section PU −300 ft (Figure 3.4-3 and Table 3.4-1). The deposition at PU −1000 ft was associated with sediment transported off side slopes to the north, and the erosion at PU −300 ft was associated with lateral bank migration (Figure A-7, Appendix A). Three of the 11 cross-sections above the approximate transition point (PU 0-ft section) had net sediment deposition, 7 had net erosion, and 1 had no measureable change. Normalized net sediment deposition in the upper half of the lower willow-planting area averaged 26 m^3/km, compared with an estimated 51,172 m^3/km of post-1942 sediment in reach P-3FE, which includes the surveyed area, as measured in 1997 (LANL 2004, 087390). This net deposition, less than 0.1% of the estimated 1942–1997 total, represents an insignificant increase that is probably within measurement error.

In the lower half of the lower willow-planting area (reach P-4W), maximum deposition of new sediment was 1.0 ft at cross-section PU +600 ft, and the maximum erosion was 3.8 ft, also at section PU +600 ft (Figure 3.4-3; Figure A-8, Appendix A; and Table 3.4-1). The erosion and deposition were both associated with lateral bank migration. Cross-section PU +600 ft also had the highest measured erosion and deposition in 2010, indicating that the channel is continuing to adjust in this area. Eight of the 11 cross-sections below the approximate transition point had net sediment deposition, 2 had net erosion, and 1 had no measureable change. Net erosion also occurred at cross-section PU 0 ft, where the emergence of alluvial groundwater perched on Puye Formation bedrock results in seepage erosion. The surface above the headcut is dry, whereas wetland vegetation (reed canary grass and willows) is established below the headcut (Figure A-9, Appendix A). Net sediment erosion occurred in the lower half of the lower willow-planting area, averaging 191 m^3/km, compared with an estimated 98,710 m^3/km of post-1942 sediment in reach P-4W, which includes the surveyed area, as measured in 1997 (LANL 2004, 087390). This calculated net erosion, 0.2% of the estimated 1942–1997 total, represents a minor change.

On average, the thalweg aggraded by 0.3 to 0.4 ft in 2011 both above and below the transition point (Table 3.4-1). The thalweg in both areas also aggraded by an average of 0.3 ft in 2010. Figure 3.4-4 presents thalweg profiles in the lower willow-planting area in May 2011 (top panel) and October 2011 (bottom panel). Average channel gradients above and below an outcrop of Puye Formation bedrock did not change between these surveys, although some local scour and fill occurred.

3.5 Pueblo Canyon Grade-Control Structure

A total of 15 cross-sections were surveyed in April 2010 at 100-ft intervals upstream of the Pueblo Canyon GCS, and 3 cross-sections were surveyed at 100-ft intervals downstream from the GCS. A longitudinal channel thalweg profile was also surveyed over this 1800-ft interval. Because some ground disturbance associated with site restoration occurred after the April 2010 surveys were completed, the area of disturbance was resurveyed in June 2010. These surveys were repeated in April and October 2011. Stream banks in this area were surveyed in January 2012. Cross-section and thalweg profile locations and stream banks are shown on an orthophotograph in Figure 3.5-1, and these are also shown on a geomorphic map in Figure 3.5-2 (geomorphic mapping from 1996–1997; LANL 2004, 087390). The cross-sections and the channel thalweg profile are shown in Figure 3.5-3. Geomorphic changes that occurred at these cross-sections during the summer 2011 monsoon season are summarized in Tables 3.5-1 and 3.5-2. Photographs of the GCS are shown in Figure A-10, Appendix A.

During the summer 2011 monsoon season, net sediment deposition occurred at eight cross-sections above the GCS, net sediment erosion occurred at four cross-sections, and no measureable change occurred at four cross-sections, as summarized in Table 3.5-1. Maximum sediment deposition was 0.5 ft at four cross-sections (for example, Figure A-11, Appendix A), and the maximum erosion was 1.1 ft at section PUGCS −1100 ft (1100 ft above the GCS) (Figure A-12, Appendix A). There was little surface-water flow through this area in 2011, and the erosion and deposition were both localized. The maximum erosion was at a location where the stream bank eroded laterally about 1 ft. Averaged over the 1500-ft distance above the GCS, net sediment deposition occurred, normalized to 72 m^3/km. For comparison, there was an estimated 70,210 m^3/km of post-1942 sediment in reach P-4E, which includes the GCS, as measured in 1997 (LANL 2004, 087390). This net deposition, 0.1% of the estimated 1942–1997 total, represents a minor increase that may be within measurement error. This deposition was probably not significantly affected by the presence of the GCS because most of it occurred far upstream from the structure, where there would have been no related hydrologic effects.

Below the Pueblo Canyon GCS, minor net deposition (0.4 ft) occurred at one cross-section in 2011 and no measureable change occurred at the other two cross-sections (Table 3.5-2).

On average, the thalweg aggraded by 0.2 ft in 2011 above the GCS and had no significant change below the GCS (Tables 3.5-1 and 3.5-2). In 2010, the thalweg had incised by 0.1 to 0.2 ft in these areas. Both above and below the GCS, the thalweg gradient remained relatively constant through this period (Figure 3.5-3). Note that the apparent increases in gradient below the GCS shown in the thalweg profile in Figure 3.5-3 are artifacts of varying survey distances.

One cross-section in reach P-4E previously surveyed between 1996 and 2001 (P4 East, X-1, or P4E-X1; Figures 3.5-1 and 3.5-2; Lyman et al. 2005, 089414) was relocated and resurveyed in spring 2012. Figure 3.5-4 shows geomorphic changes that occurred at this cross-section between 1996 and 2001, which includes floods that followed the Cerro Grande fire, and between 2001 and 2011, including the record August 6, 2006, flood event (Romero et al. 2007, 100140). The floods that followed the Cerro Grande fire resulted in net sediment deposition and channel aggradation at this location, and subsequent floods since 2001 have resulted in net sediment deposition and channel aggradation. These data indicate that this location has been relatively stable over the last 15 yr, despite the presence of a headcut a short distance downstream.

3.6 Upper Los Alamos Canyon Sediment Detention Basins

The upper Los Alamos Canyon sediment detention basins, constructed at the base of the drainage below Solid Waste Management Unit 01-001(f) (LA-SMA-2 or Hillside 140), were excavated on July 8 to July 11, 2011, after the Las Conchas fire (LANL 2011, 206488). The basins were resurveyed in July 2011 after excavation to provide a new base line for measuring subsequent deposition. The basins were visited in October 2011 to examine sediment deposition that occurred during the 2011 monsoon season. In the western basin (basin 1), a small delta had formed where the drainage entered the basin, and approximately 20 cm of sediment, mostly coarse-grained, was measured in hand-dug holes. In the center of basin 1, up to 12 cm of fine-grained sediment was measured. No appreciable sediment deposition was observed in the eastern basin (basin 2). In October 2011, basin 1 was resurveyed, and the topography existing at that time is presented in Figure 3.6-1. Based on the size of the sediment deposition area in basin 1 (285 m^2) and an estimated average sediment thickness of 5–10 cm, approximately 15–30 m^3 of sediment was deposited in basin 1 during the 2011 monsoon season. Photographs of the sediment detention basins are shown in Figure A-13, Appendix A.

3.7 DP Canyon Grade-Control Structure

A total of 11 cross-sections were surveyed in April and May 2010 at 100-ft intervals upstream of the DP Canyon GCS, and 2 cross-sections were surveyed at 125 ft and 225 ft downstream from the GCS, downstream from the E039.1 gaging station. A longitudinal channel thalweg profile was also surveyed over this 1325-ft interval. The area above the GCS was first resurveyed in November and December 2010, and the area below the GCS was resurveyed in March 2011 (after ice melted from the channel bed) and again resurveyed in October 2011. Cross-section and thalweg profile locations are shown on an orthophotograph in Figure 3.7-1 and on a geomorphic map in Figure 3.7-2 (geomorphic mapping from 1998; LANL 2004, 087390). The cross-sections and thalweg profile are shown in Figure 3.7-3. Photographs of the GCS are shown in Figure A-14, Appendix A.

Net sediment deposition occurred at nine cross-sections above the GCS during the summer 2011 monsoon season (Figure A-15, Appendix A), and net sediment erosion occurred at two cross-sections, as summarized in Table 3.7-1. Maximum sediment deposition was 1.7 ft at the cross-section 800 ft above the GCS [Figure A-15(a), Appendix A], and the maximum erosion was 2.6 ft at the cross-section 200 ft above the GCS (Figure A-16, Appendix A). Normalized net sediment deposition above the GCS averaged 167 m^3/km, compared with an estimated 7490 m^3/km of post-1942 sediment in reach DP-2, which contains the GCS, as measured in 1999 (LANL 2004, 087390). This net deposition, 2% of the estimated 1942–1999 total, represents a modest yearly increase. The sediment deposition was probably not significantly affected by the presence of the GCS because most of it occurred far upstream from the structure, where there would have been no related hydrologic effect, and the two cross-sections closest to the GCS actually experienced net sediment erosion. The net erosion above the structure was associated with channel scour and bank erosion (Figure A-16, Appendix A), and the areas farther upstream experiencing the most net sediment deposition were associated with channel aggradation (Figure A-15, Appendix A). Net sediment erosion occurred at both cross-sections below the GCS, with 1.4 ft of channel incision at the section 125 ft below the GCS (Figure 3.7-3 and Table 3.7-2). This erosion occurred mostly in areas that had aggraded in 2010.

On average, the stream channel upstream of the GCS aggraded by 0.1 ft in 2011, compared with no net change in 2010 (Table 3.7-1). Downstream of the GCS, the channel incised an average of 0.5 ft in 2011, compared with 0.8 ft of aggradation in 2010 (Table 3.7-2). As shown in Figure 3.7-3, no net change occurred to the channel thalweg gradient above the GCS in 2011, and a slight decrease in gradient occurred below the GCS.

3.8 Los Alamos Canyon Low-Head Weir

The sediment retention basins above the Los Alamos Canyon low-head weir were excavated from July 8 to July 11, 2011, following the Las Conchas fire (LANL 2011, 206488), and the postexcavation topography is shown in Figure 3.8-1. The upper two basins (basins 1 and 2) were resurveyed in October 2011, after the 2011 monsoon season, and the lower basin (basin 3) was resurveyed in March 2012 after ponded water had evaporated. Figure 3.8-1 also shows variations in total sediment thickness determined by subtracting the July 2011 topographic surface from the October 2011 to March 2012 surface. Maximum sediment thickness resulting from the 2011 monsoon season is 1.1 m (3.6 ft) in basin 3. Table 3.8-1 summarizes volume changes in each of the three sediment retention basins during this period. Photographs of the weir are shown in Figure A-17, Appendix A; and photographs of the retention basins are shown in Figures A-17(b) and A-18, Appendix A.

An estimated 780 m^3 of sediment accumulated in the upstream, western basin (basin 1) above the weir during the 2011 monsoon season (Table 3.8-1). Field observations indicated that approximately 50% of this is coarse-grained sediment that was transported as bed load. The remainder of the basin fill is fine-grained sediment that was transported as suspended load. An estimated 1440 m^3 of sediment accumulated in the middle basin (basin 2), and it is estimated that approximately 5% of this is coarse-grained sediment. An estimated 4700 m^3 of sediment accumulated in the eastern basin (basin 3), consisting of fine-grained sediment. The total sediment accumulation rate in the basins above the weir during the 2011 monsoon season was much higher than measured in previous years, as shown in Table 3.8-2. The higher sedimentation rate after the Las Conchas fire than after the Cerro Grande fire is probably related to the presence of the Los Alamos Reservoir. After the Cerro Grande fire, the reservoir was maintained to impound floodwaters, which let most of the sediment from the burn area settle out (Lavine et al. 2006, 213454; Reneau et al. 2007, 102886). In contrast, after the Las Conchas fire, floodwaters were allowed to bypass the dam because it was being rebuilt when the fire occurred and was not considered able to withstand large floods. The high percentage of fine sediment accumulated above the weir in 2011, 93% of the total, is consistent with observations after the Cerro Grande fire when the transport of fine-grained sediment was much higher than that of coarse-grained sediment in the first year, and the transport distance greater for fine-grained sediment (Lavine et al. 2006, 213454; Reneau et al. 2007, 102886).

4.0 OBSERVATIONS OF WILLOWS IN PUEBLO CANYON

In 2008 through 2010, willows were planted in three areas in Pueblo Canyon downstream from the new Los Alamos WWTP, with the goal of enhancing riparian habitat, stabilizing surfaces, and slowing floodwaters. These areas are referred to as the upper willow-planting area (section 3.2), the lower willow-planting area (section 3.4), and the Pueblo Canyon GCS (section 3.5). Observations were made of willows in these areas during fall 2011. Willow success was variable in these areas and appears to be related to substrate conditions and preexisting vegetation, as well as the occurrence and persistence of water and substrate stability, as discussed below.

The upper willow-planting area had the tallest willows and the thickest patches of willows in the surveyed areas. In the upper, middle, and lower thirds of the upper willow-planting area, willows reached maximum measured heights of 4.1, 4.8, and 2.9 m, respectively. Willow patches were locally thick, with continuous foliage between stems, in parts of the upper and middle thirds of this area (Figure A-19, Appendix A). In between the thickest willow patches, willows that had been laid down by floods in August 2010 had resprouted (Figure A-20, Appendix A), indicating that their root systems remained viable. This area has continuous surface-water flow and a sandy or gravelly, aggrading substrate, and the willows were planted

in generally bare ground with little competition from other vegetation. These conditions appear to be ideal for the success of willow plantings.

In the lower third of the upper willow-planting area, willows were less continuous and there were generally gaps between the foliage from nearby stems. No willows were observed in most of the area between the LW-3 and LW-5 cross-sections, and they were sparse between the LW-5 and LW-6 cross-sections. This corresponds to an area of unstable conditions in both 2010 and 2011, with eroding banks and an incising channel (Figure 3.2-5 and Figure A-4, Appendix A). The poor willow success in this area appears to be directly related to the unstable substrate conditions.

In the upper half of the lower willow-planting area, above the transition zone, willows were planted in a thin strip along the main channel and locally along a side channel (Figures A-7 and A-21, Appendix A). This is an area with thick preexisting vegetation dominated by reed canary grass (*Phalaris arundinacea*), and much of the area has a fine-grained substrate. Most planted willow stalks did not survive, with willow success ranging from 0% to about 50% in different parts of this area. The living willows are mostly stump sprouts or root sprouts, with the sprouts commonly clustered around the base of the original stems. Willow spacing is typically 1 m to 10 m. The tallest measured willow above the transition zone was 2.9 m tall, near the PU −500 ft cross-section. The poor success in this area appears to be related to the thick preexisting vegetation, which would provide competition for the willows, and/or the commonly fine-grained substrate. Damage to willow stalks by animals was also observed [Figure A-21(b), Appendix A], which may contribute to the poor success rate in this area.

In the lower half of the lower willow-planting area, below the transition zone, willows were also planted with a typical spacing of 1 m to 10 m in a thin strip along the main channel (Figure A-8, Appendix A), and the success rate here was also generally low. Willow success was best near the lower end of the planting area, where the area between incised banks widens and coarse sediment has been deposited (Figure A-22, Appendix A). Many of the living willows in this area are stump sprouts. Willows have also been successfully established in an area of seepage in the transition zone (Figure A-9, Appendix A).

There is one dense willow patch located on a post-1942 geomorphic surface near the PU +100 ft cross-section, with willows up to 4.4 m tall (Figure A-23, Appendix A). These willows were established before the recent planting and indicate locally favorable conditions on higher surfaces, at least at the time of their establishment. The channel has probably incised since they were established, and, because of the relatively low water table, it is uncertain if new willows could be successfully established at this time on high surfaces in this area.

Upstream from the Pueblo Canyon GCS, willows were planted in the disturbed area along the channel for a distance of approximately 250 ft. Approximately 10% of these willows survived, often consisting of short sprouts from the base of the stems or the roots. Maximum measured height of living foliage was 0.5 m on one of the original stems. In summer and fall 2011, effluent released from the WWTP did not extend this far downstream, and the dry conditions probably contributed to the poor success rate in this area.

In summary, the willow plantings were most successful in areas with little or no existing vegetation at the time of planting, a stable or aggrading surface with a sandy or gravelly substrate, and continuous surface-water flow. Willow success was generally poor in areas with thick existing vegetation, fine-grained or unstable substrate, and little or no surface-water flow. Replanting in these areas with low past success rates may also be generally unsuccessful.

5.0 SOUTH FORK OF ACID CANYON INSPECTION

The stream bank armoring that was emplaced in the south fork of Acid Canyon in April 2010 (LANL 2010, 109280) was inspected after the 2011 monsoon season. The rock armoring remained intact, as shown in Figure A-24, Appendix A.

6.0 SUMMARY

Net sediment deposition occurred in most surveyed areas in the Los Alamos and Pueblo Canyon watersheds in 2011, which is consistent with the goal of the sediment transport mitigation work plans (LANL 2008, 101714; LANL 2008, 105716). Net sediment deposition for 2011 is less than that recorded in 2010. Except for sediment accumulated behind engineered structures, such as the Los Alamos Canyon low-head weir, it is not certain if the mitigation actions enhanced sediment deposition, as sediment deposition is a natural geomorphic process. Nevertheless, the surveys document that these parts of the watersheds are currently operating as desired and are not undergoing net erosion. Bank erosion was documented in several areas, but bank erosion is to be expected, associated with lateral channel migration, and the surveys indicate that this eroded sediment was largely redeposited within each canyon. Field observations also indicate that much of the eroded sediment in Pueblo Canyon, which contains relatively low contaminant concentrations, was originally deposited in the floods that occurred after the Cerro Grande fire. In addition, some of the bank erosion includes noncontaminated pre-1943 sediment, and erosion of these areas does not contribute to the contaminant load in stormwater. No actions are recommended at this time except for continued annual resurveys.

7.0 REFERENCES AND MAP DATA SOURCES

7.1 References

The following list includes all documents cited in this report. Parenthetical information following each reference provides the author(s), publication date, and ER ID. This information is also included in text citations. ER IDs are assigned by the Environmental Programs Directorate's Records Processing Facility (RPF) and are used to locate the document at the RPF and, where applicable, in the master reference set.

Copies of the master reference set are maintained at the NMED Hazardous Waste Bureau and the Directorate. The set was developed to ensure that the administrative authority has all material needed to review this document, and it is updated with every document submitted to the administrative authority. Documents previously submitted to the administrative authority are not included.

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Romero, R.P., D. Ortiz, and G. Kuyumjian, August 2007. “Surface Water Data at Los Alamos National Laboratory: 2006 Water Year,” Los Alamos National Laboratory report LA-14328-PR, Los Alamos, New Mexico. (Romero et al. 2007, 100140)

7.2 Map Data Sources

The following list provides data sources for maps included in the main body of this report.

Title; Owner ID; Intended Scale; Publication Date.

2000 LIDAR Hypsography; Los Alamos National Laboratory, Earth and Environmental Sciences GISLab; 1:1,200; Work in progress.

Drainage; Los Alamos National Laboratory, Environment and Remediation Support Services; 1:24,000; May 15, 2006.

Gaging stations; Los Alamos National Laboratory, Waste and Environmental Services Division; 1:2,500; March 19, 2011.

Grade control structures; Los Alamos National Laboratory, Environment and Remediation Support Services; Unknown; May 17, 2011.

LANL boundary; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; Unknown; August 16, 2010.

LANL area orthophoto; Los Alamos National Laboratory, Earth and Environmental Sciences GISLab; 1'=200'; February 25, 2009.

Location IDs; Los Alamos National Laboratory, ESH&Q Waste and Environmental Services Division; 1:2,500; May 19, 2011.

Other property boundary; Los Alamos National Laboratory, Earth and Environmental Sciences GISLab; Unknown; August 16, 2010.

Pueblo and DP Canyon cross sections and thalwegs; Los Alamos National Laboratories, Earth and Environmental Sciences GISLab; Unknown; May 2011.

Roads, surfaced; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; Unknown; November 30, 2010.

Technical area boundary; Los Alamos National Laboratory, Site Planning and Project Initiation Group, Infrastructure Planning Office; Unknown; August 16, 2010.

Watershed; Los Alamos National Laboratory, Environment and Remediation Support Services; 1:2,500; November 2, 2006.

Wells; Los Alamos National Laboratory, ESH&Q Waste and Environmental Services Division; 1:2,500; May 19, 2011.

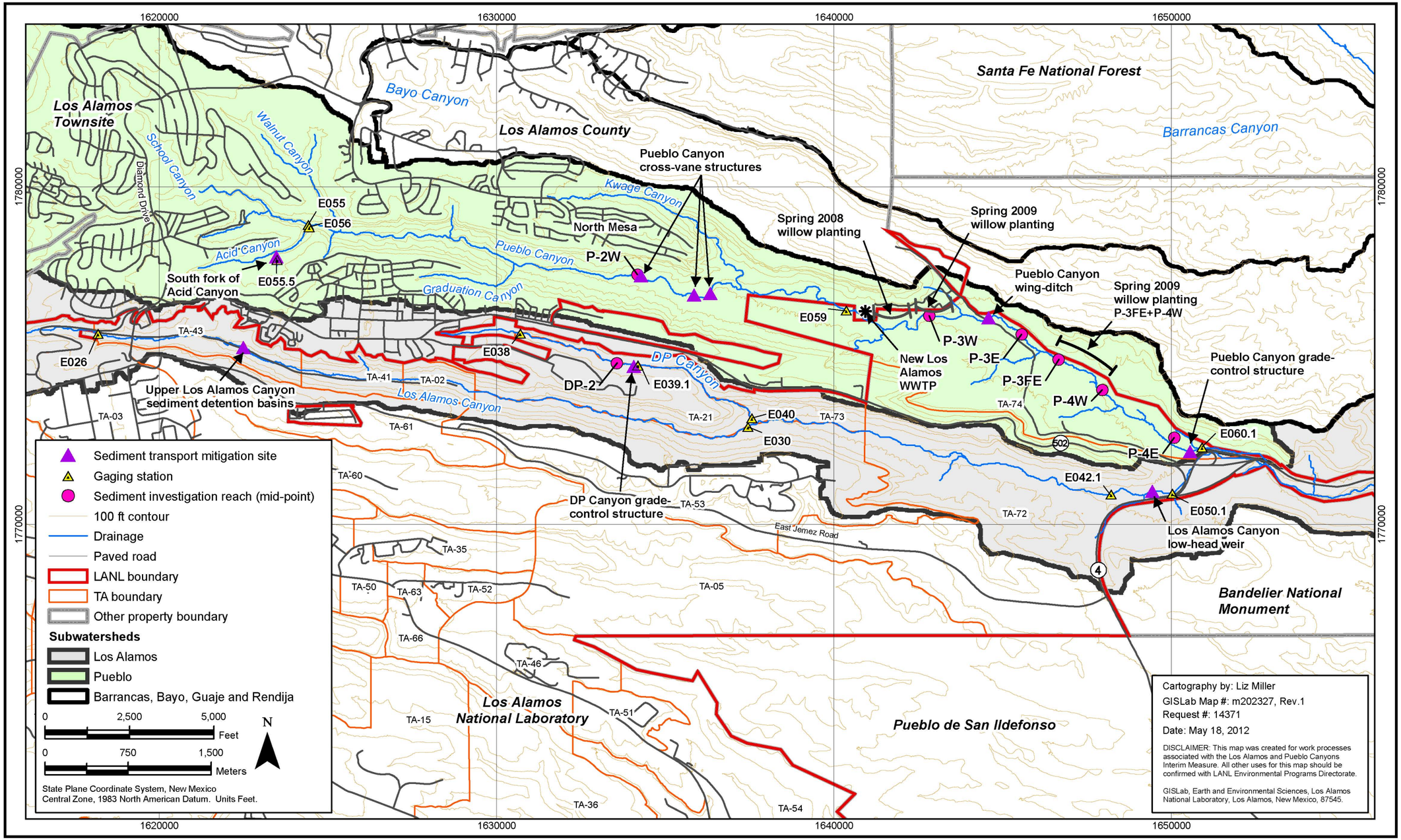


Figure 1.0-1 Los Alamos and Pueblo Canyon watersheds, showing sediment transport mitigation sites and stream gages

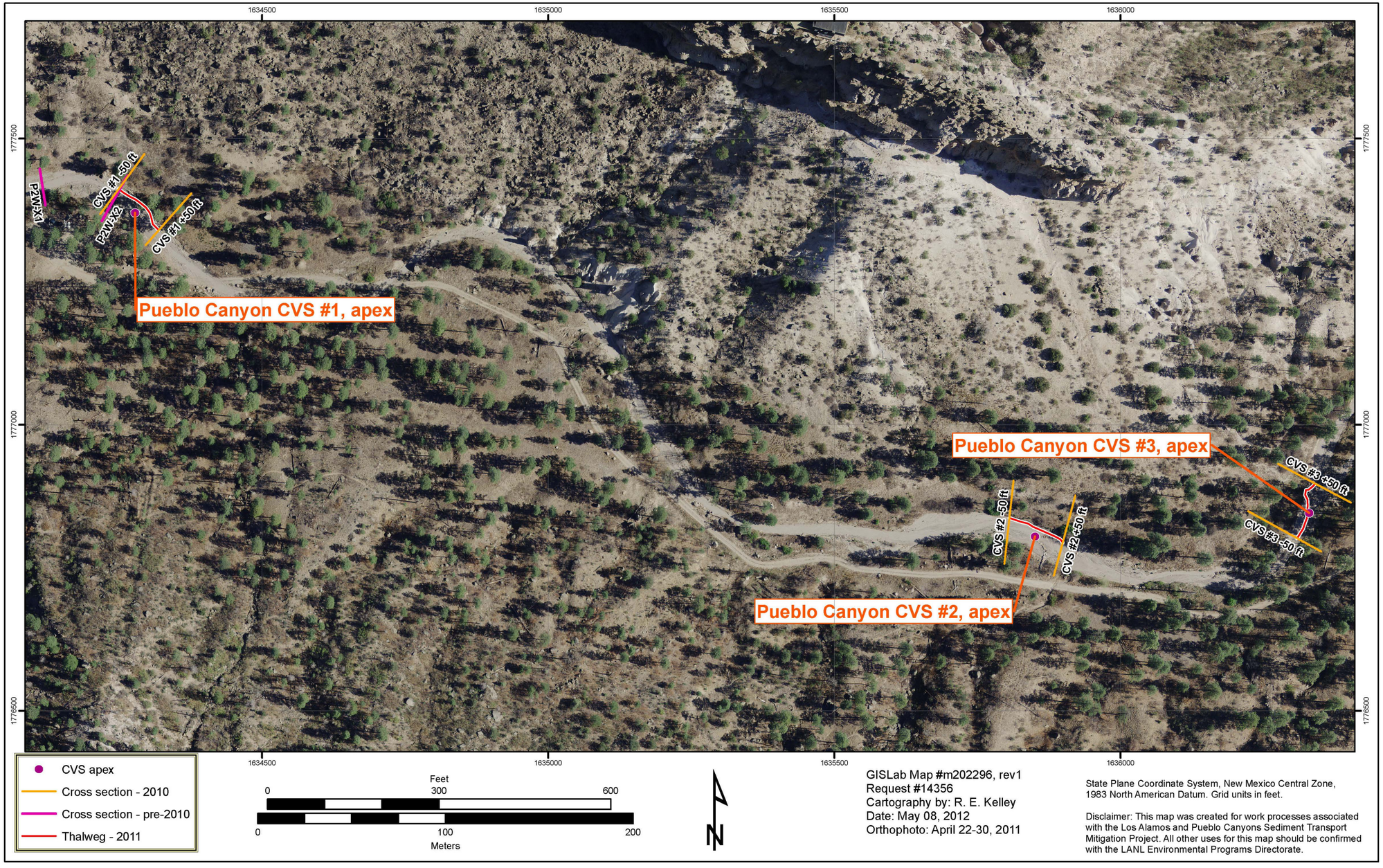


Figure 3.1-1 Orthophoto showing the locations of surveyed cross-sections and thalweg profiles at the Pueblo Canyon CVSs

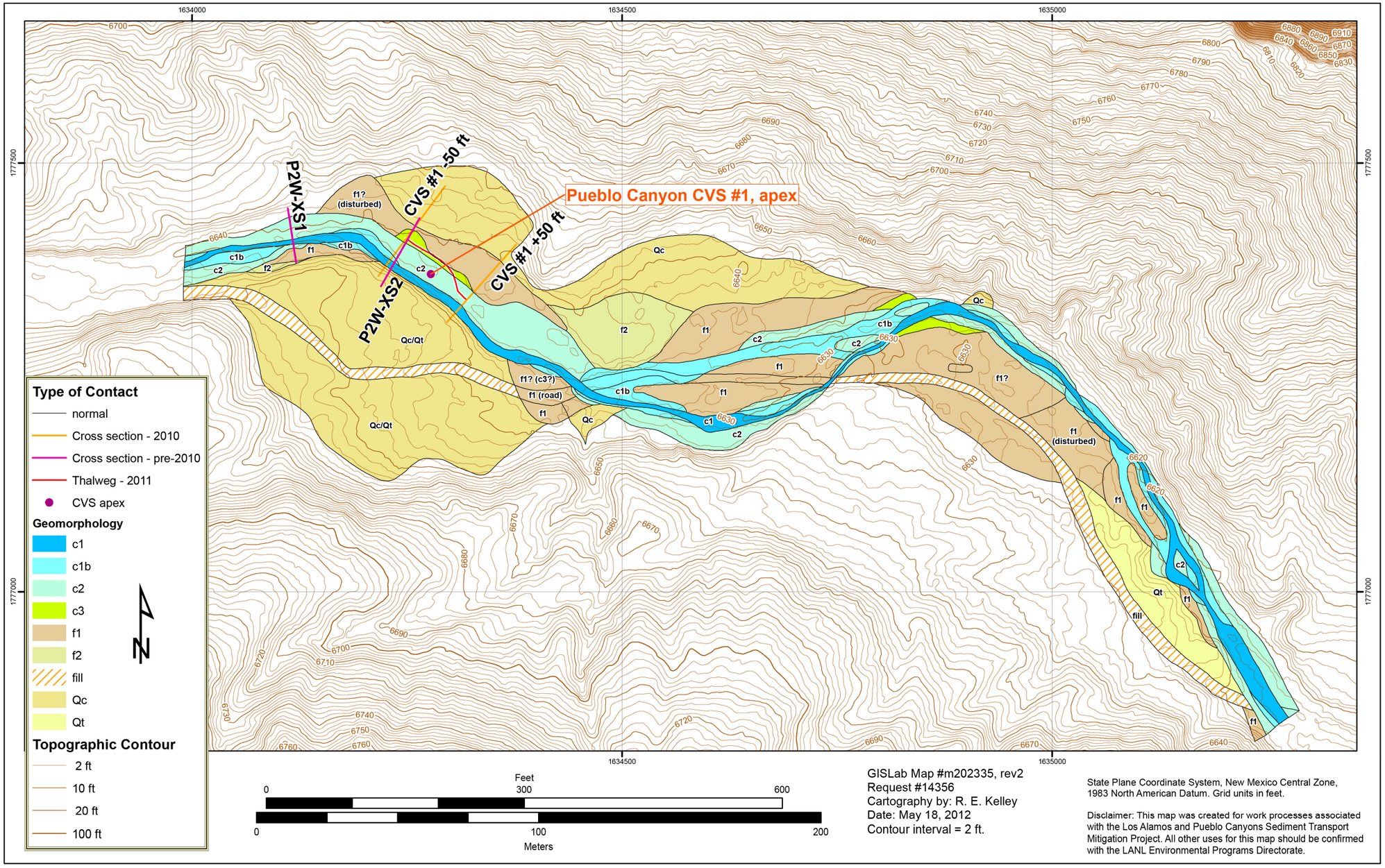


Figure 3.1-2 Geomorphic map showing the locations of surveyed cross-sections and thalweg profile at Pueblo Canyon CVS #1; geomorphic mapping from 1997

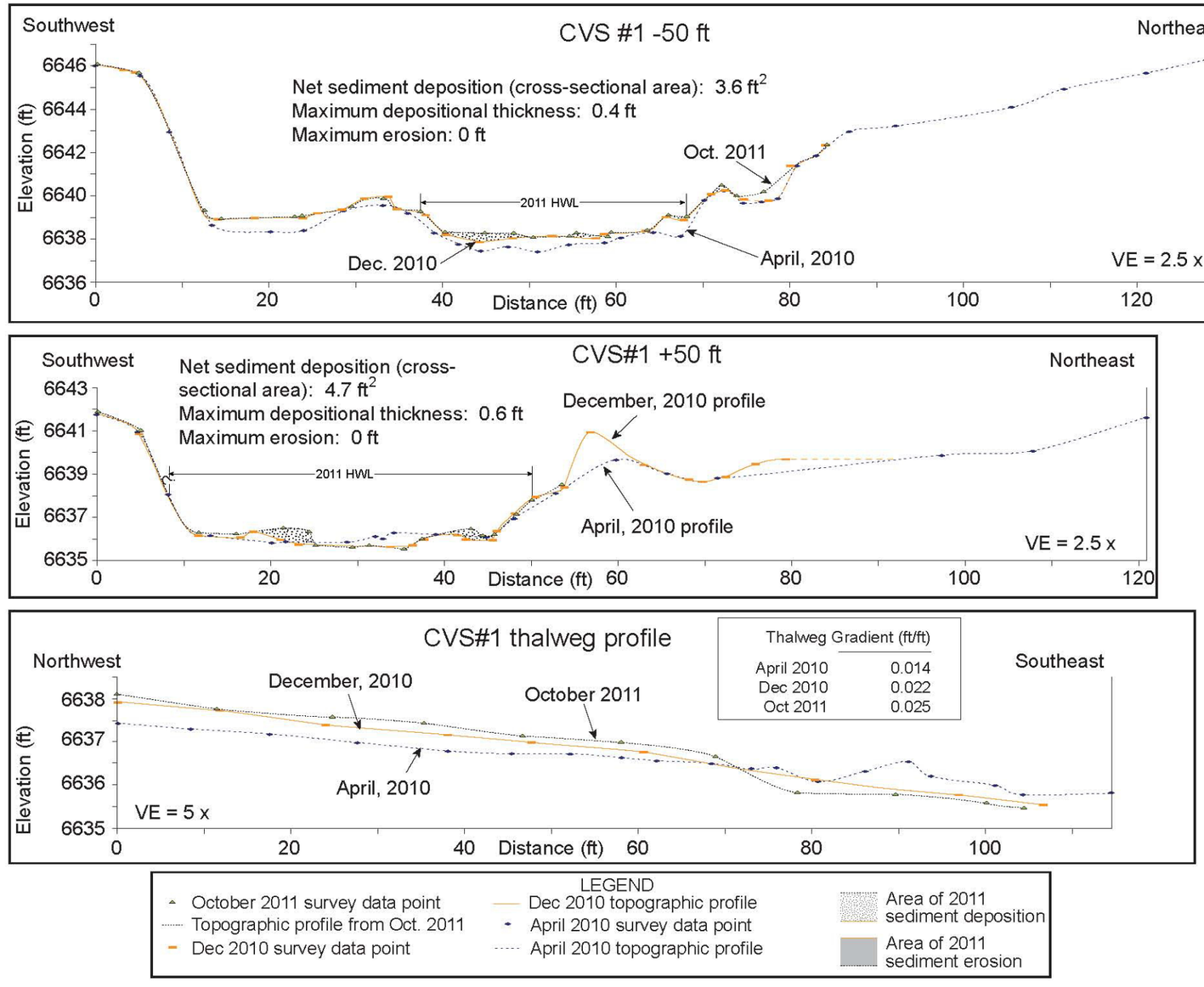


Figure 3.1-3 Cross-sections and thalweg profile at Pueblo Canyon CVS #1

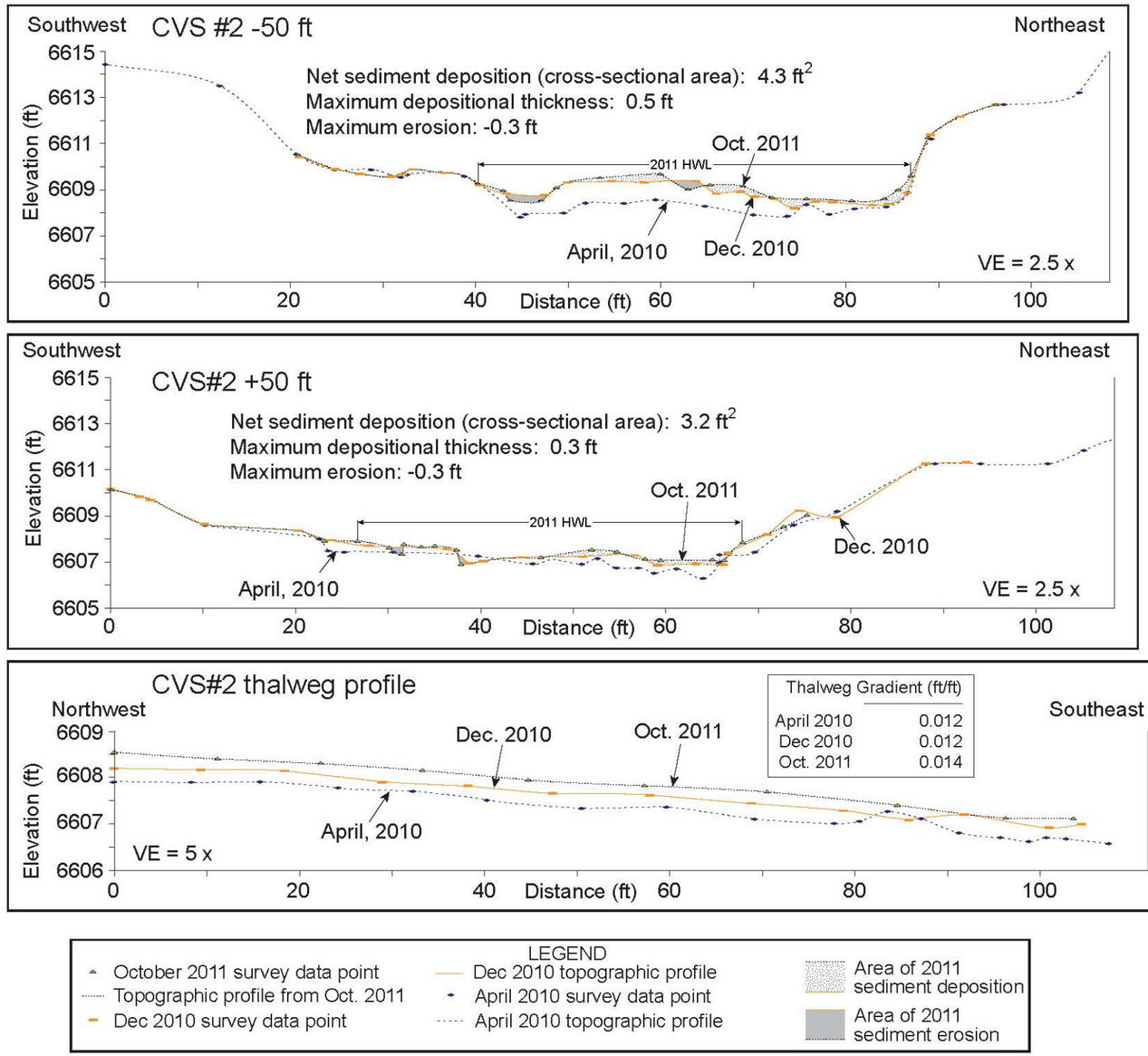


Figure 3.1-4 Cross-sections and thalweg profile at Pueblo Canyon CVS #2

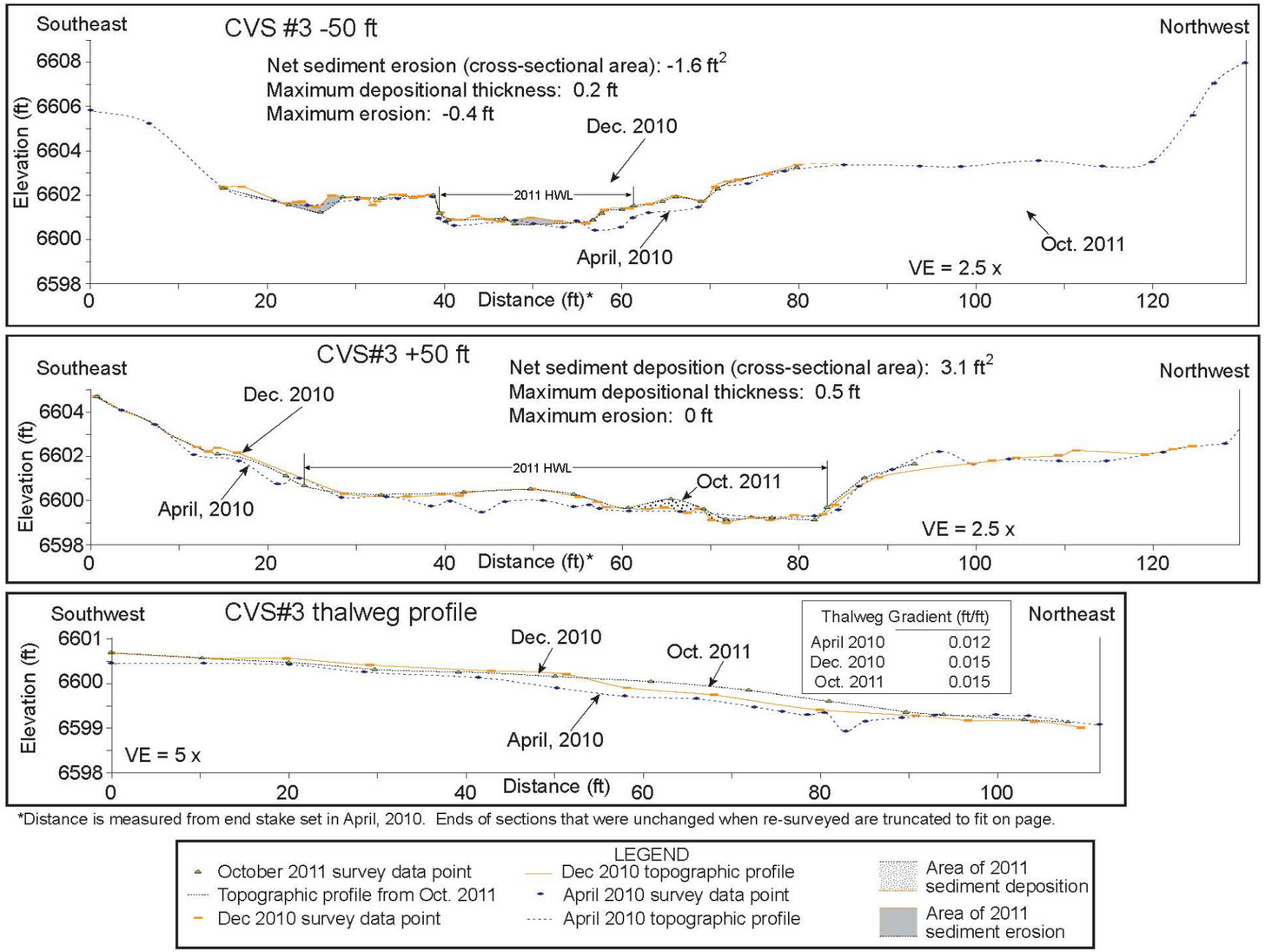
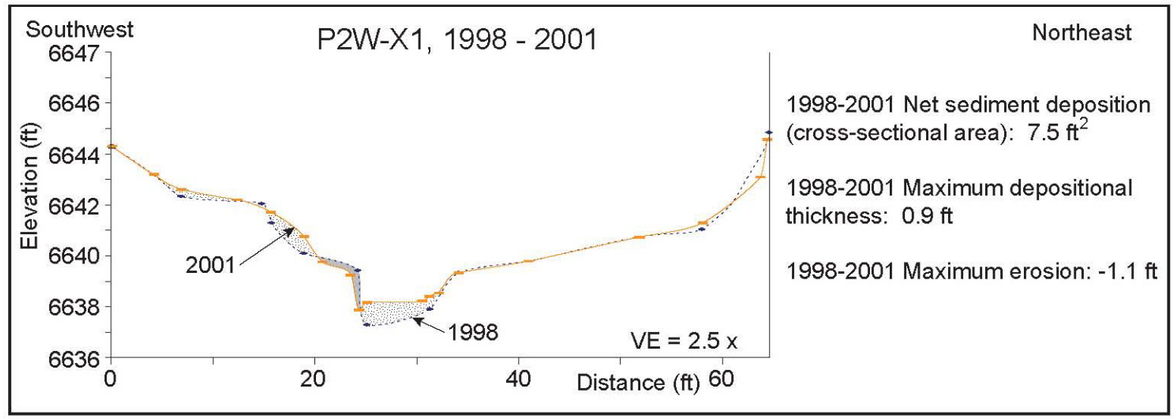


Figure 3.1-5 Cross-sections and thalweg profile at Pueblo Canyon CVS #3



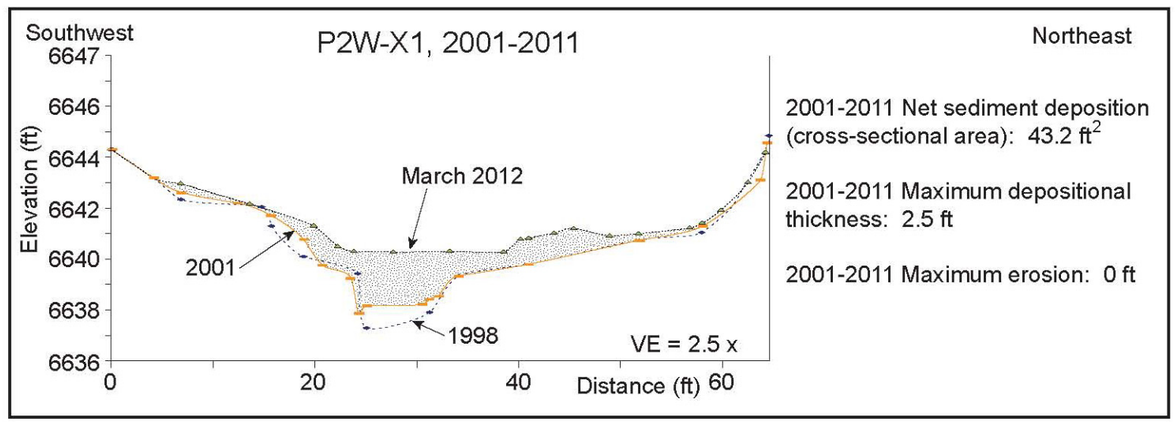


Figure 3.1-6 P2W-X1 cross-section in 1998, 2001, and 2011

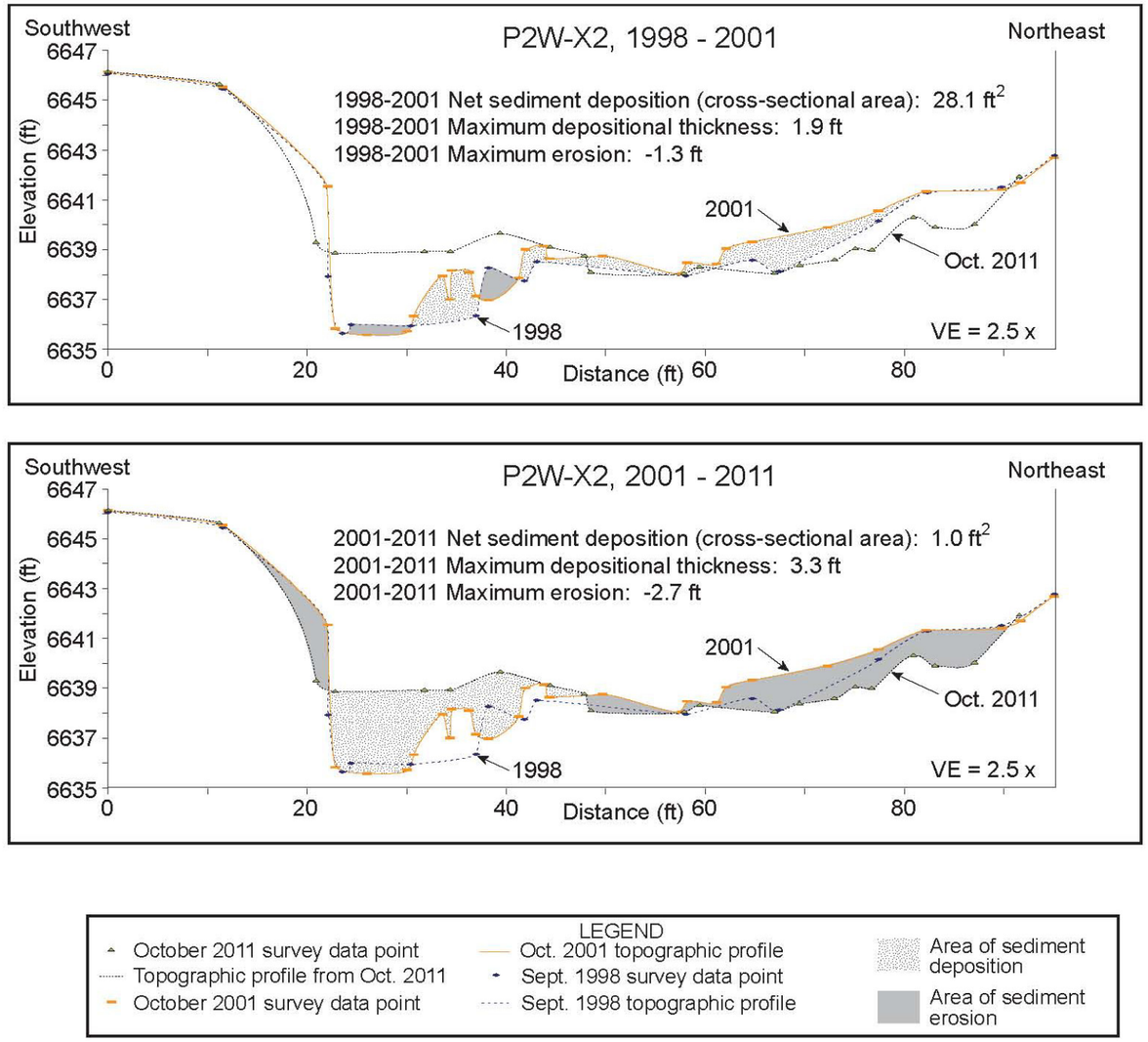


Figure 3.1-7 P2W-X2 cross-section in 1998, 2001, and 2011

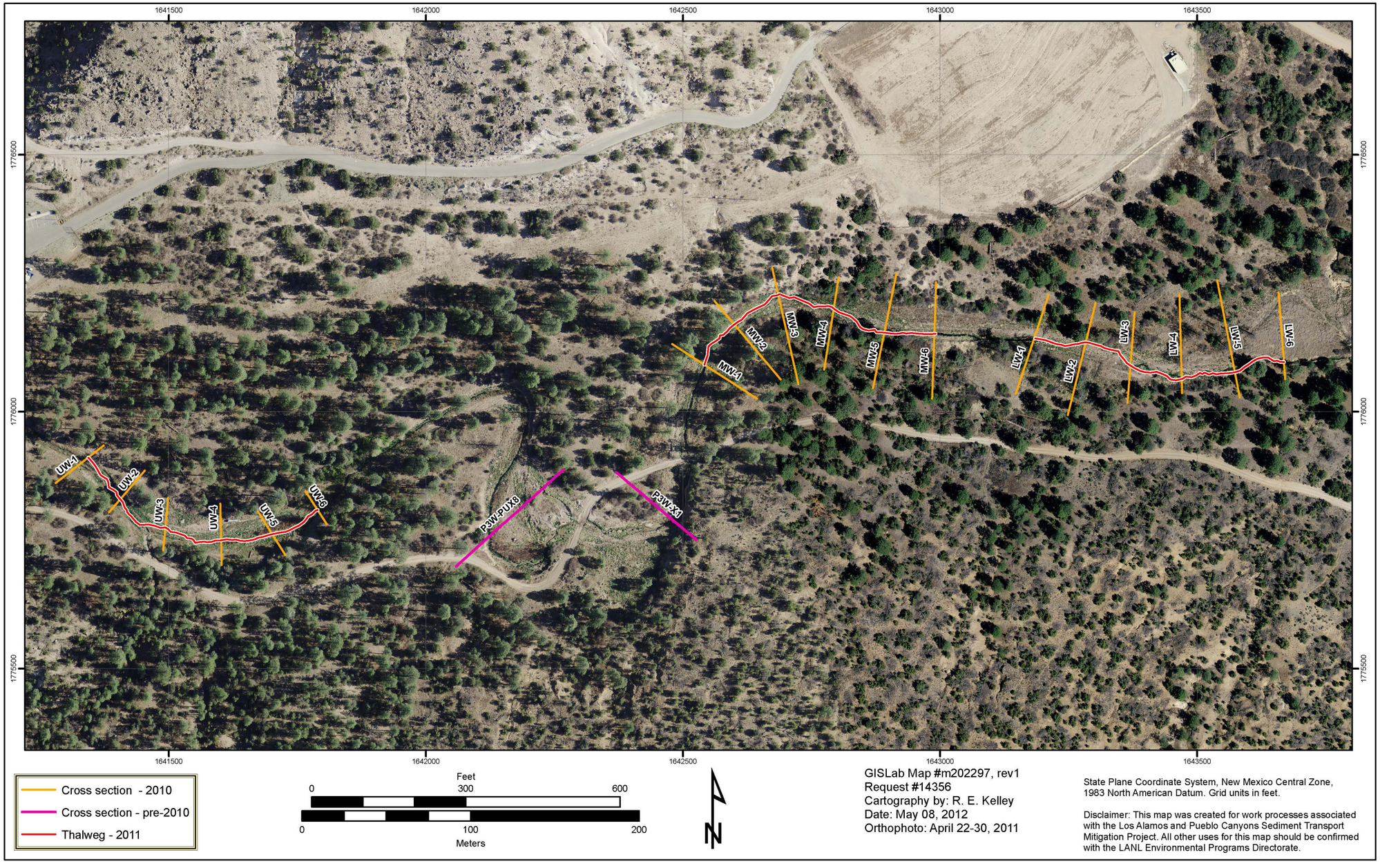


Figure 3.2-1 Orthophoto showing the locations of surveyed cross-sections and thalweg profiles in the upper Pueblo Canyon willow-planting area

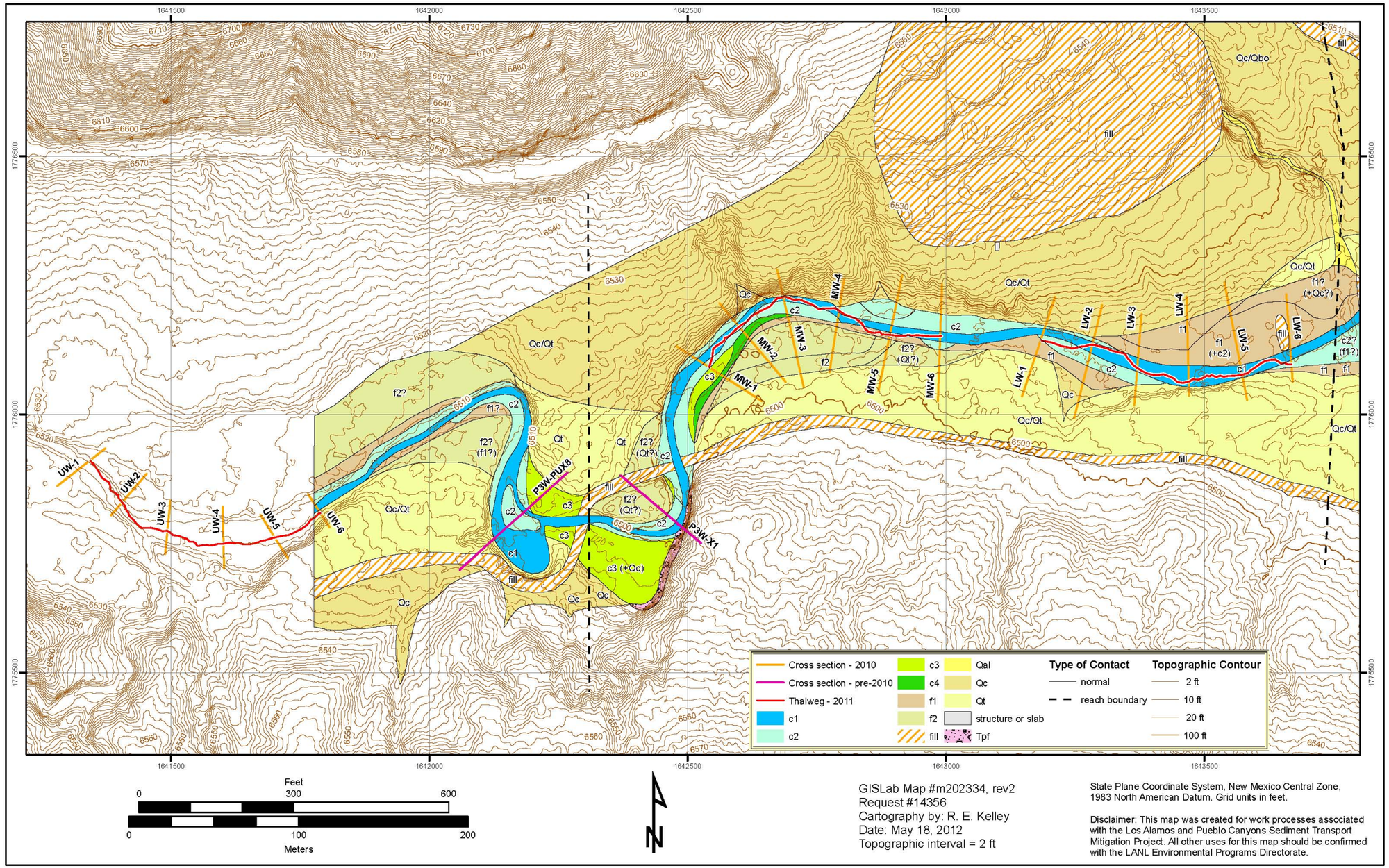


Figure 3.2-2 Geomorphic map showing the locations of surveyed cross-sections and thalweg profiles in the upper Pueblo Canyon willow-planting area; geomorphic mapping from 1997

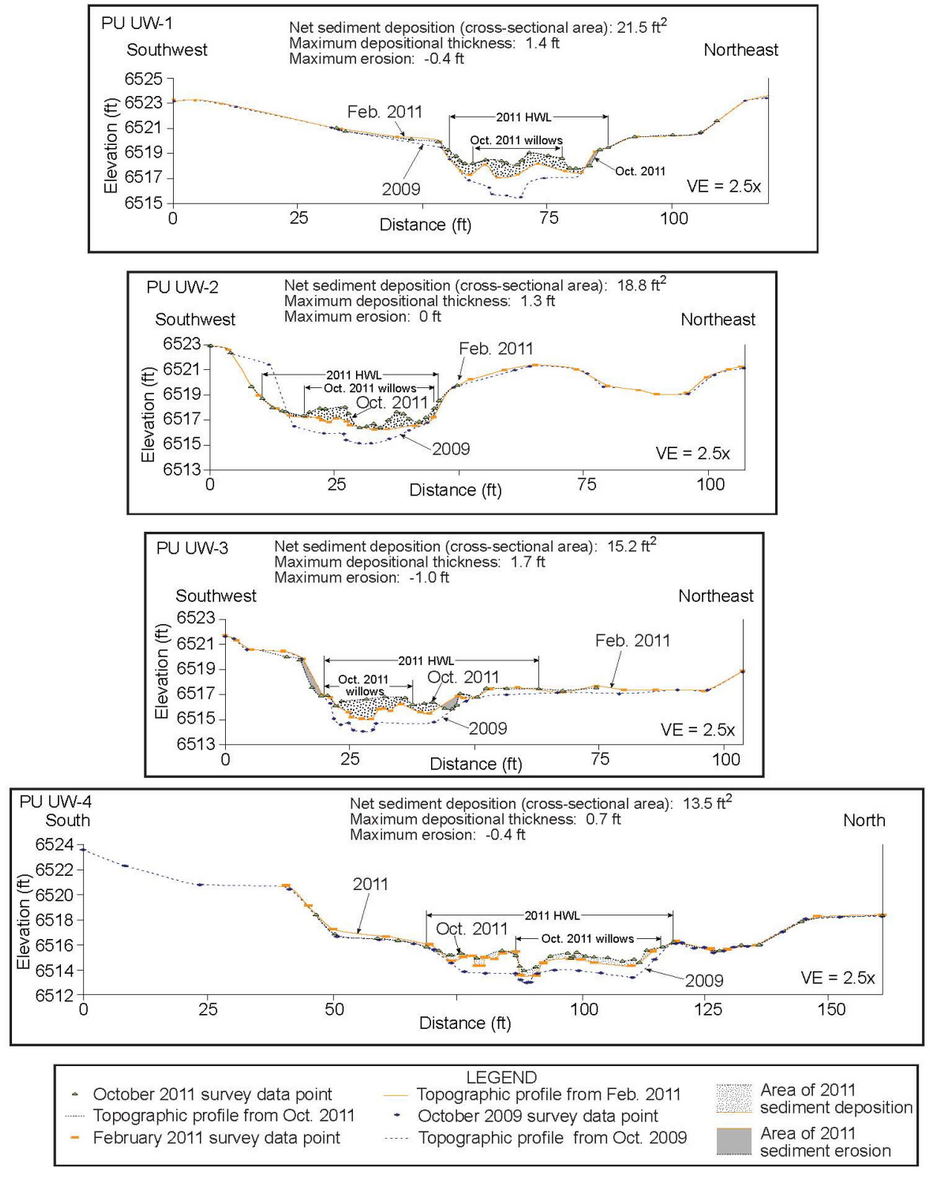


Figure 3.2-3 Cross-sections and thalweg profile in upper third of upper Pueblo Canyon willow-planting area

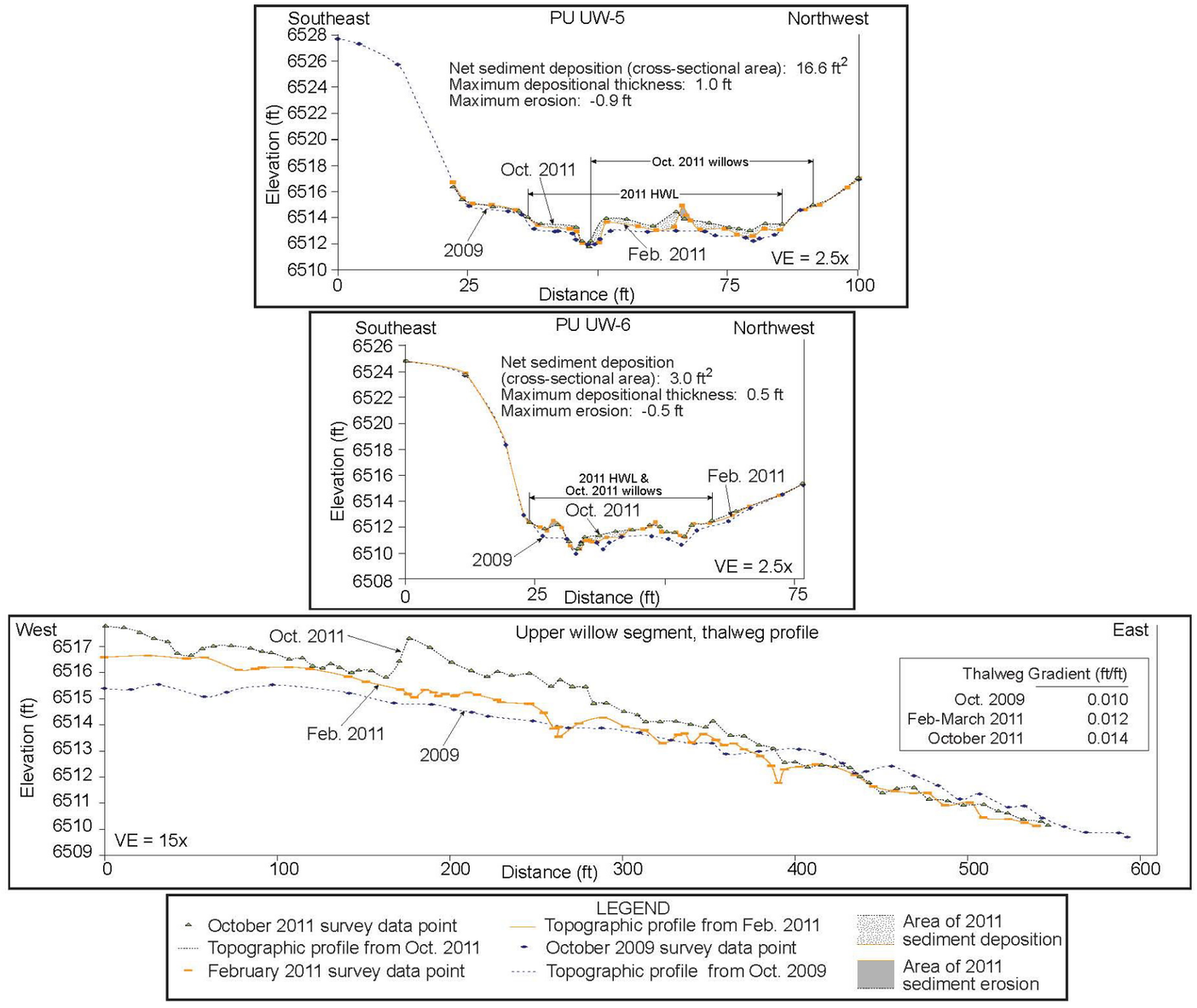


Figure 3.2-3 (continued) **Cross-sections and thalweg profile in upper third of upper Pueblo Canyon willow-planting area**

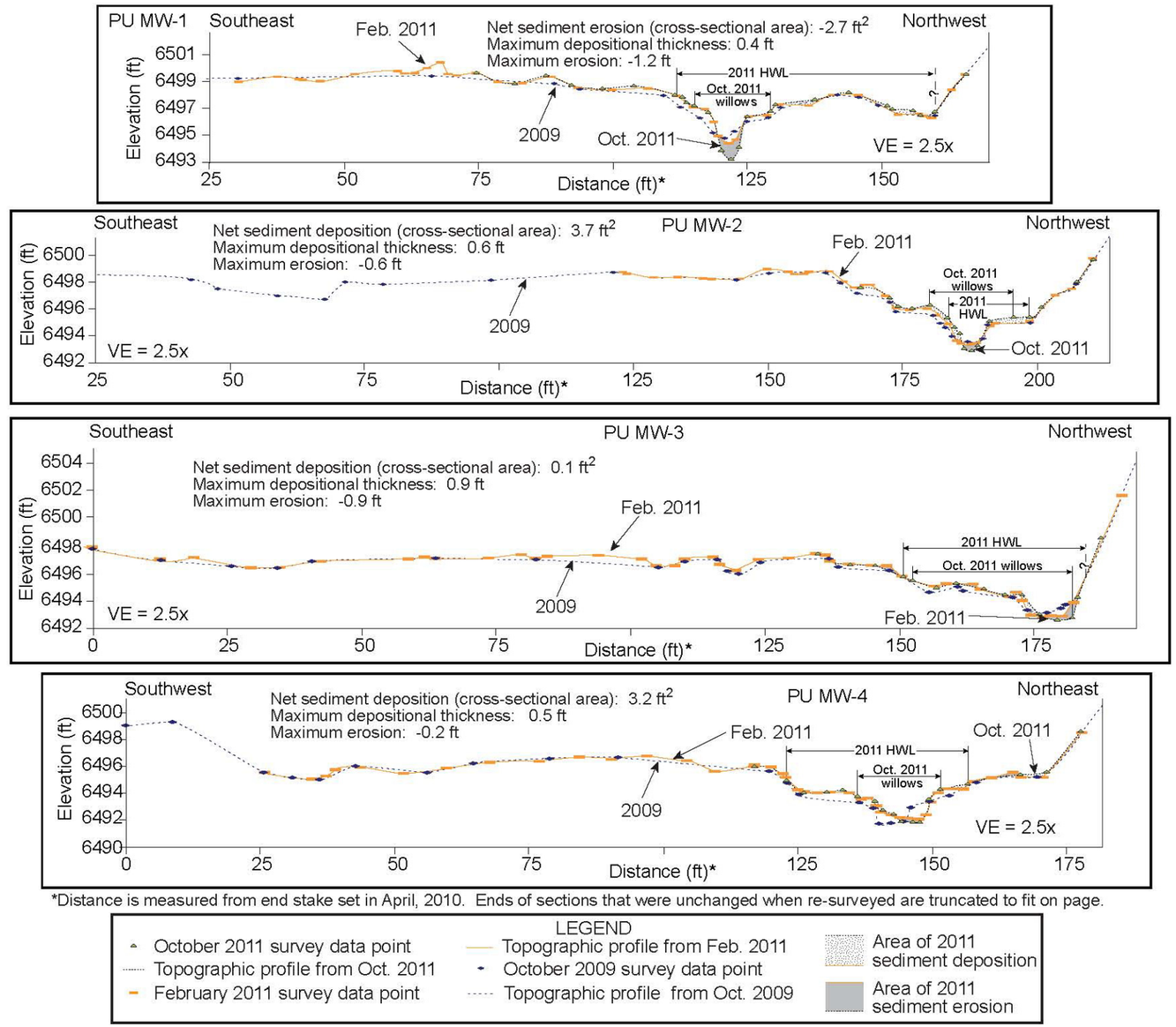


Figure 3.2-4 Cross-sections and thalweg profile in middle third of upper Pueblo Canyon willow-planting area

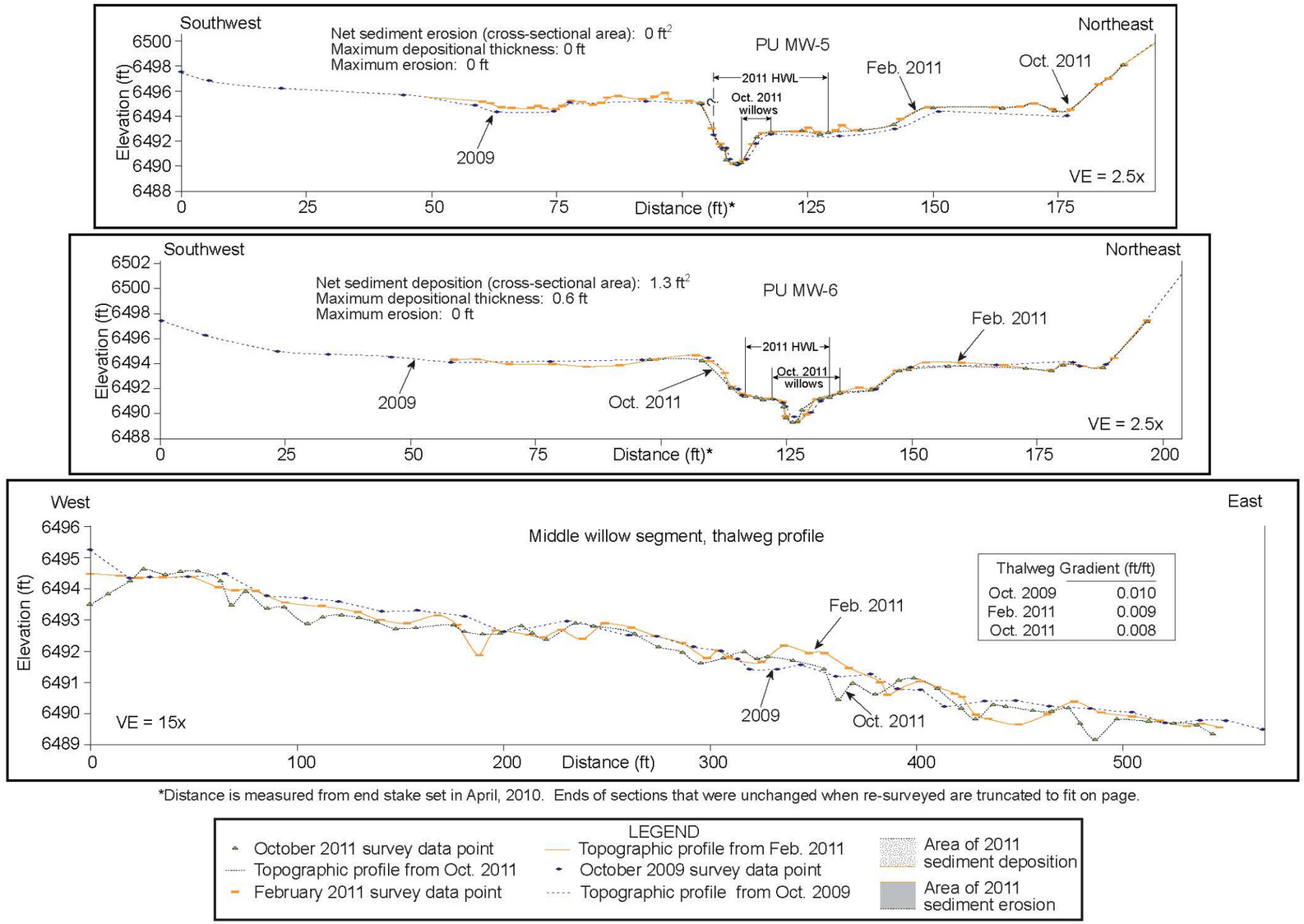


Figure 3.2-4 (continued) **Cross-sections and thalweg profile in middle third of upper Pueblo Canyon willow-planting area**

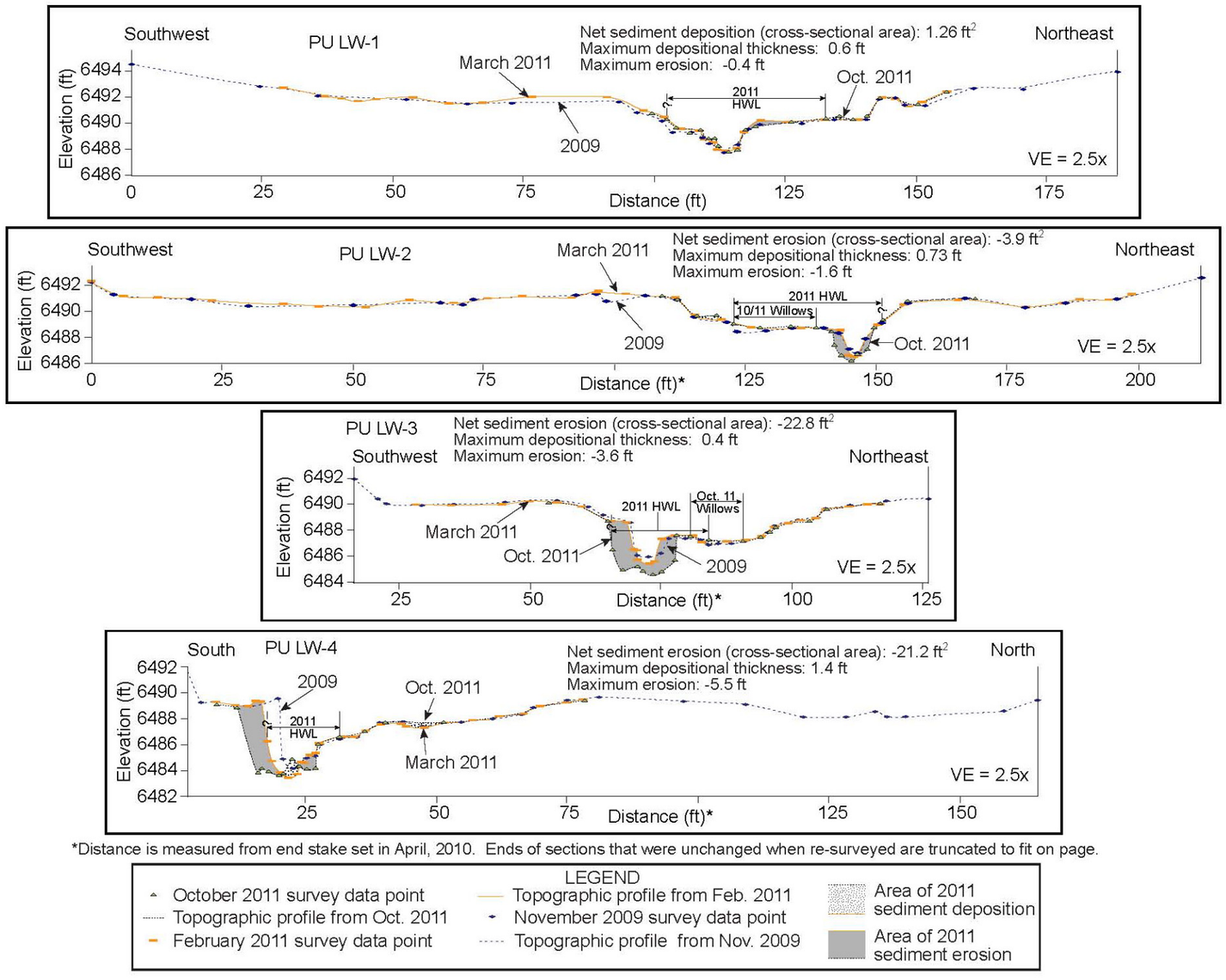
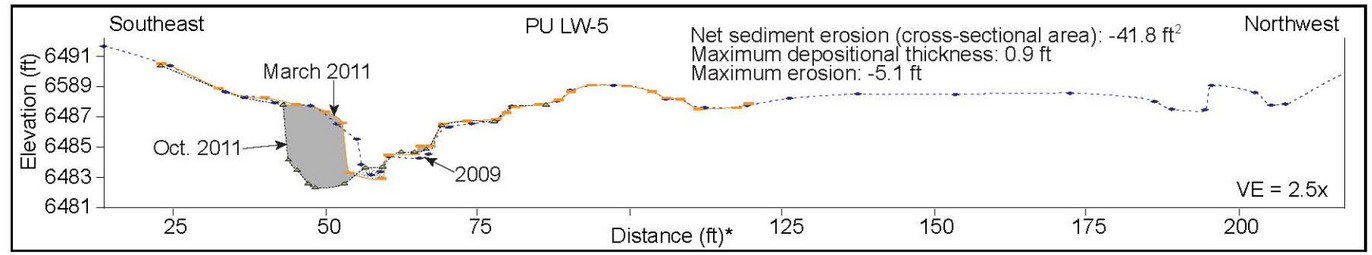
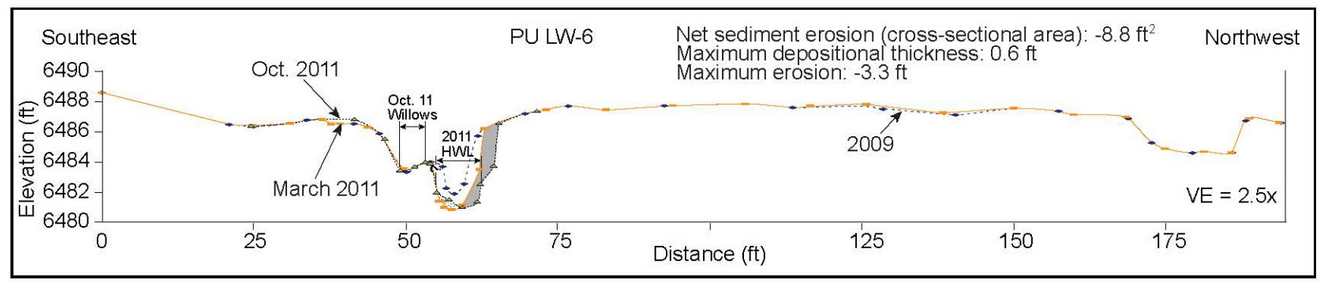
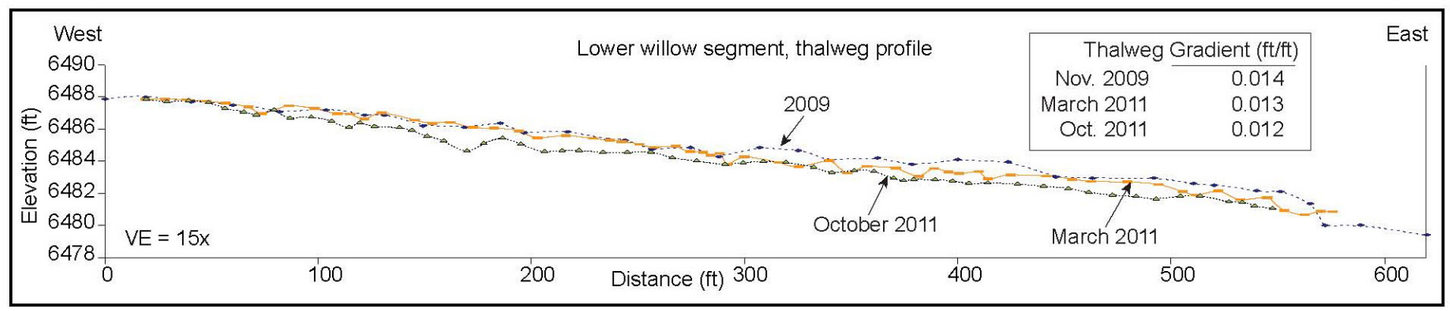


Figure 3.2-5 Cross-sections and thalweg profile in lower third of upper Pueblo Canyon willow-planting area







*Distance is measured from end stake set in April, 2010. Ends of sections that were unchanged when re-surveyed are truncated to fit on page.

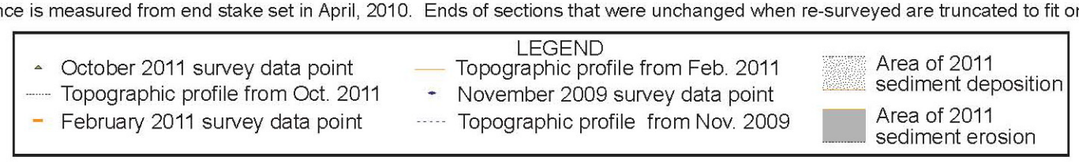


Figure 3.2-5 (continued) **Cross-sections and thalweg profile in lower third of upper Pueblo Canyon willow-planting area**

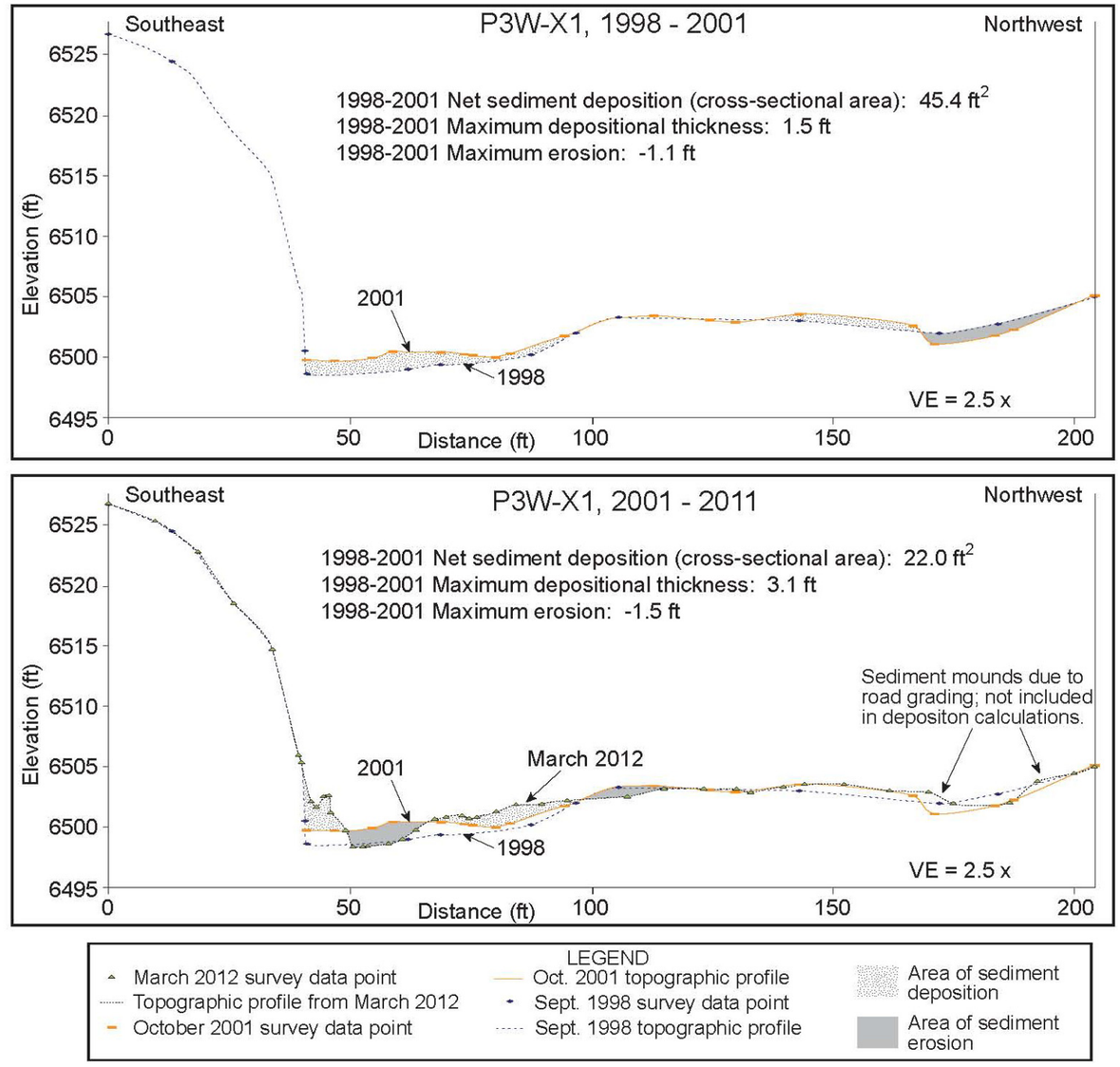


Figure 3.2-6 P3W-X1 cross-section in 1998, 2001, and 2011

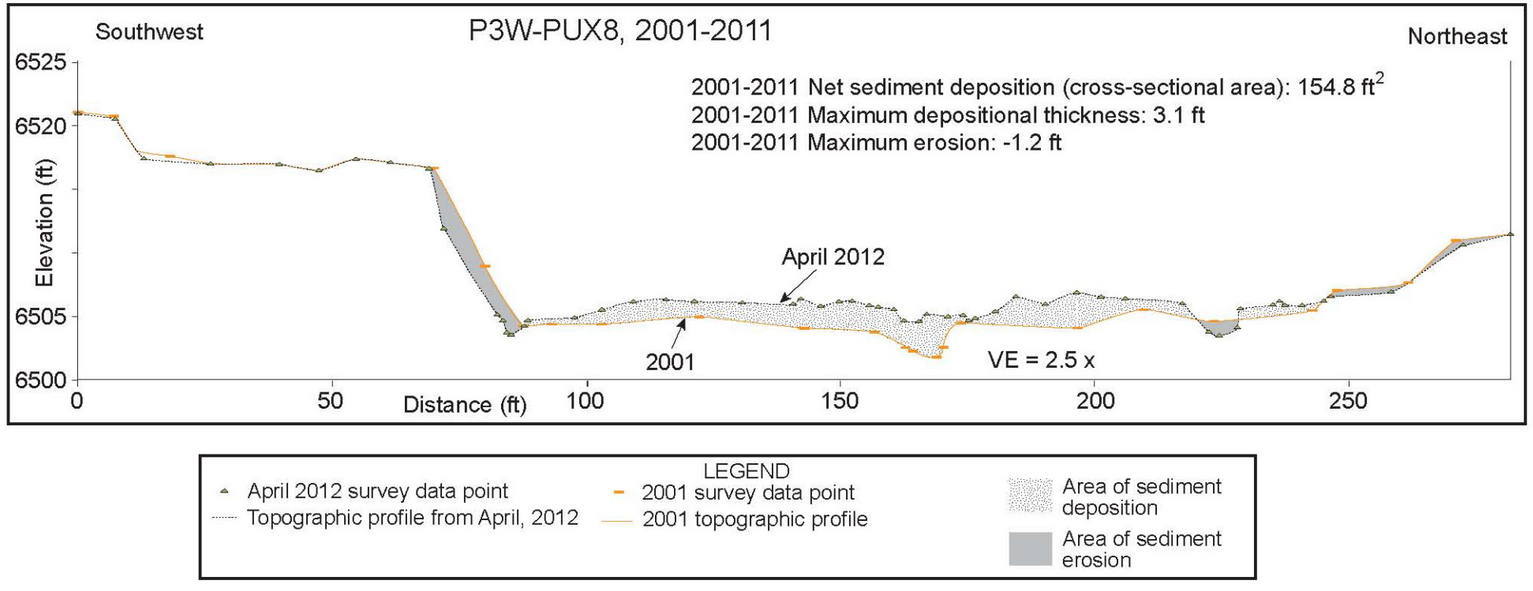


Figure 3.2-7 P3W-PUX8 cross-section in 1998, 2001, and 2011

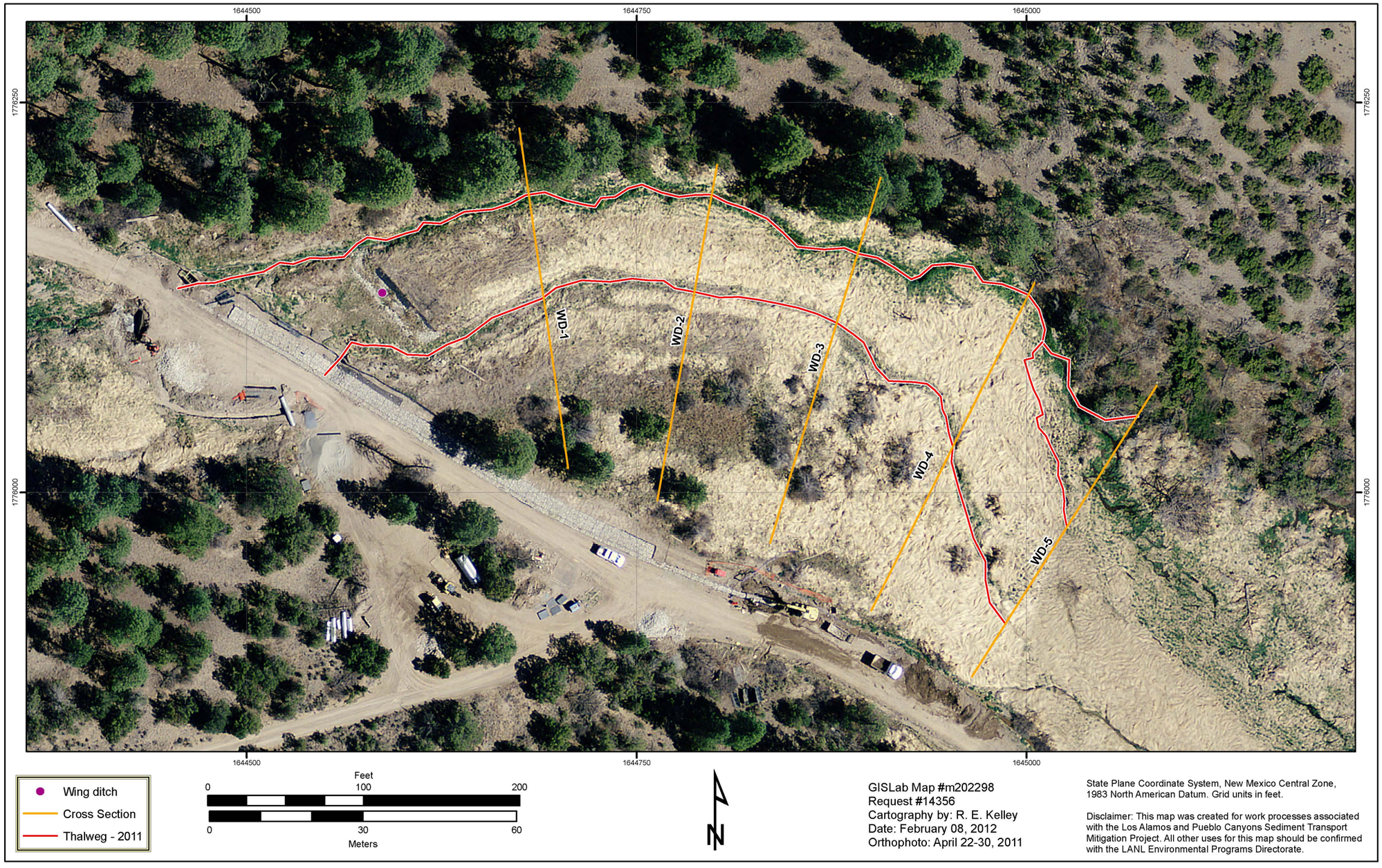


Figure 3.3-1 Orthophoto showing the locations of surveyed cross-sections and thalweg profiles near the Pueblo Canyon wing ditch; also shown is road reconstruction in progress by Los Alamos County

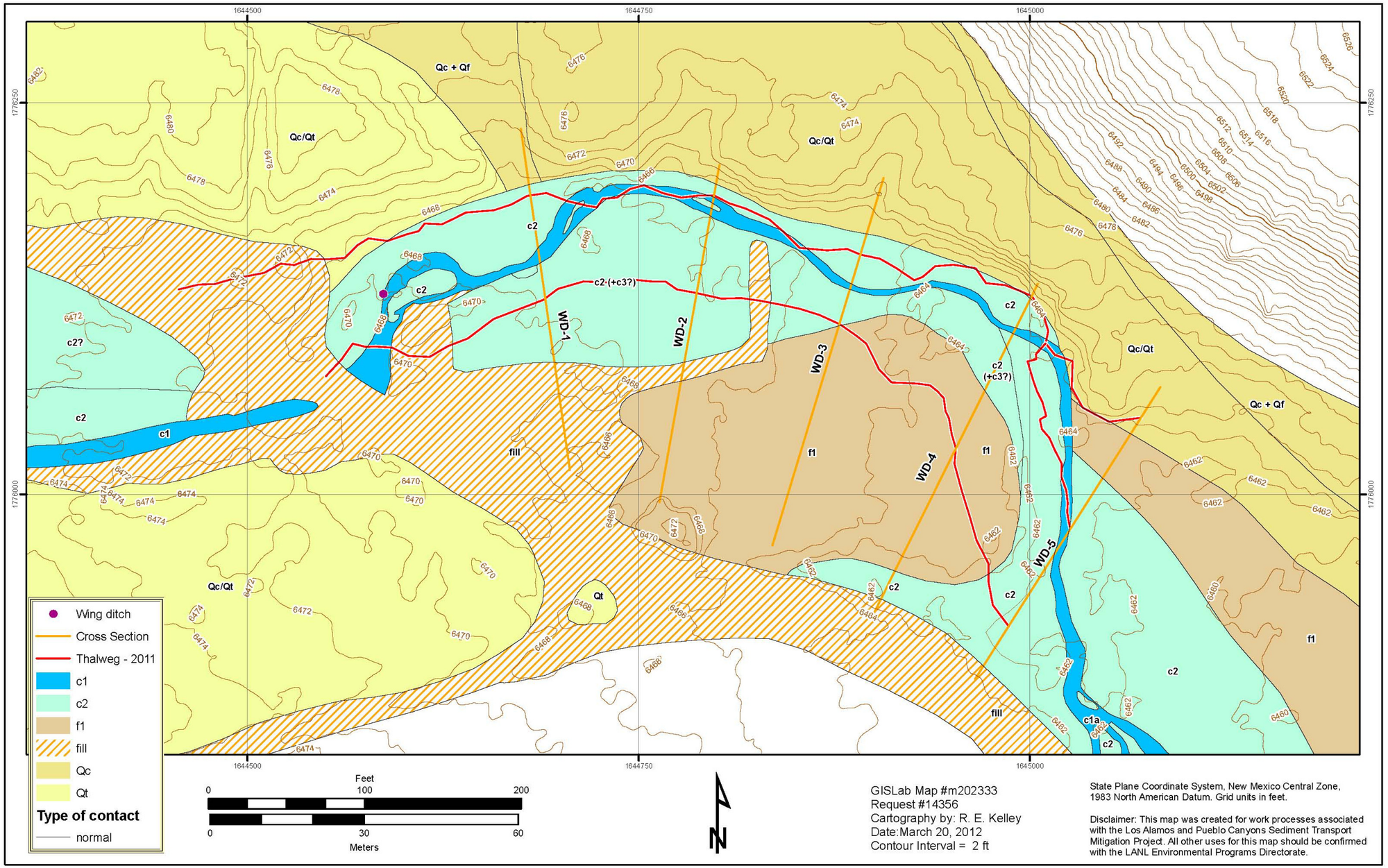


Figure 3.3-2 Geomorphic map showing the locations of surveyed cross-sections and thalweg profiles near the Pueblo Canyon wing ditch; geomorphic mapping from 1997

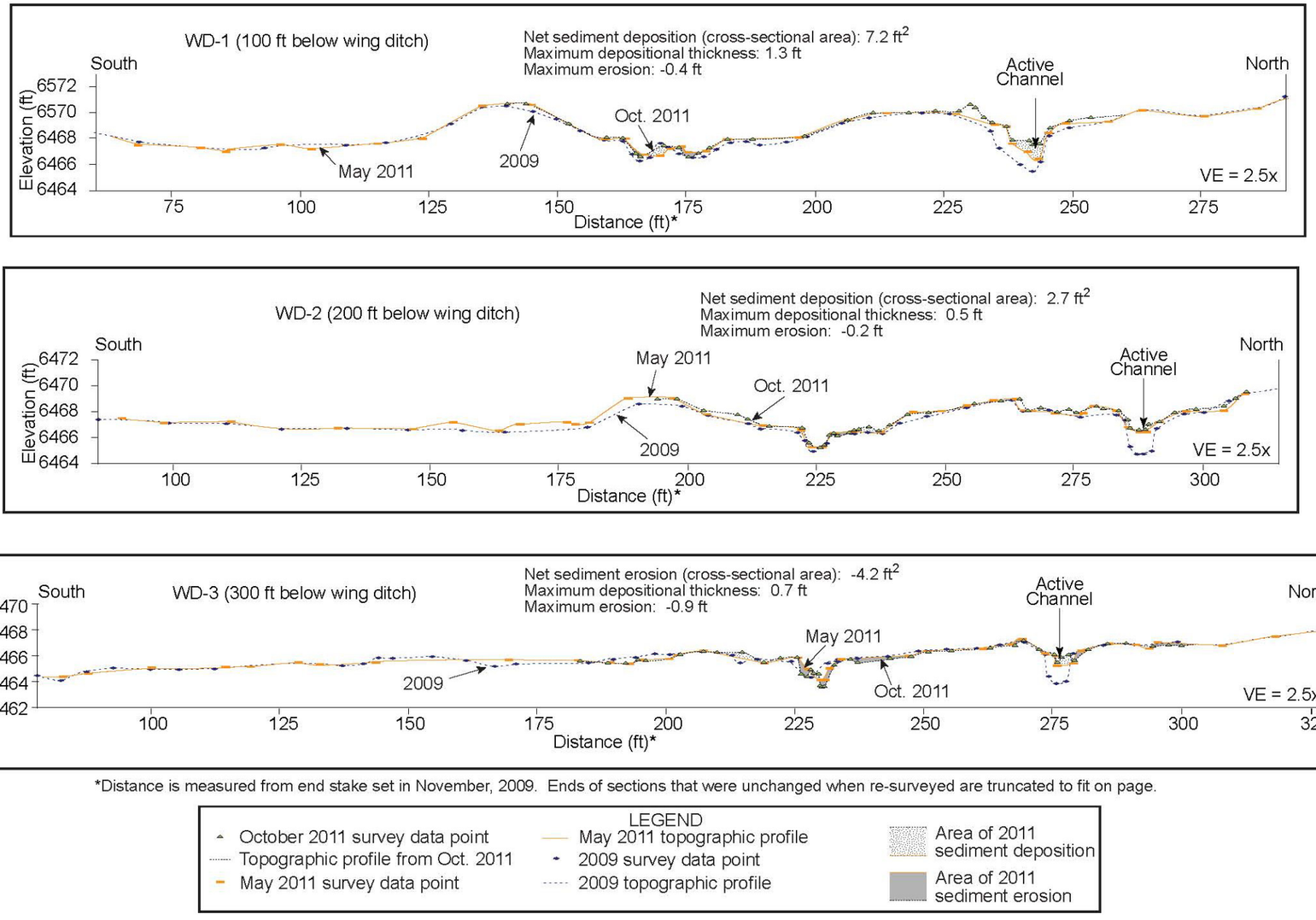
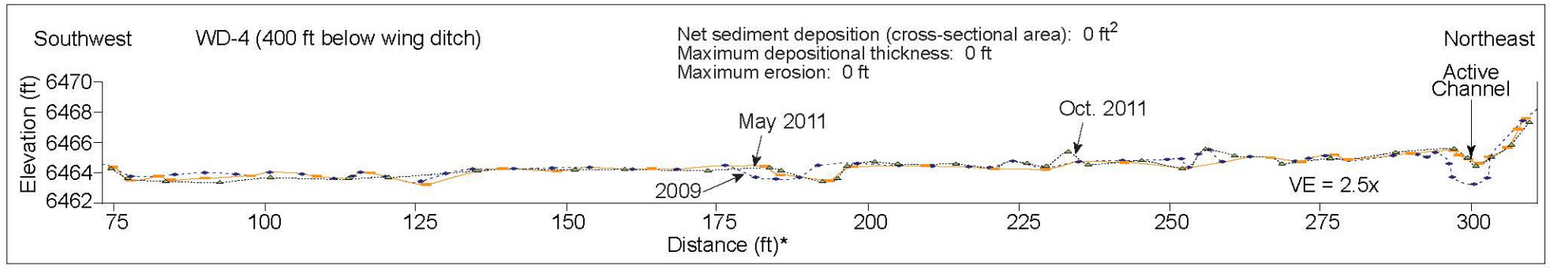
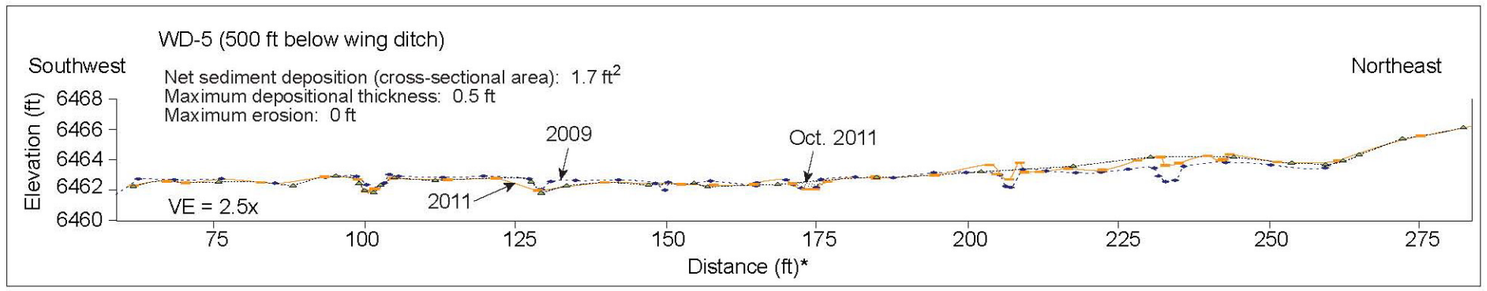


Figure 3.3-3 Cross-sections below the Pueblo Canyon wing ditch





*Distance is measured from end stake set in November, 2009. Ends of sections that were unchanged when re-surveyed are truncated to fit on page.

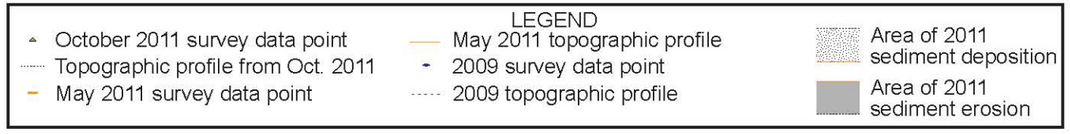


Figure 3.3-3 (continued) **Cross-sections below the Pueblo Canyon wing ditch**

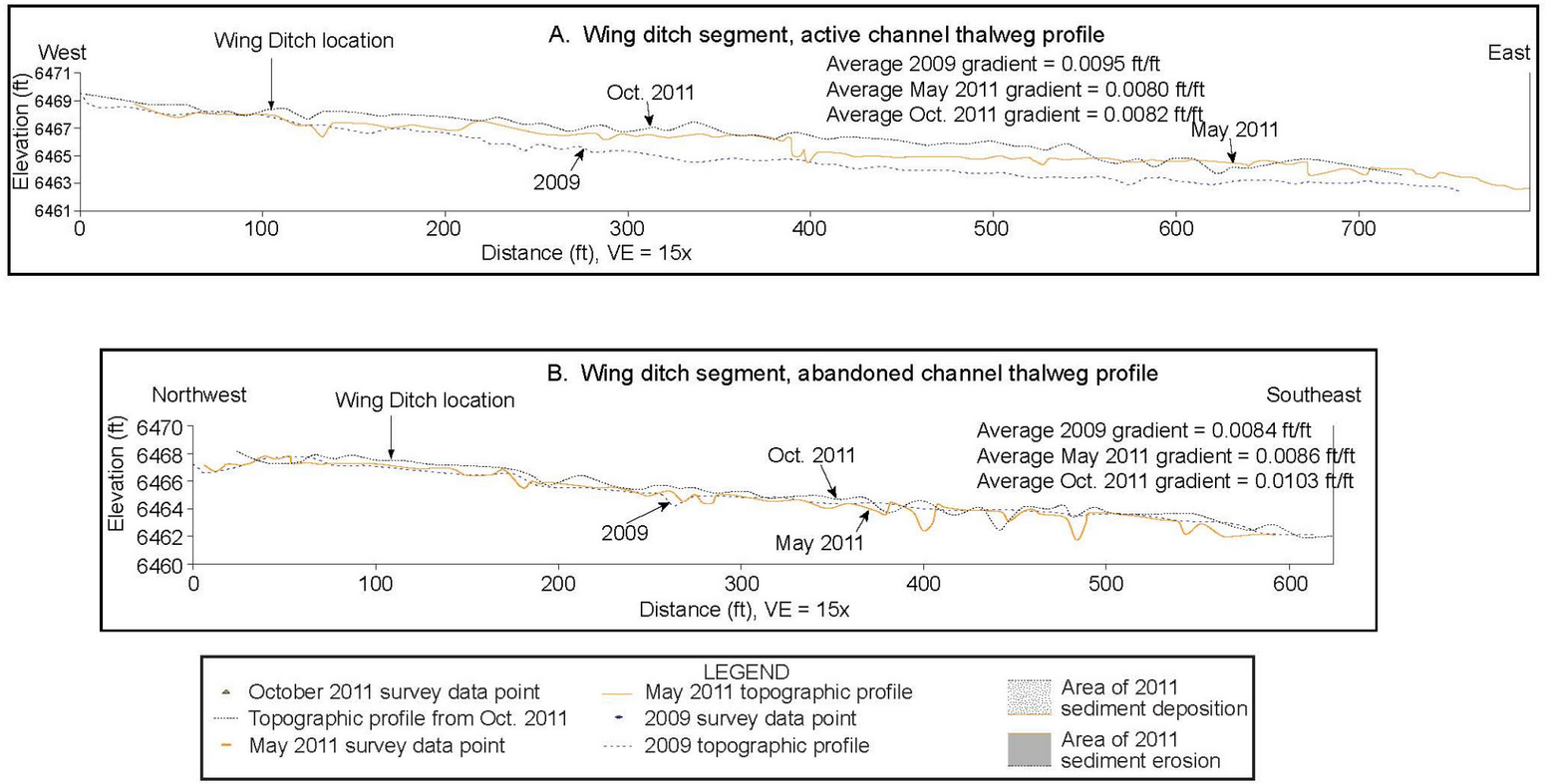


Figure 3.3-4 Thalweg profiles near the Pueblo Canyon wing ditch

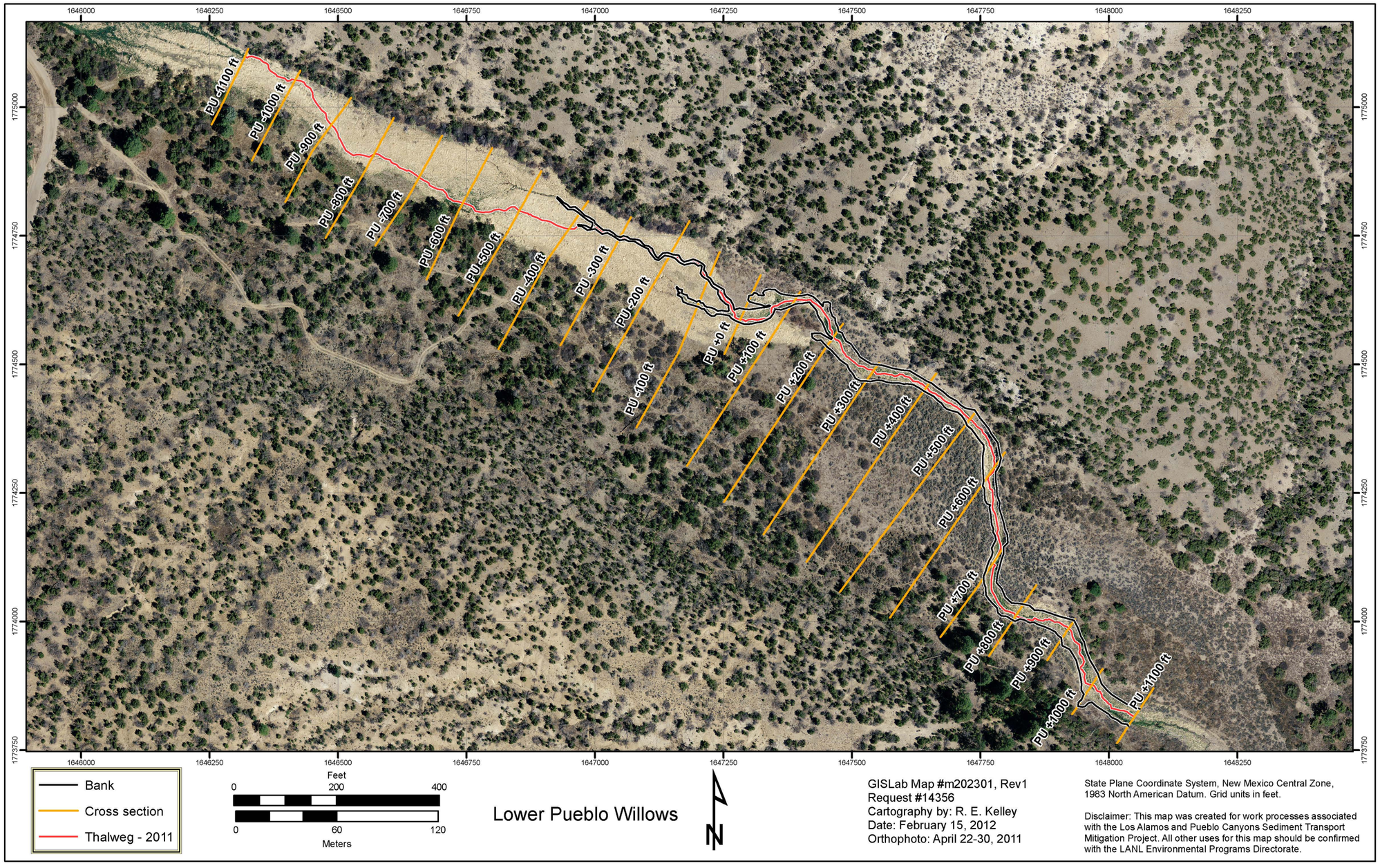


Figure 3.4-1 Orthophoto showing the locations of surveyed cross-sections, thalweg profiles, and stream banks in the lower Pueblo Canyon willow-planting area

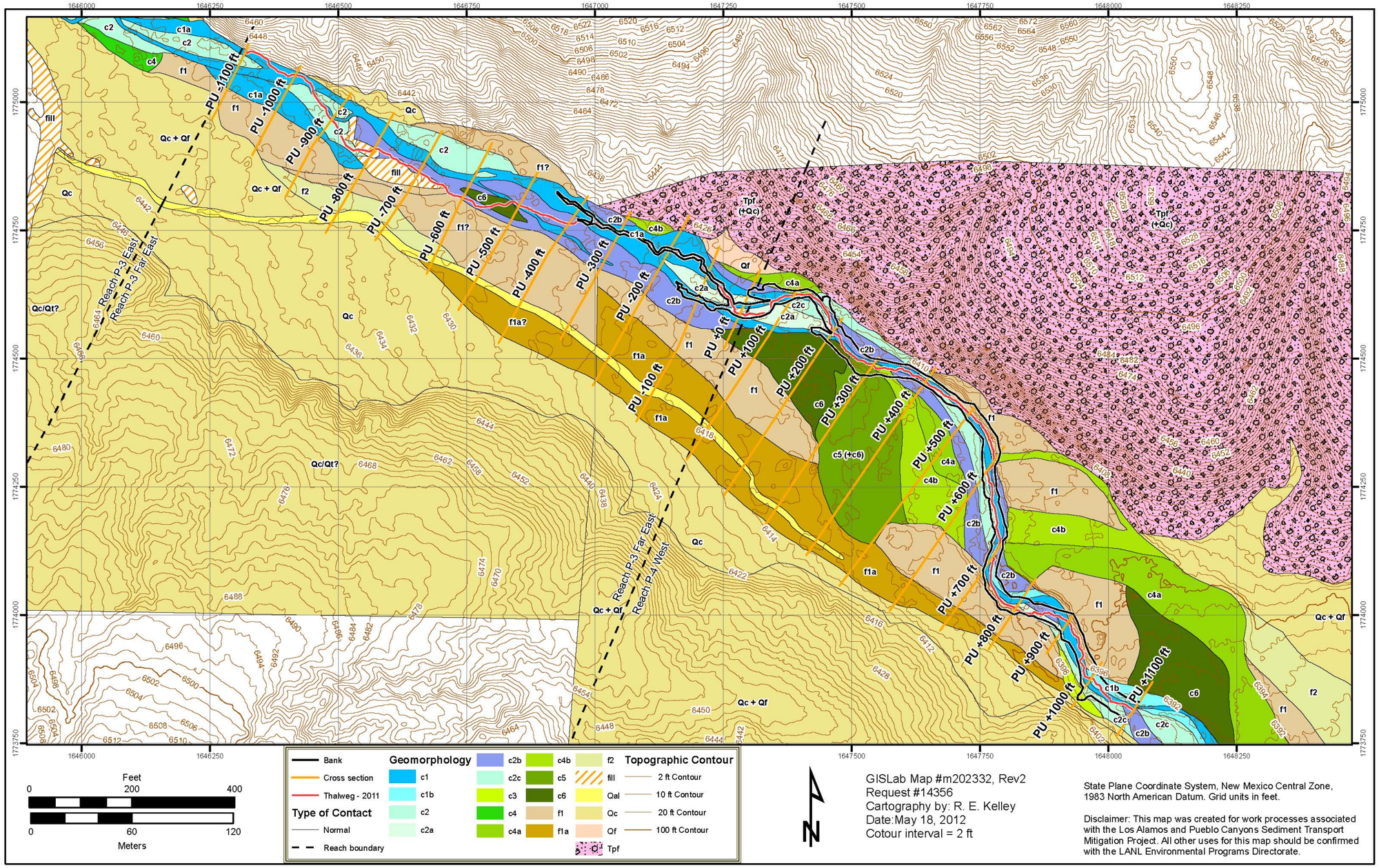


Figure 3.4-2 Geomorphic map showing the locations of surveyed cross-sections, thalweg profiles, and stream banks in the lower Pueblo Canyon willow-planting area; geomorphic mapping from 1996–1997

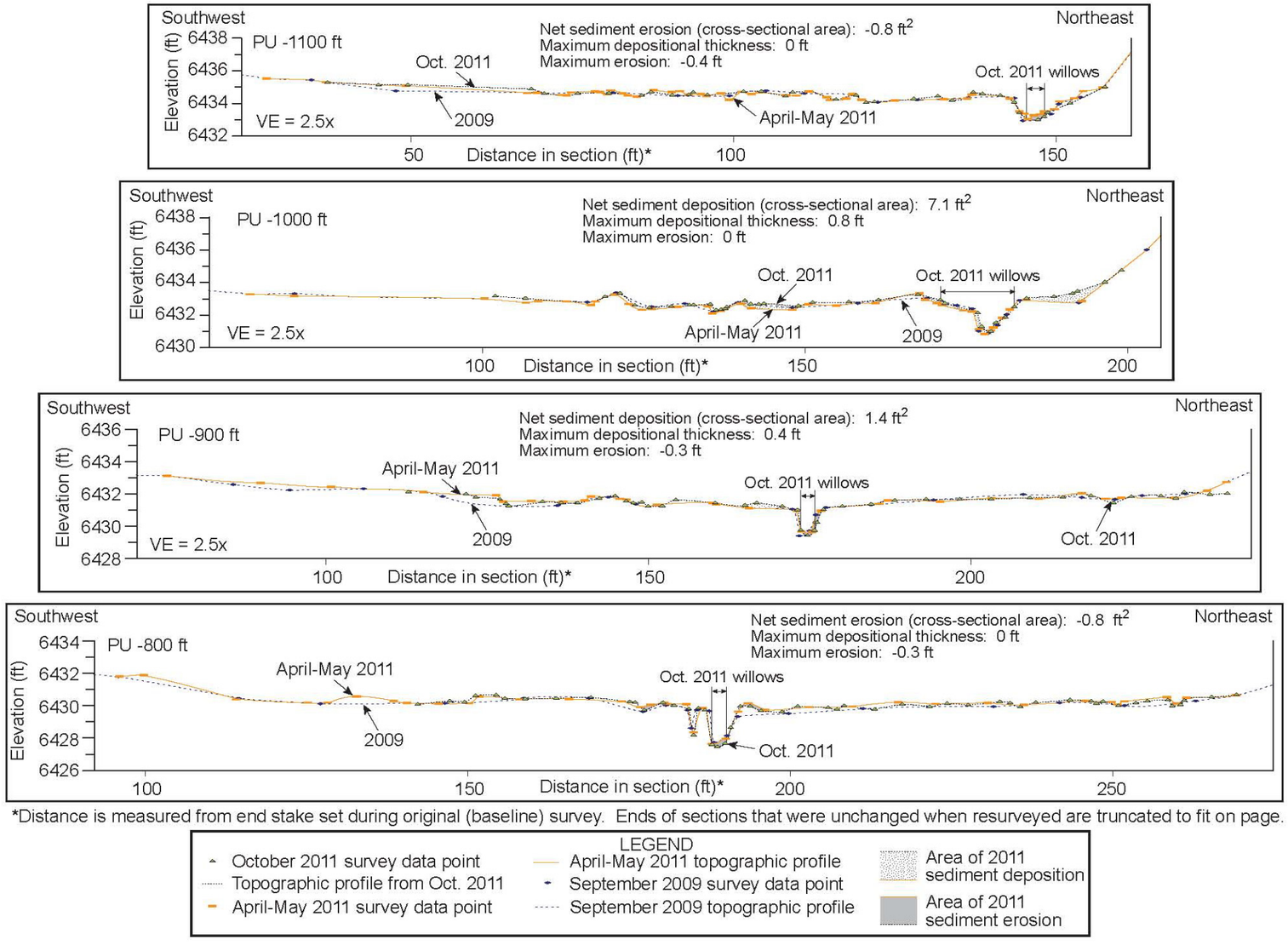


Figure 3.4-3 Cross-sections in the lower Pueblo Canyon willow-planting area

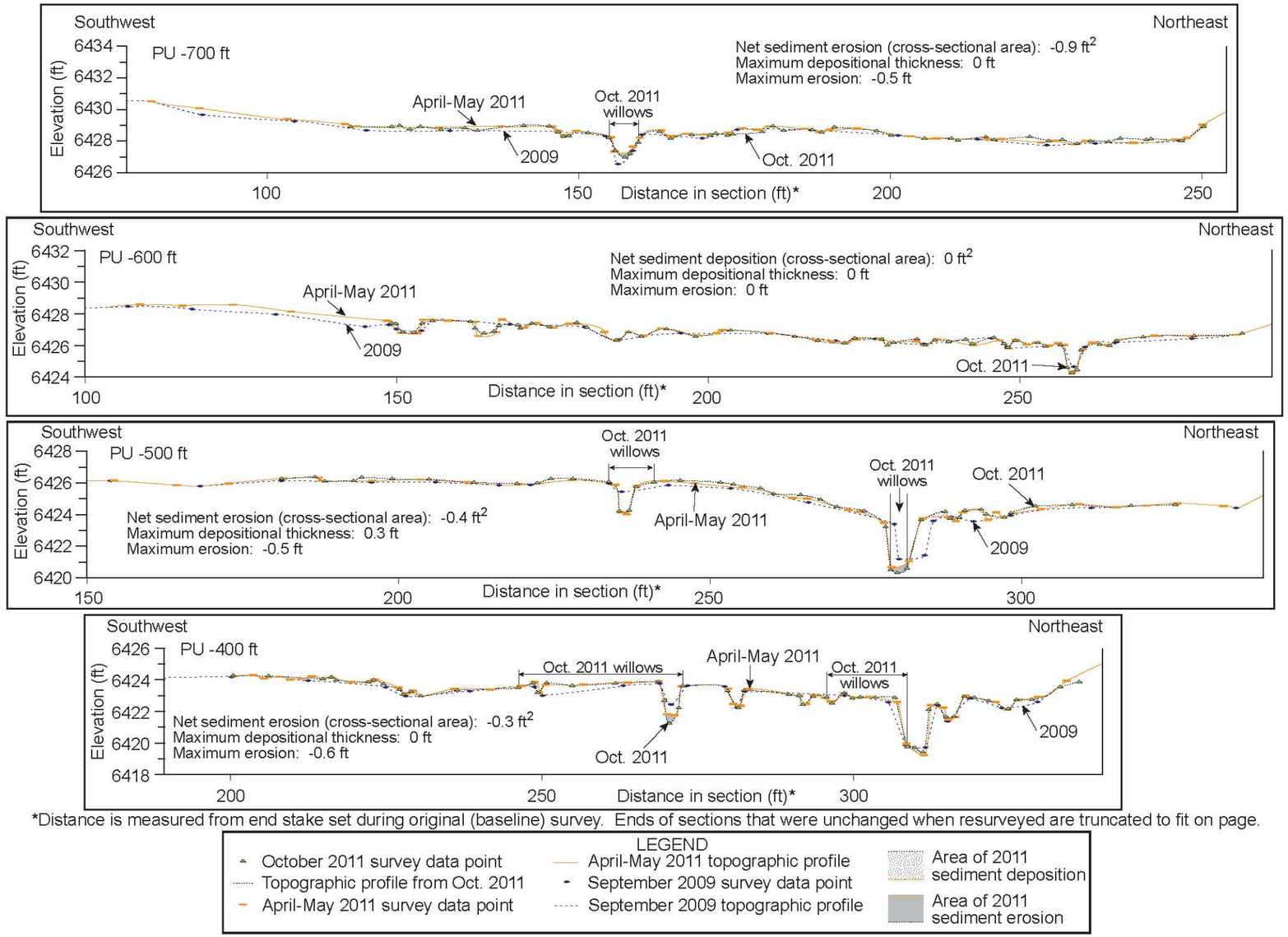


Figure 3.4-3 (continued) **Cross-sections in the lower Pueblo Canyon willow-planting area**

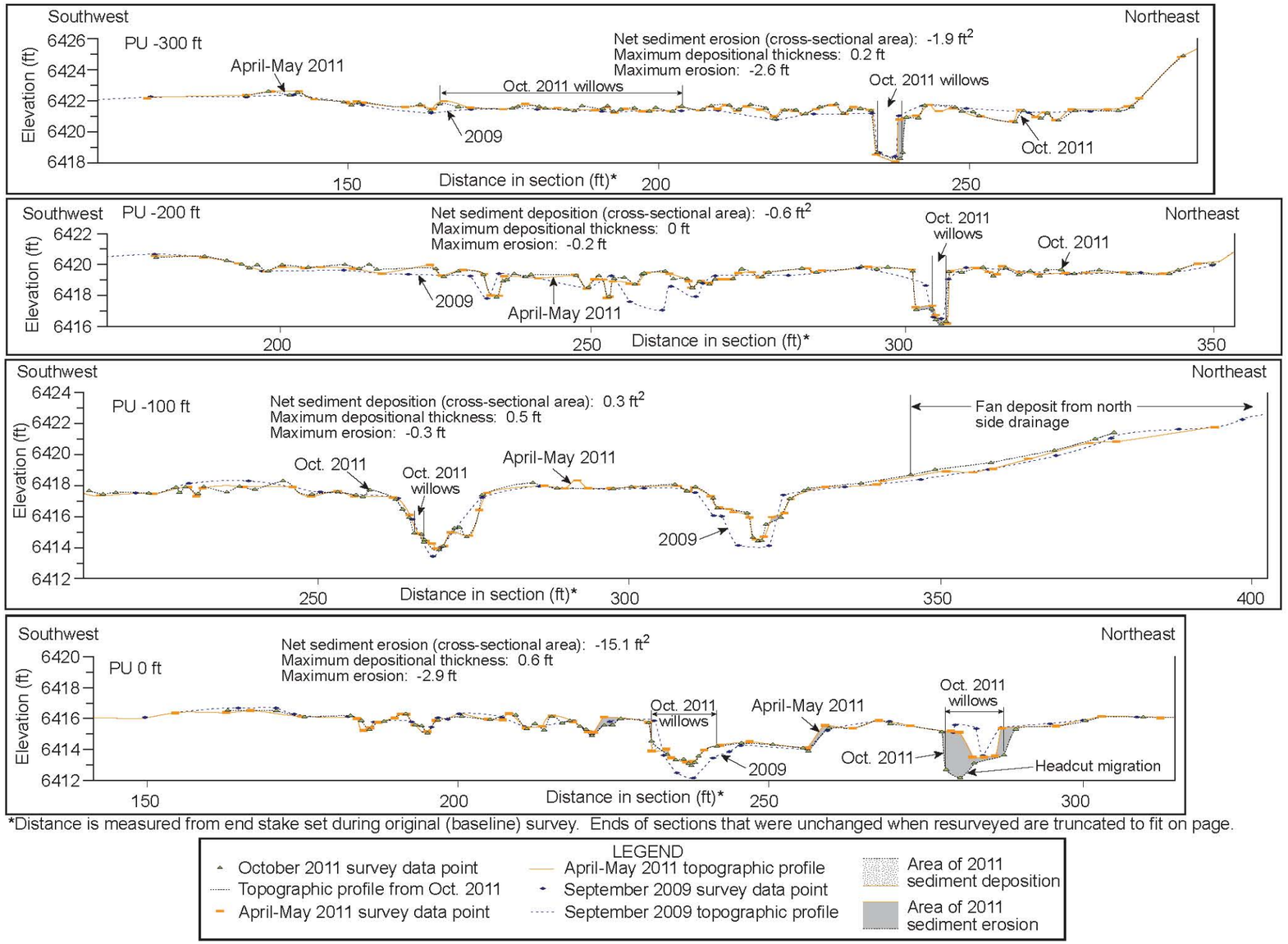
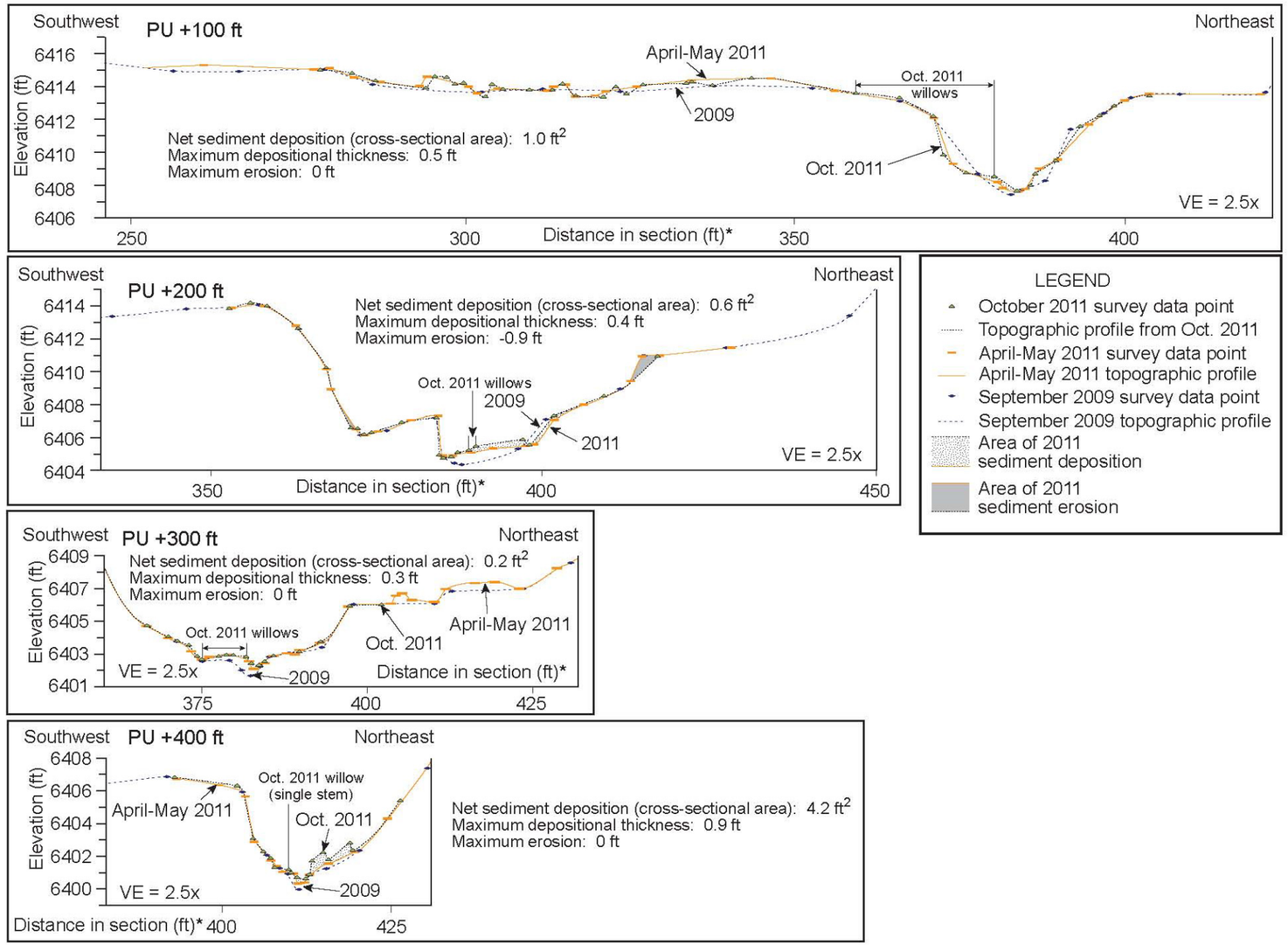
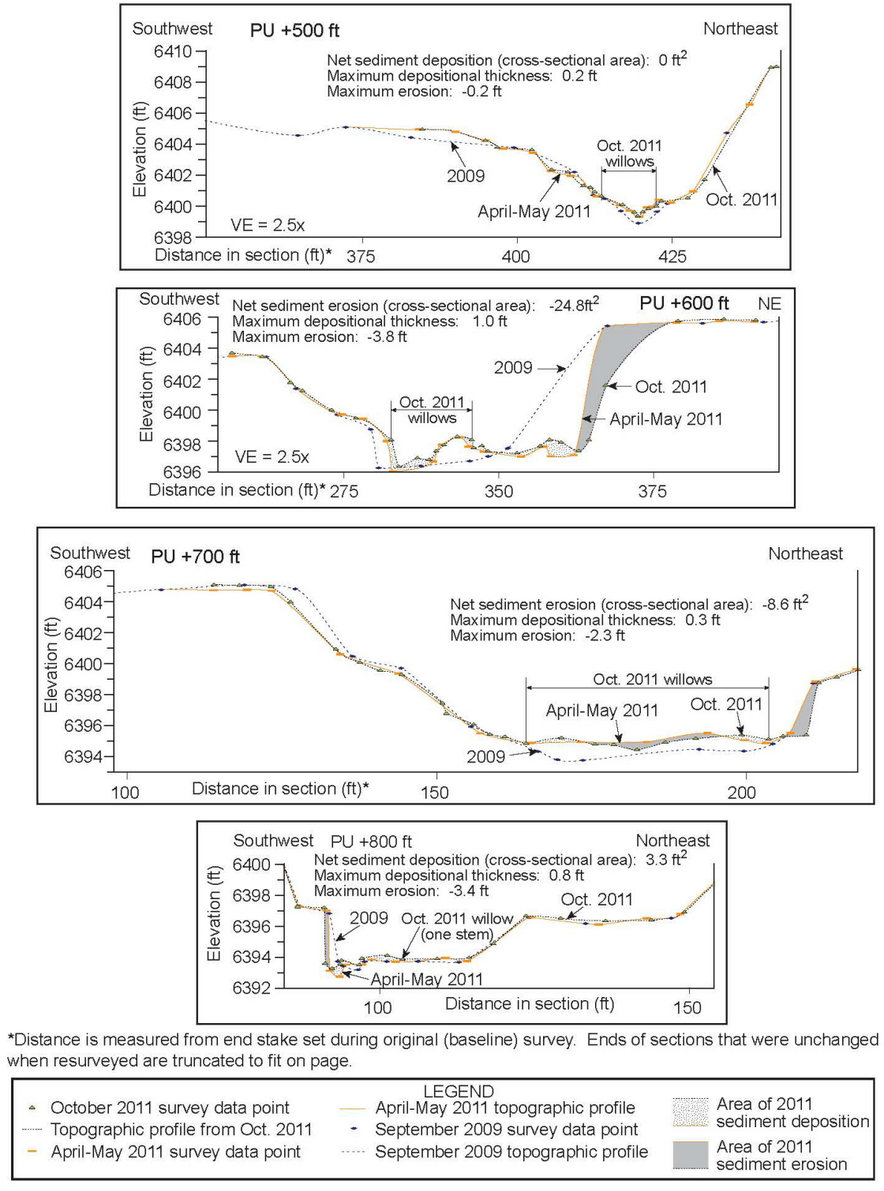


Figure 3.4-3 (continued) **Cross-sections in the lower Pueblo Canyon willow-planting area**



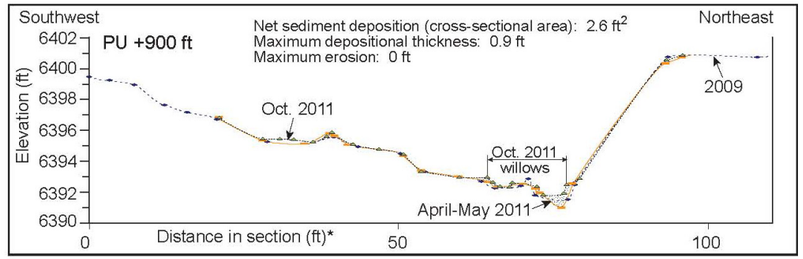
*Distance is measured from end stake set during original (baseline) survey. Ends of sections that were unchanged when resurveyed are truncated to fit on page.

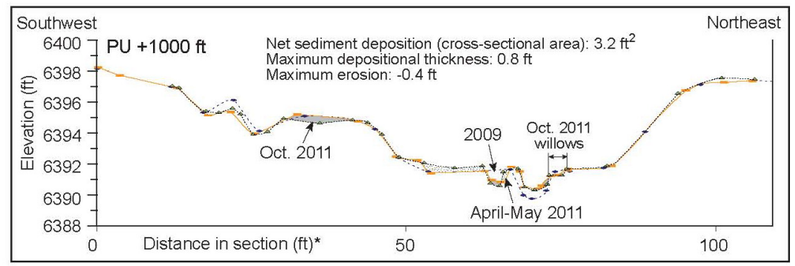
Figure 3.4-3 (continued) Cross-sections in the lower Pueblo Canyon willow-planting area

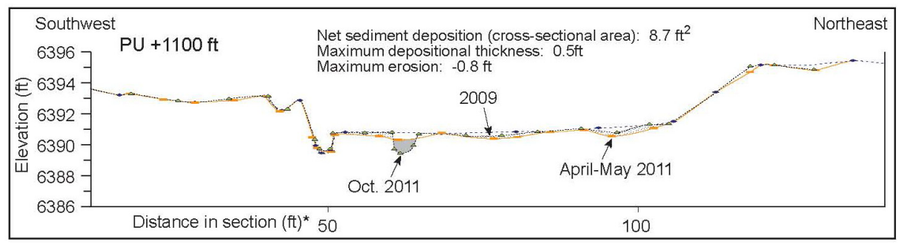


*Distance is measured from end stake set during original (baseline) survey. Ends of sections that were unchanged when resurveyed are truncated to fit on page.

Figure 3.4-3 (continued) Cross-sections in the lower Pueblo Canyon willow-planting area







*Distance is measured from end stake set during original (baseline) survey. Ends of sections that were unchanged when resurveyed are truncated to fit on page.

Figure 3.4-3 (continued) Cross-sections in the lower Pueblo Canyon willow-planting area

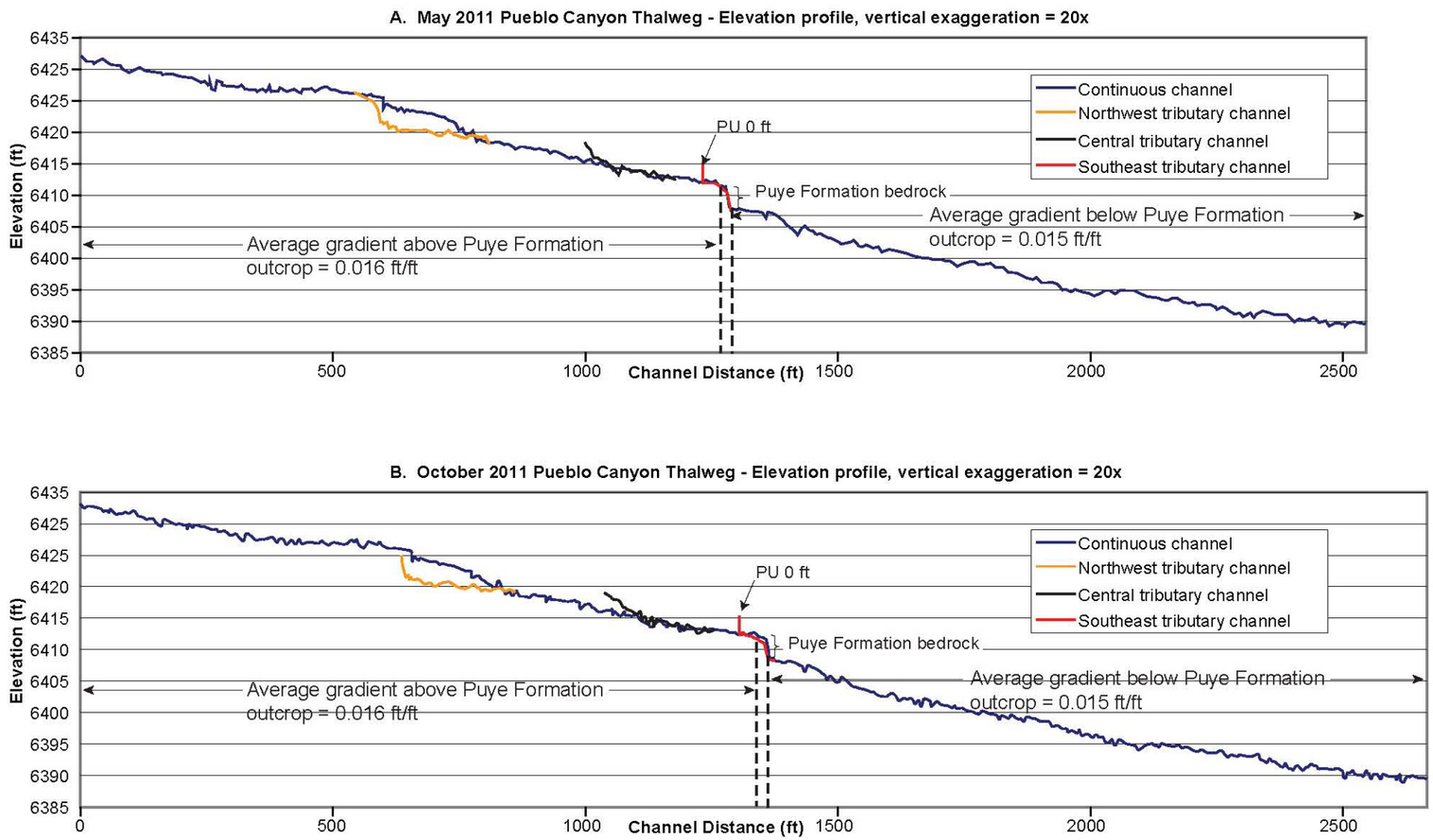


Figure 3.4-4 Thalweg profiles in the lower Pueblo Canyon willow-planting area

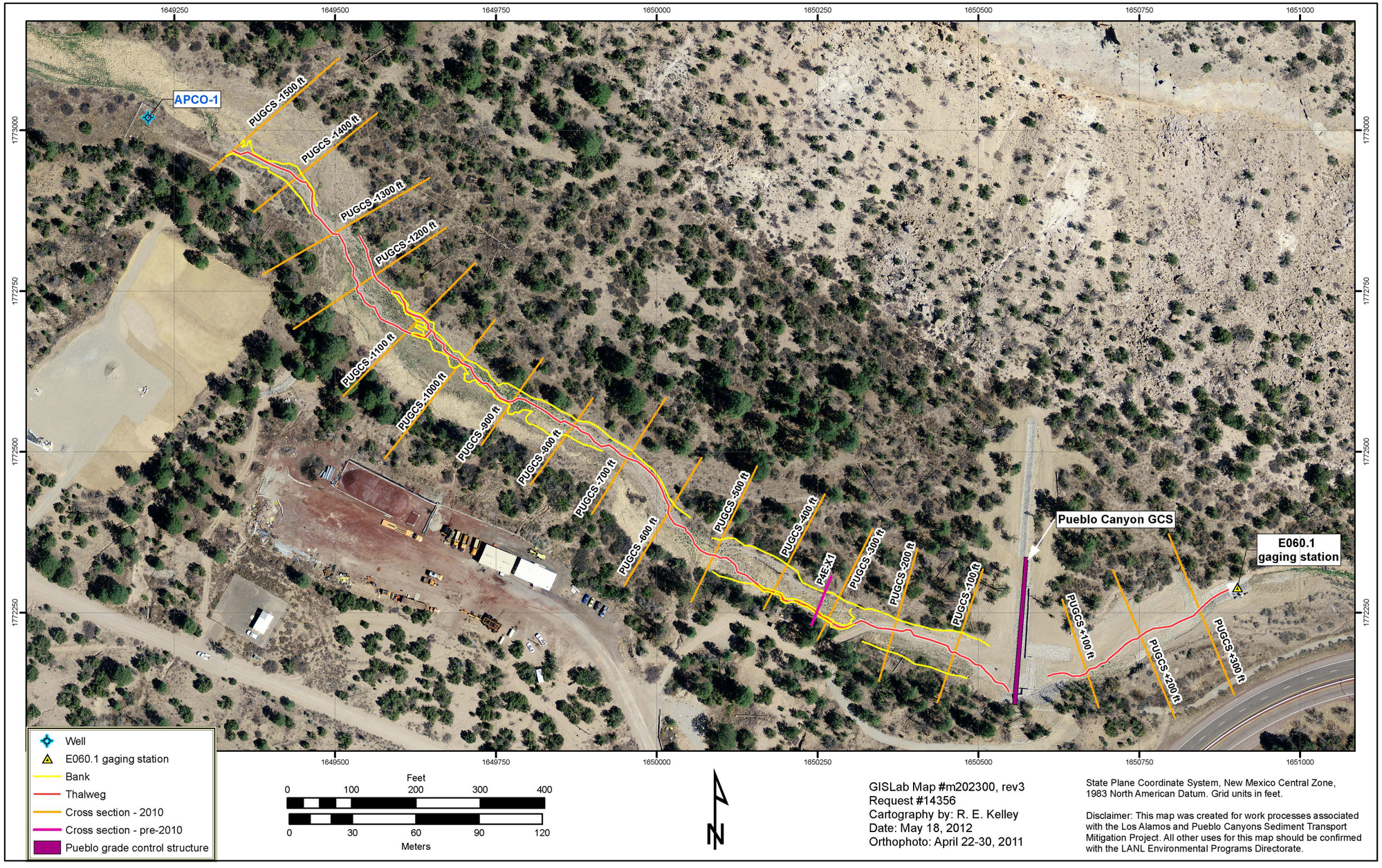


Figure 3.5-1 Orthophoto showing the locations of surveyed cross-sections, thalweg profiles, and stream banks near the Pueblo Canyon GCS

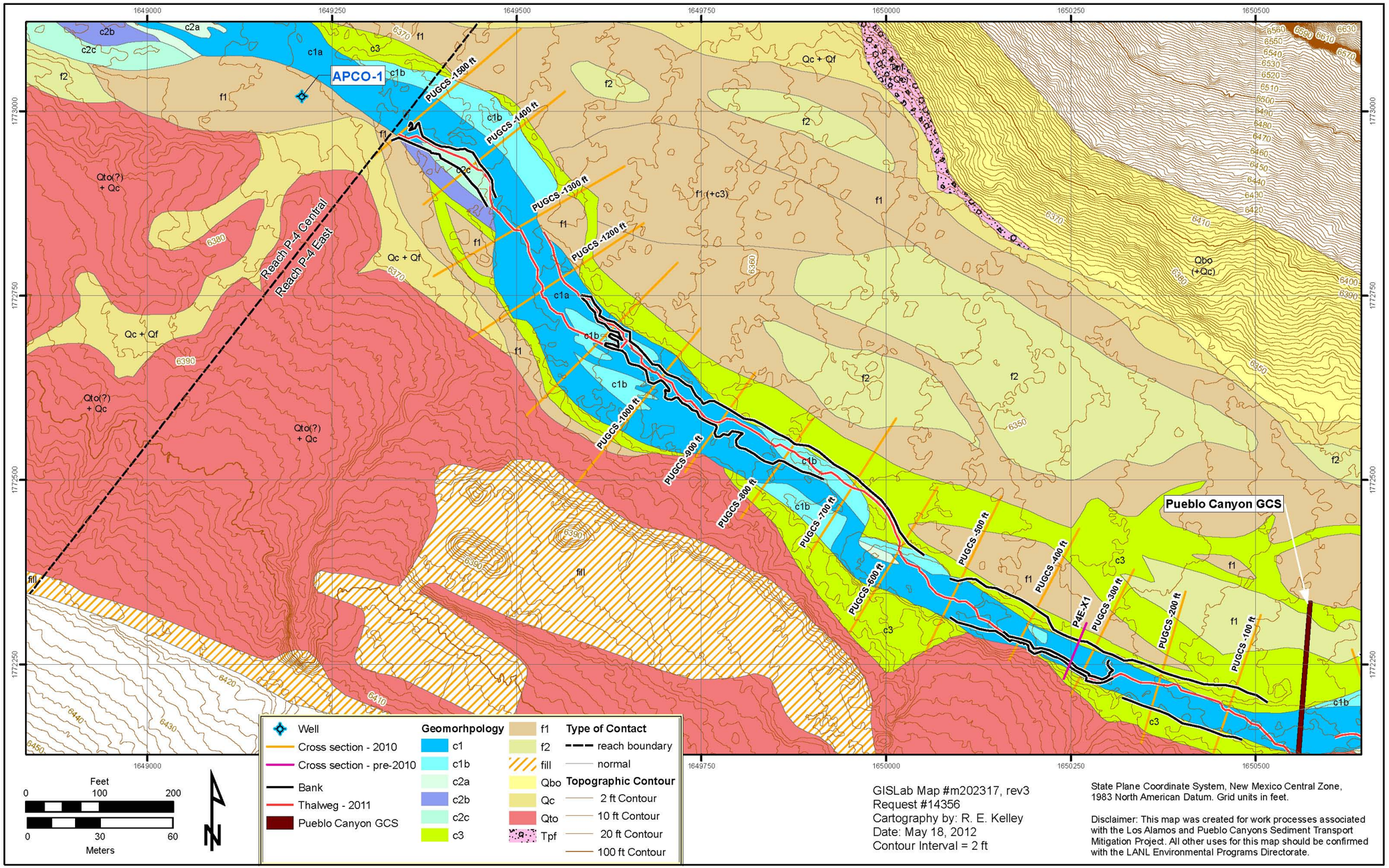


Figure 3.5-2 Geomorphic map showing the locations of surveyed cross-sections, thalweg profiles, and stream banks above the Pueblo Canyon GCS; geomorphic mapping from 1996–1997

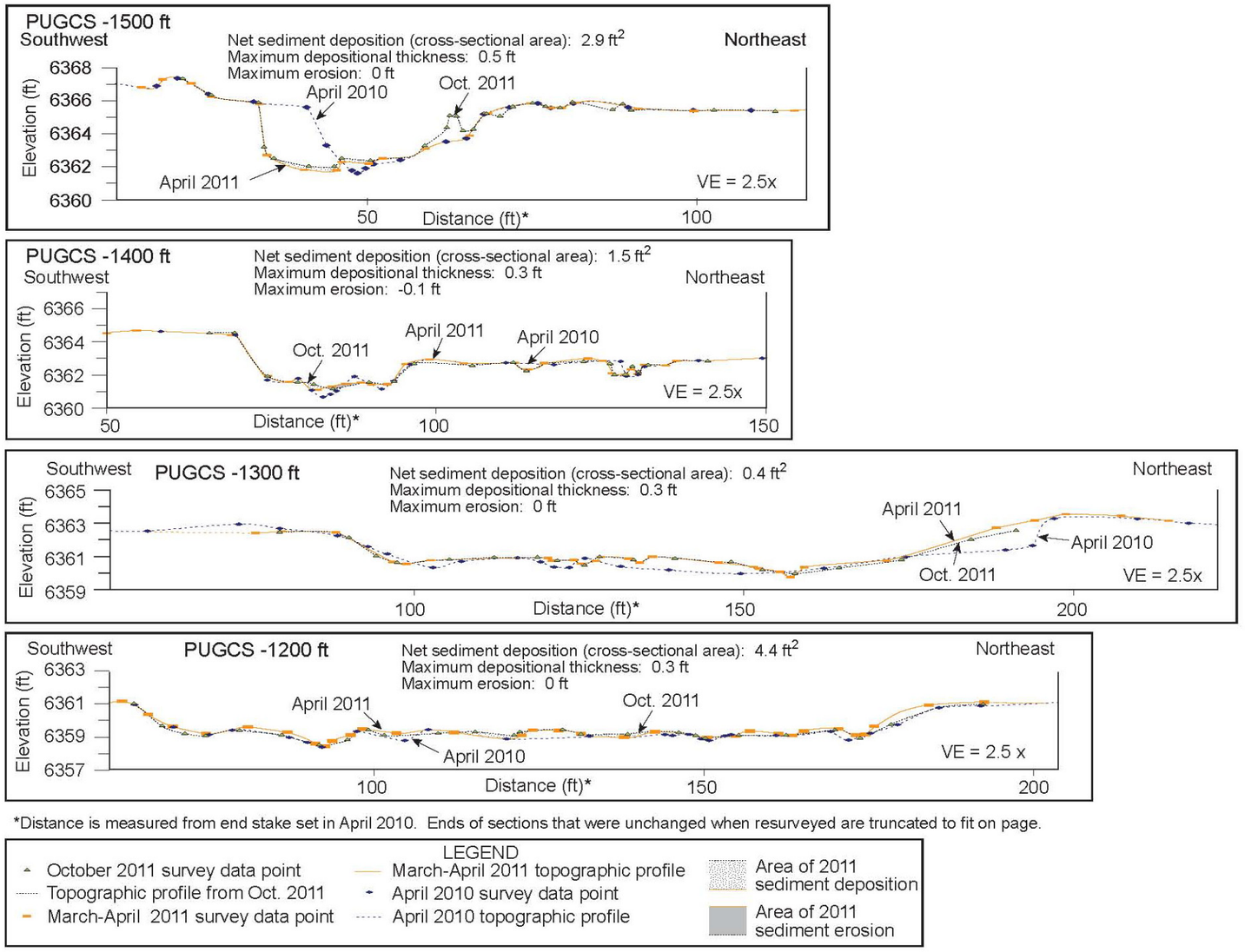
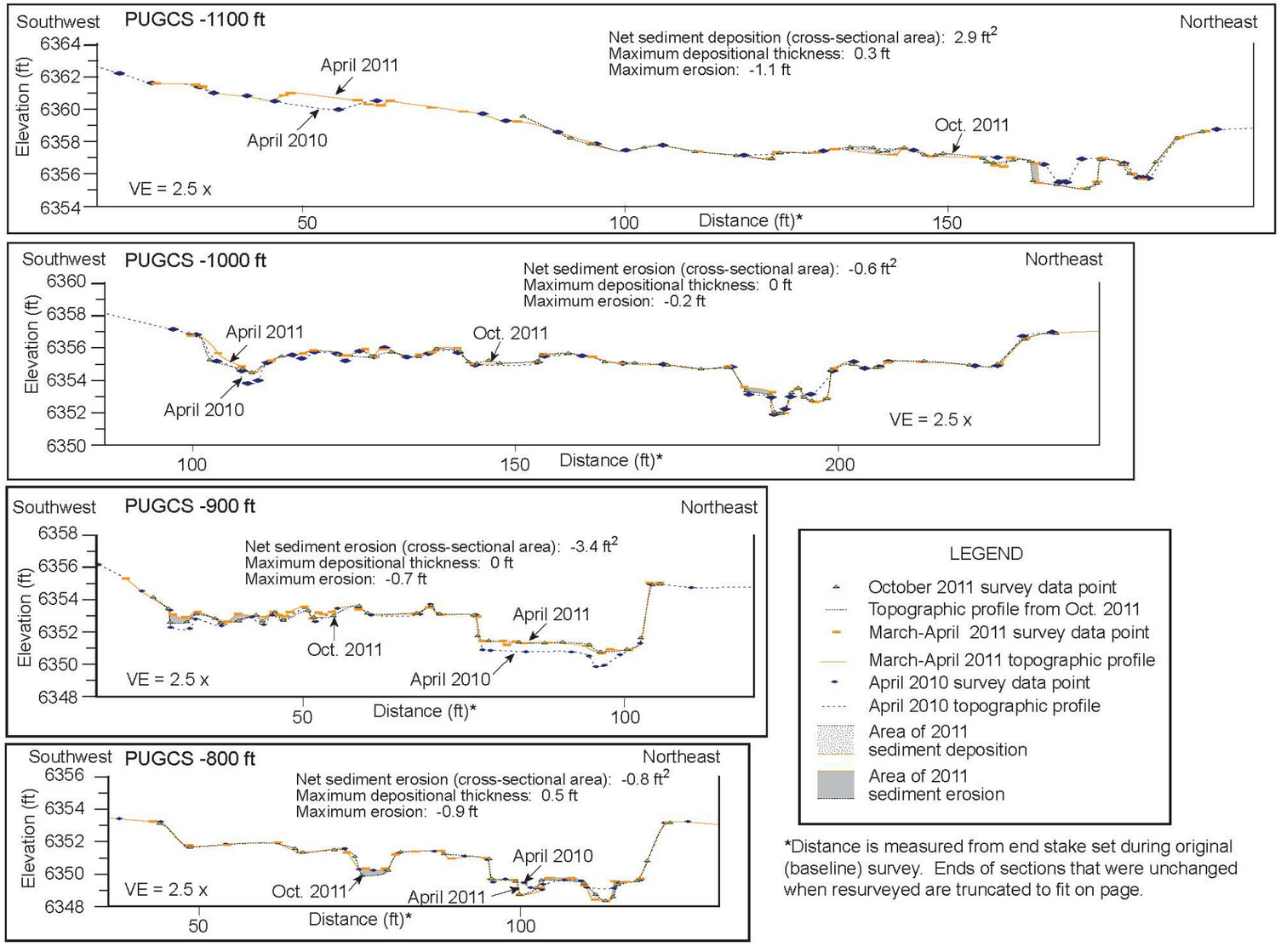


Figure 3.5-3 Cross-sections and thalweg profile near the Pueblo Canyon GCS



*Distance is measured from end stake set during original (baseline) survey. Ends of sections that were unchanged when resurveyed are truncated to fit on page.

Figure 3.5-3 (continued) **Cross-sections and thalweg profile near the Pueblo Canyon GCS**

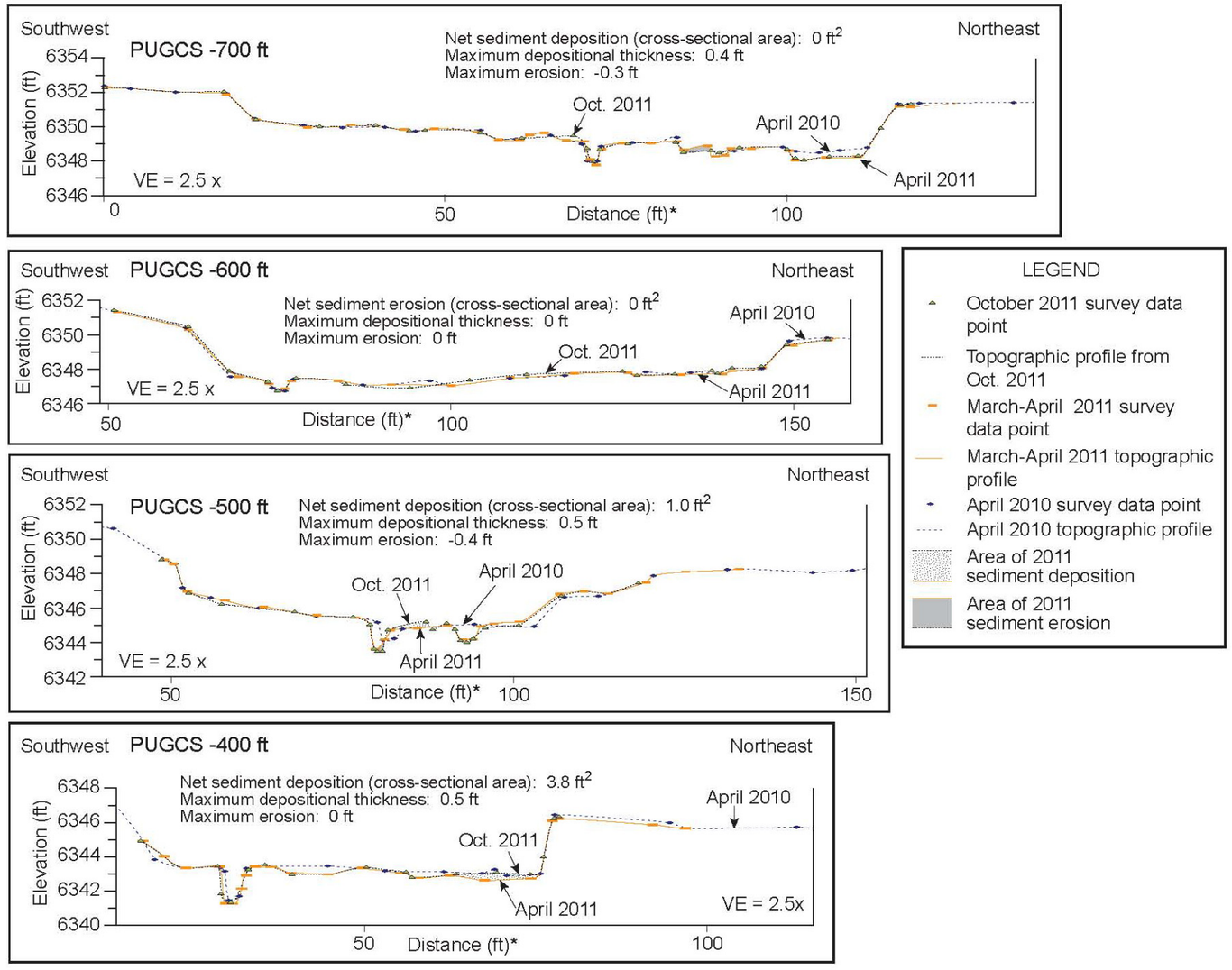


Figure 3.5-3 (continued) **Cross-sections and thalweg profile near the Pueblo Canyon GCS**

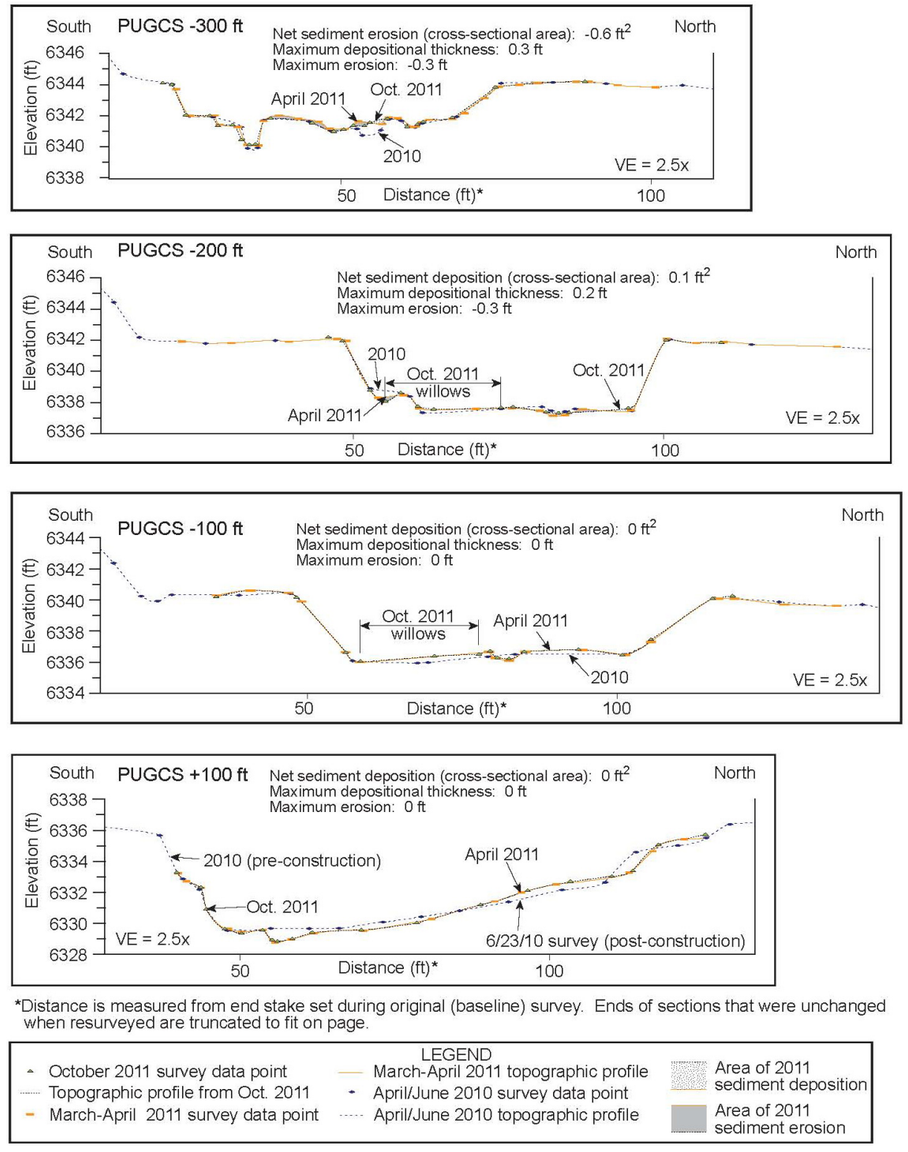
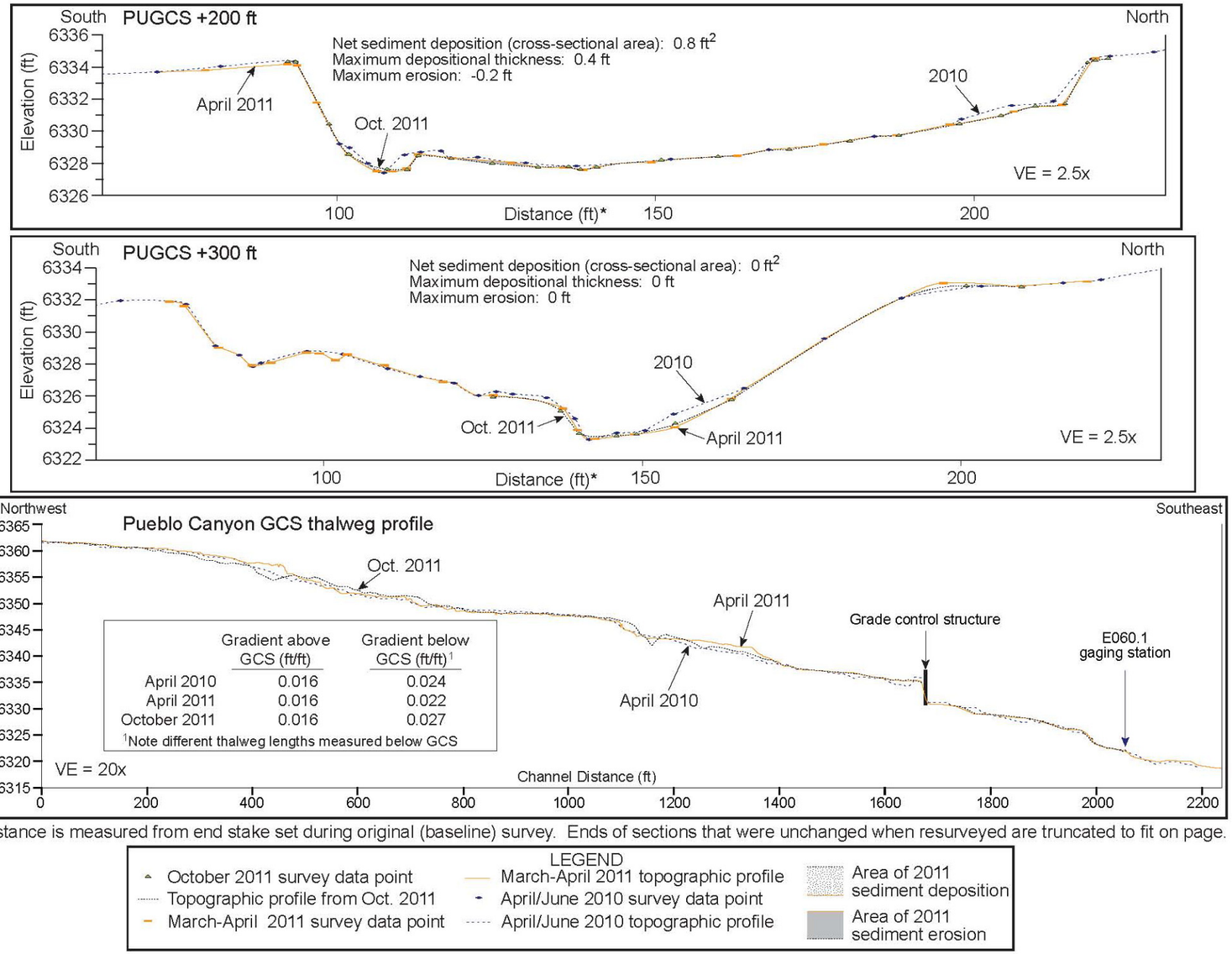


Figure 3.5-3 (continued) Cross-sections and thalweg profile near the Pueblo Canyon GCS



*Distance is measured from end stake set during original (baseline) survey. Ends of sections that were unchanged when resurveyed are truncated to fit on page.

Figure 3.5-3 (continued) Cross-sections and thalweg profile near the Pueblo Canyon GCS

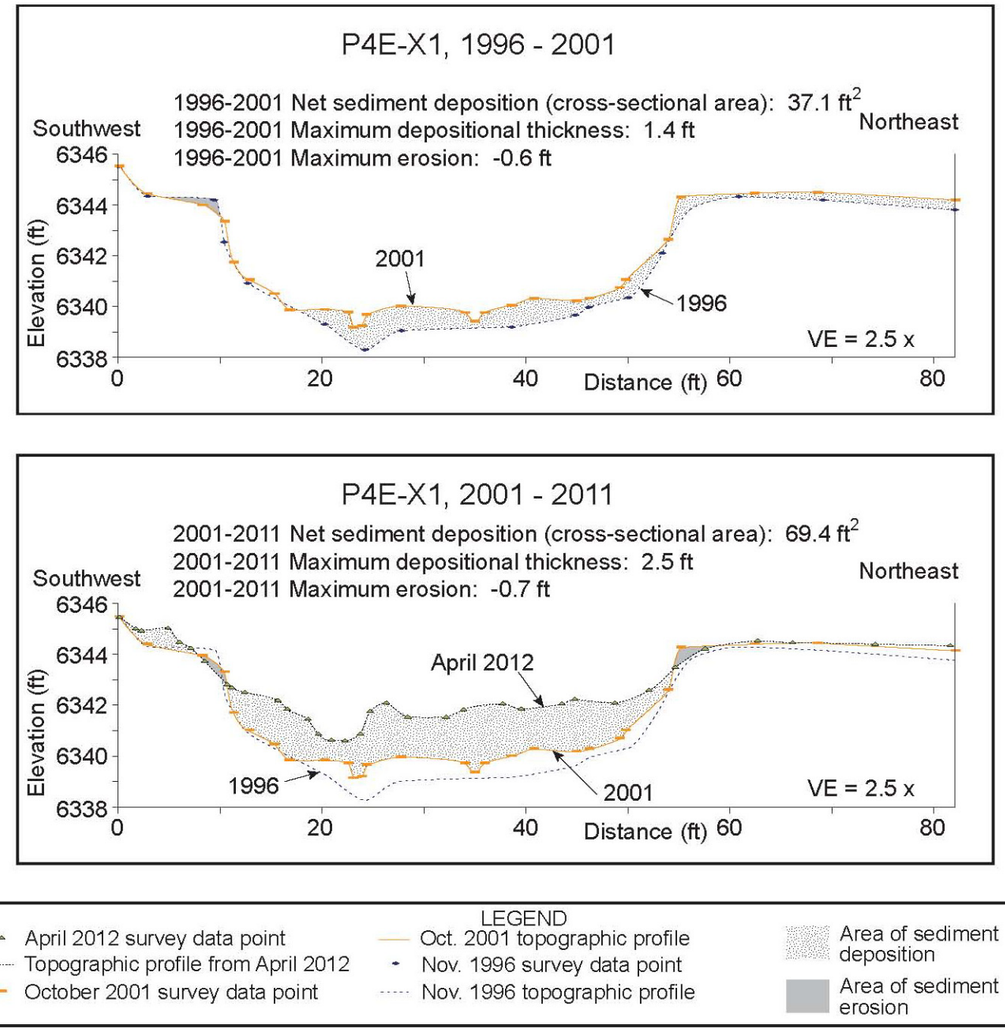


Figure 3.5-4 P4E-X1 cross-section in 1998, 2001, and 2011

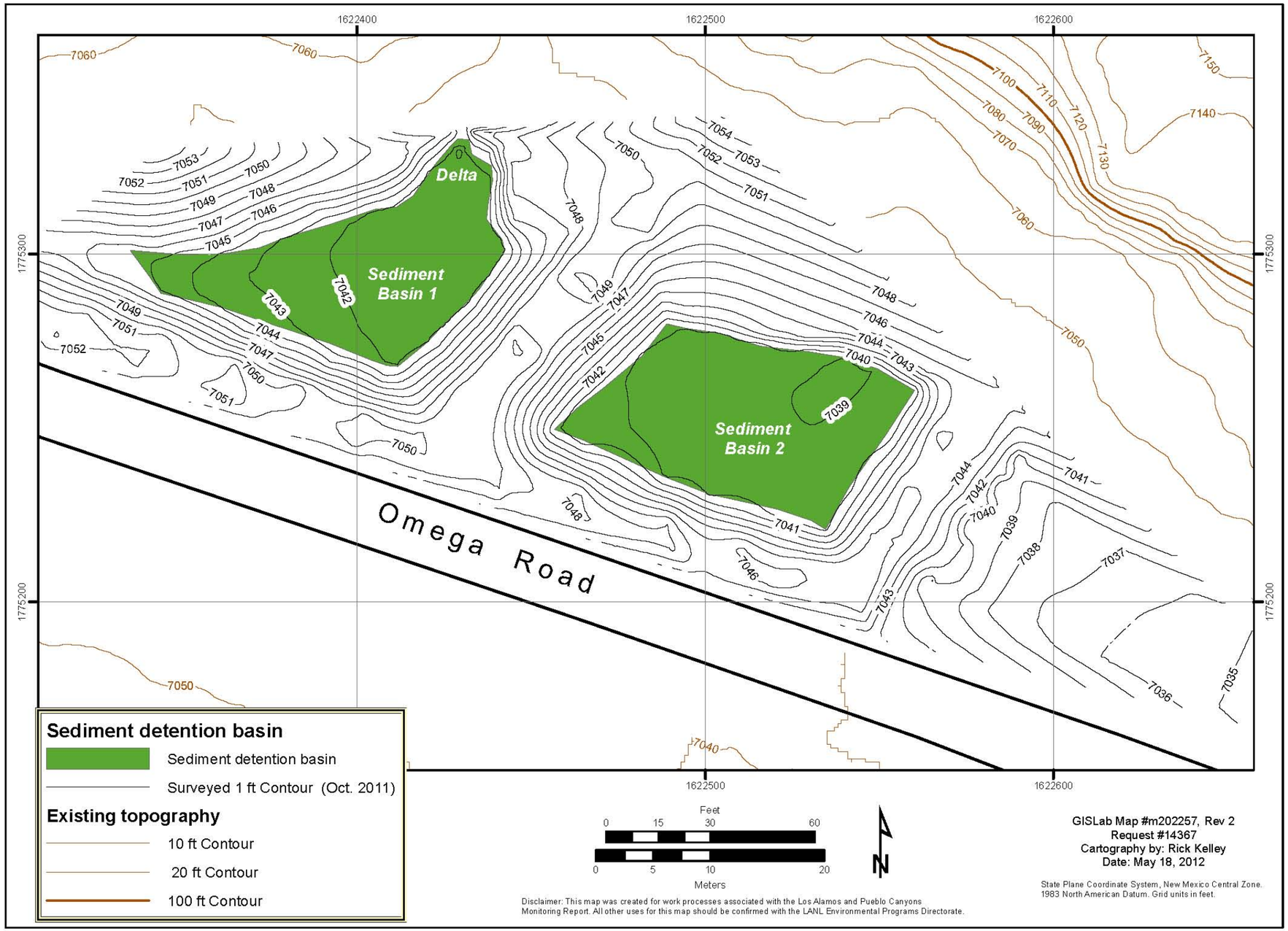


Figure 3.6-1 October 2011 topography at the upper Los Alamos Canyon sediment detention basins

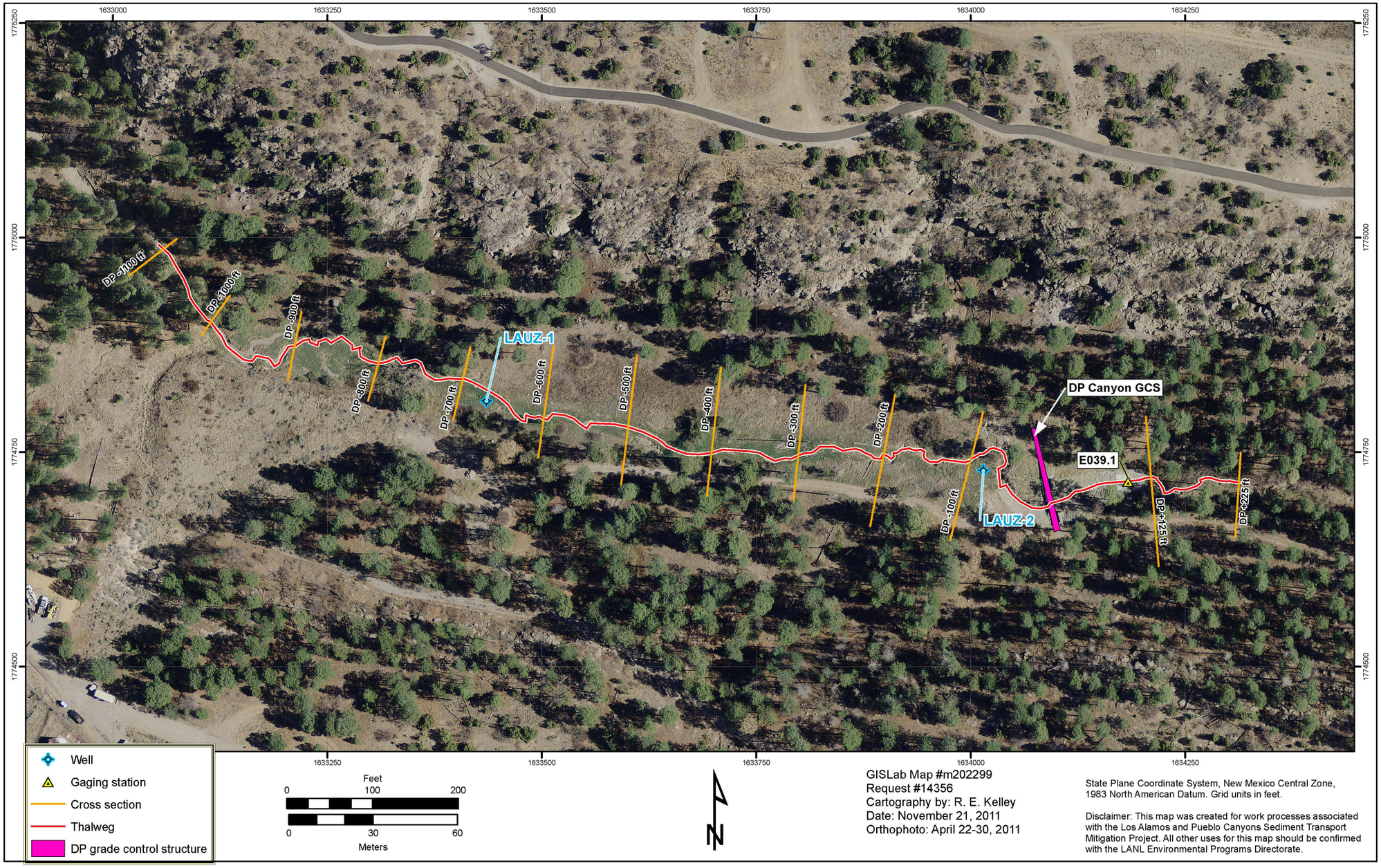


Figure 3.7-1 Orthophoto showing the locations of surveyed cross-sections and thalweg profile near the DP Canyon GCS

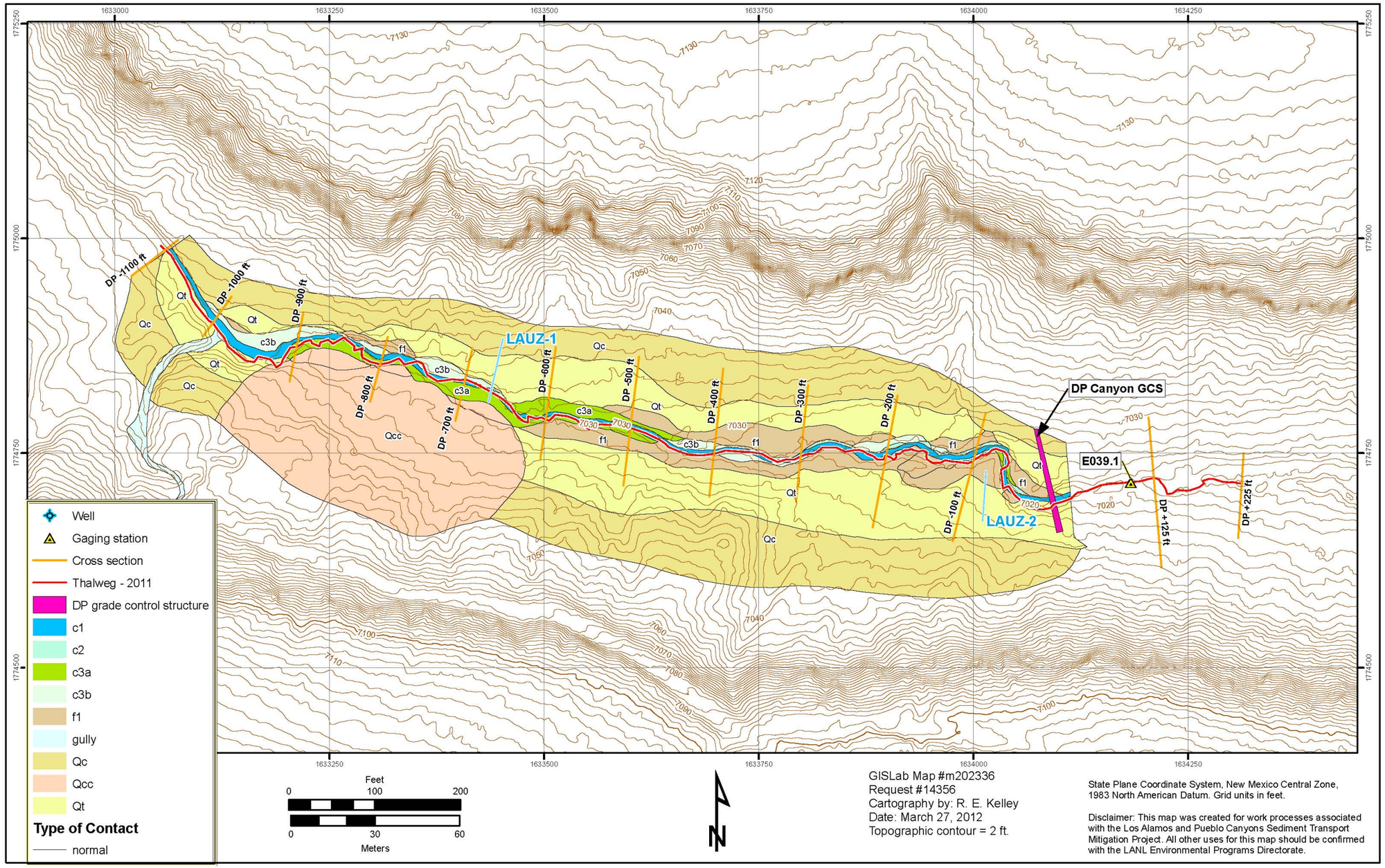


Figure 3.7-2 Geomorphic map showing the locations of surveyed cross-sections and thalweg profile near the DP Canyon GCS; geomorphic mapping from 1998

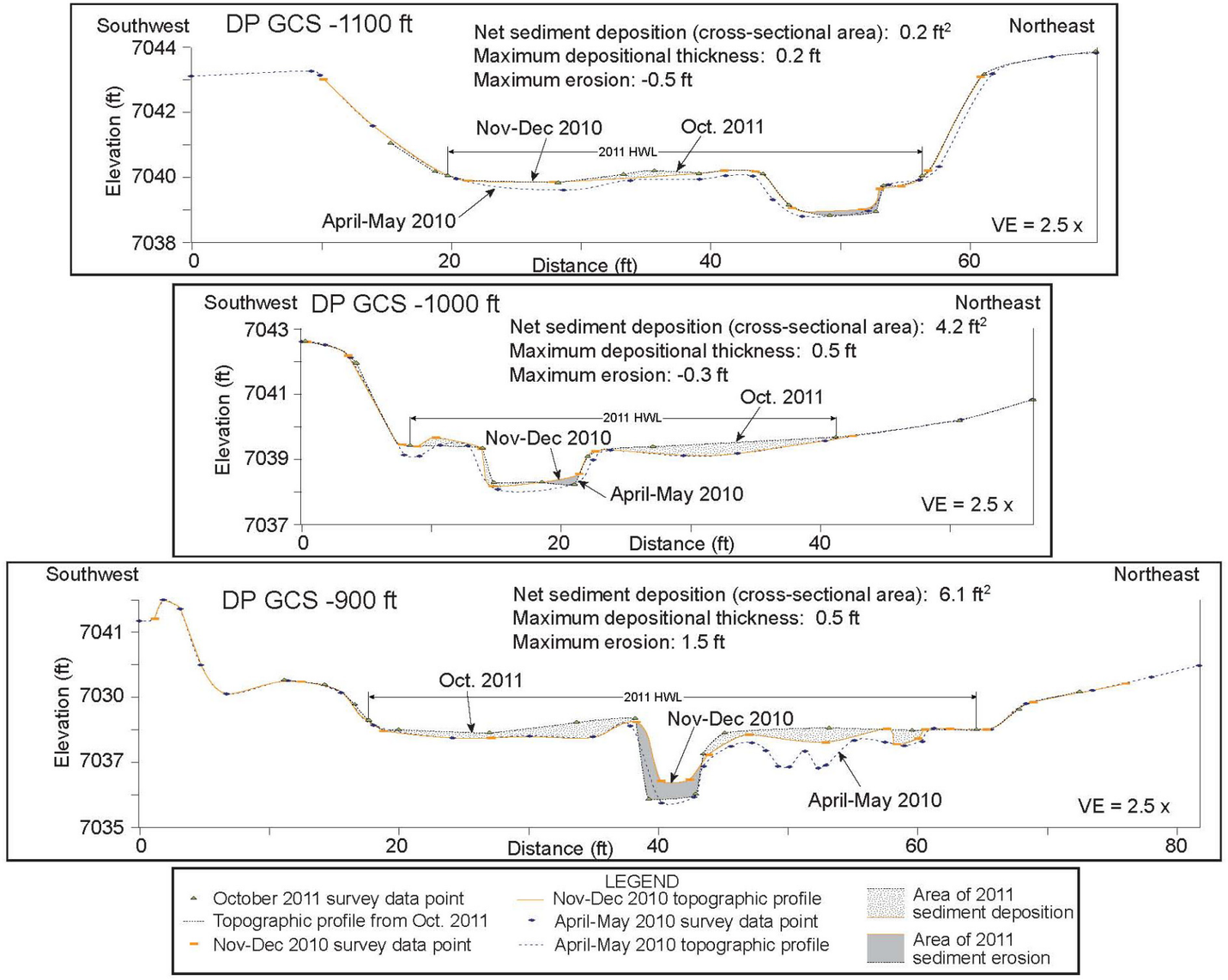


Figure 3.7-3 Cross-sections and thalweg profile near the DP Canyon GCS

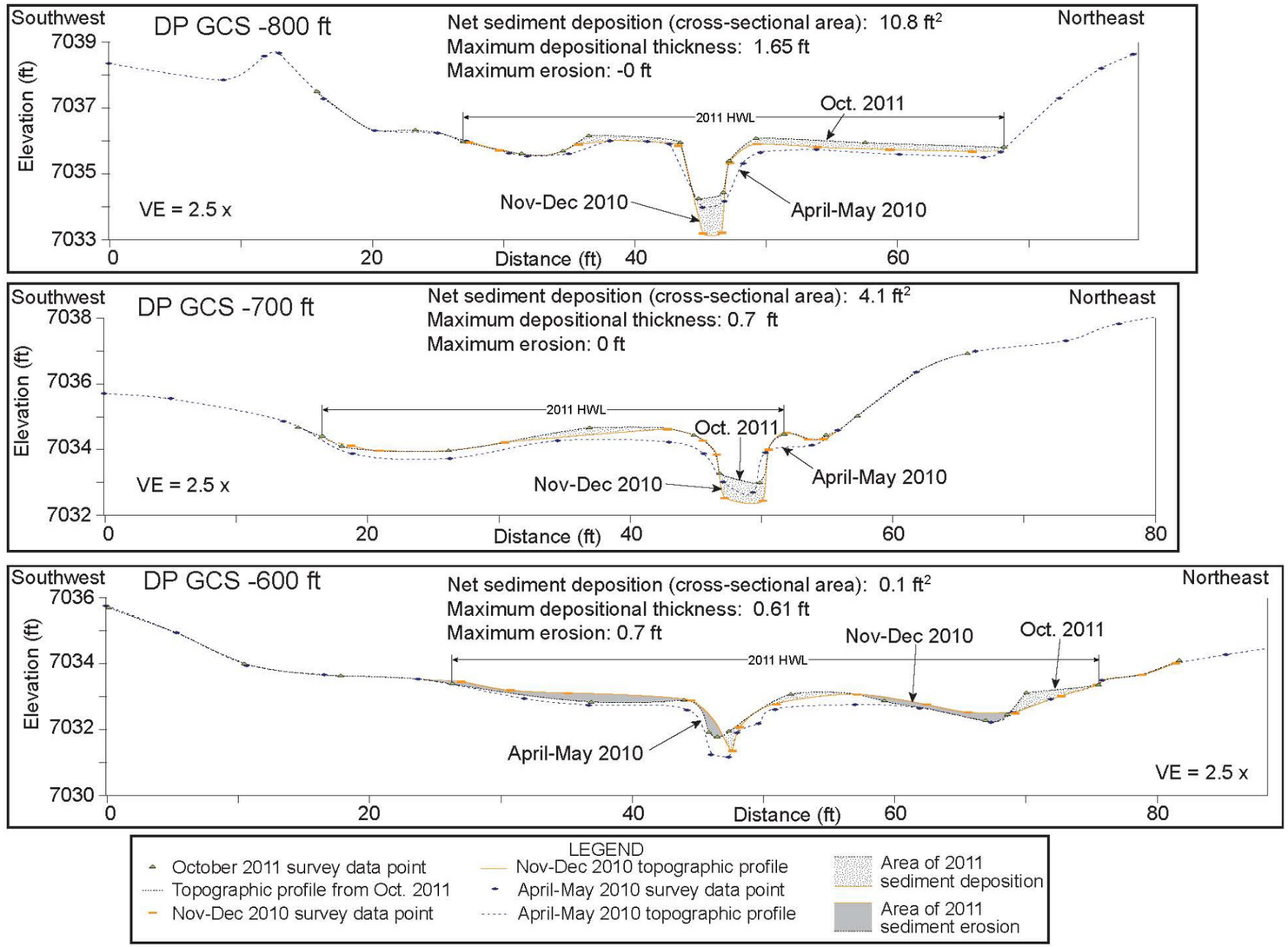


Figure 3.7-3 (continued) **Cross-sections and thalweg profile near the DP Canyon GCS**

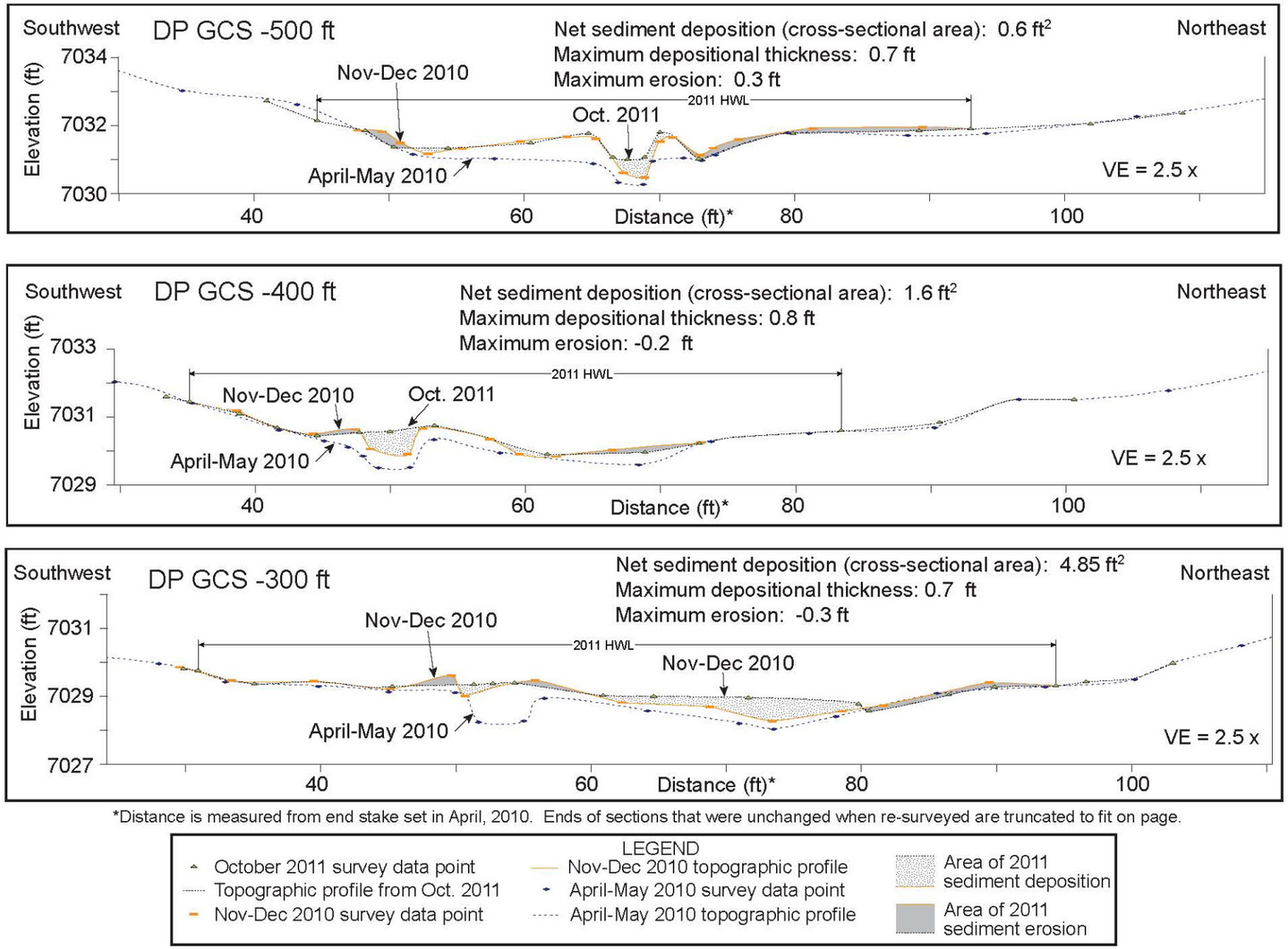
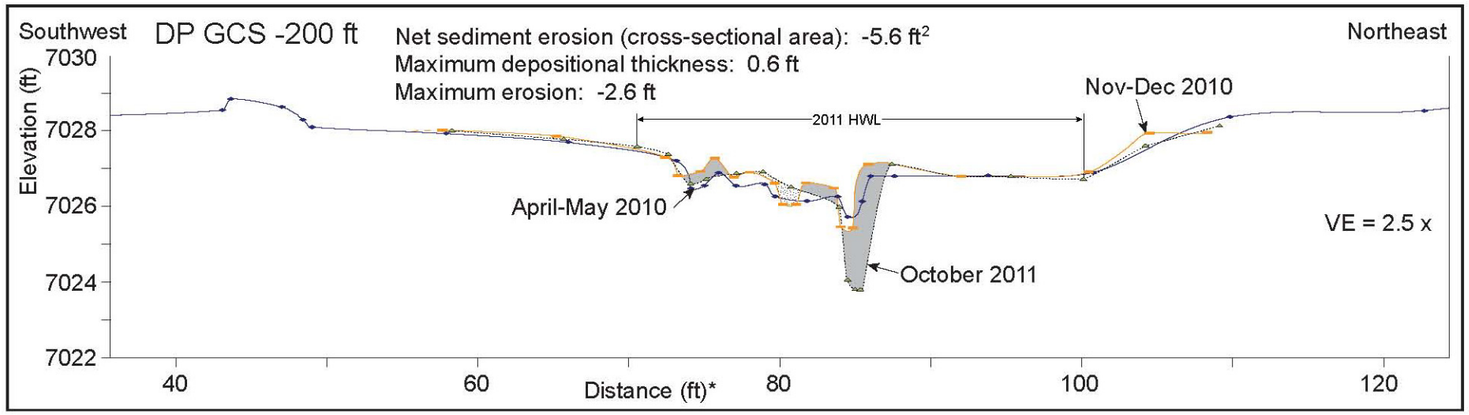
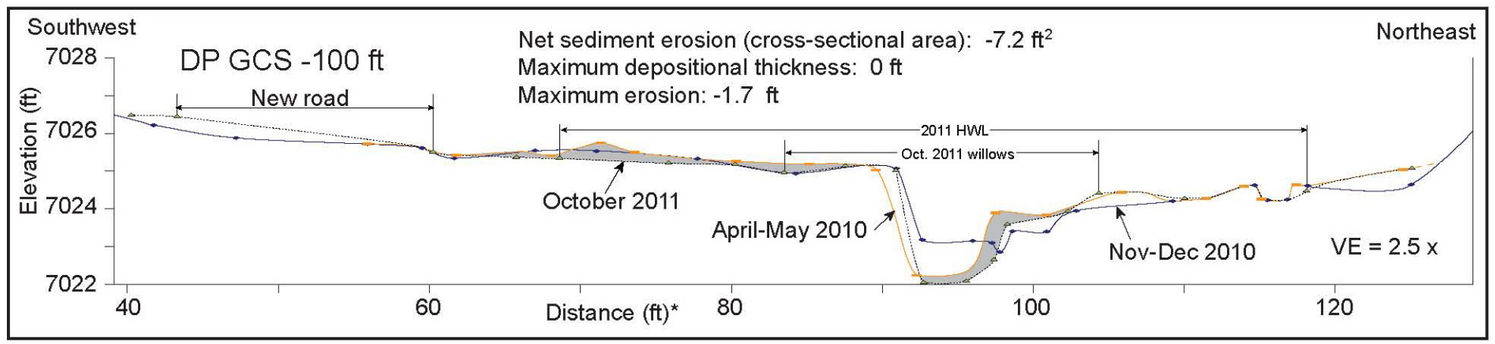


Figure 3.7-3 (continued) **Cross-sections and thalweg profile near the DP Canyon GCS**





*Distance is measured from end stake set in April, 2010. Ends of sections that were unchanged when re-surveyed are truncated to fit on page.

Figure 3.7-3 (continued) Cross-sections and thalweg profile near the DP Canyon GCS

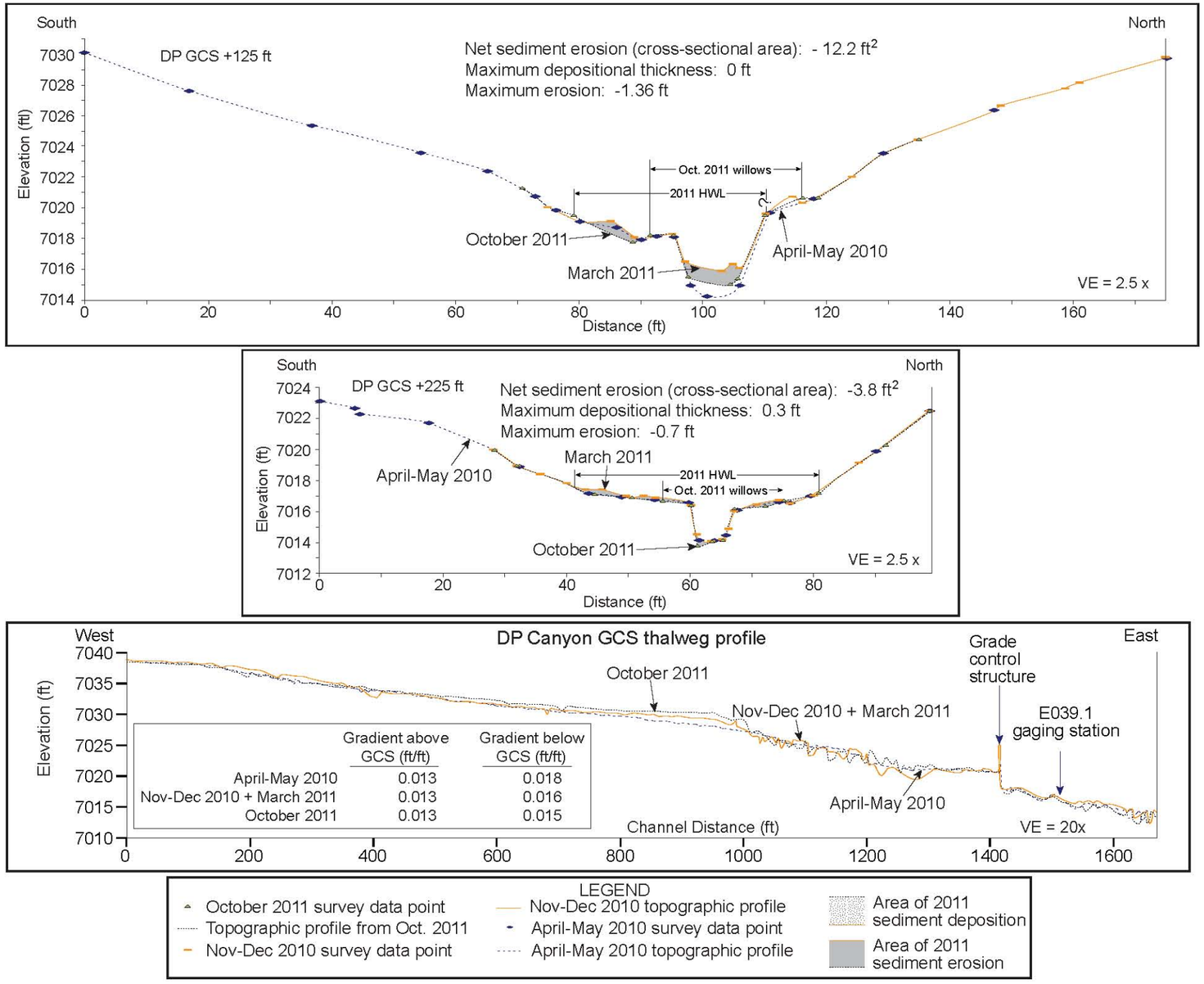


Figure 3.7-3 (continued) **Cross-sections and thalweg profile near the DP Canyon GCS**

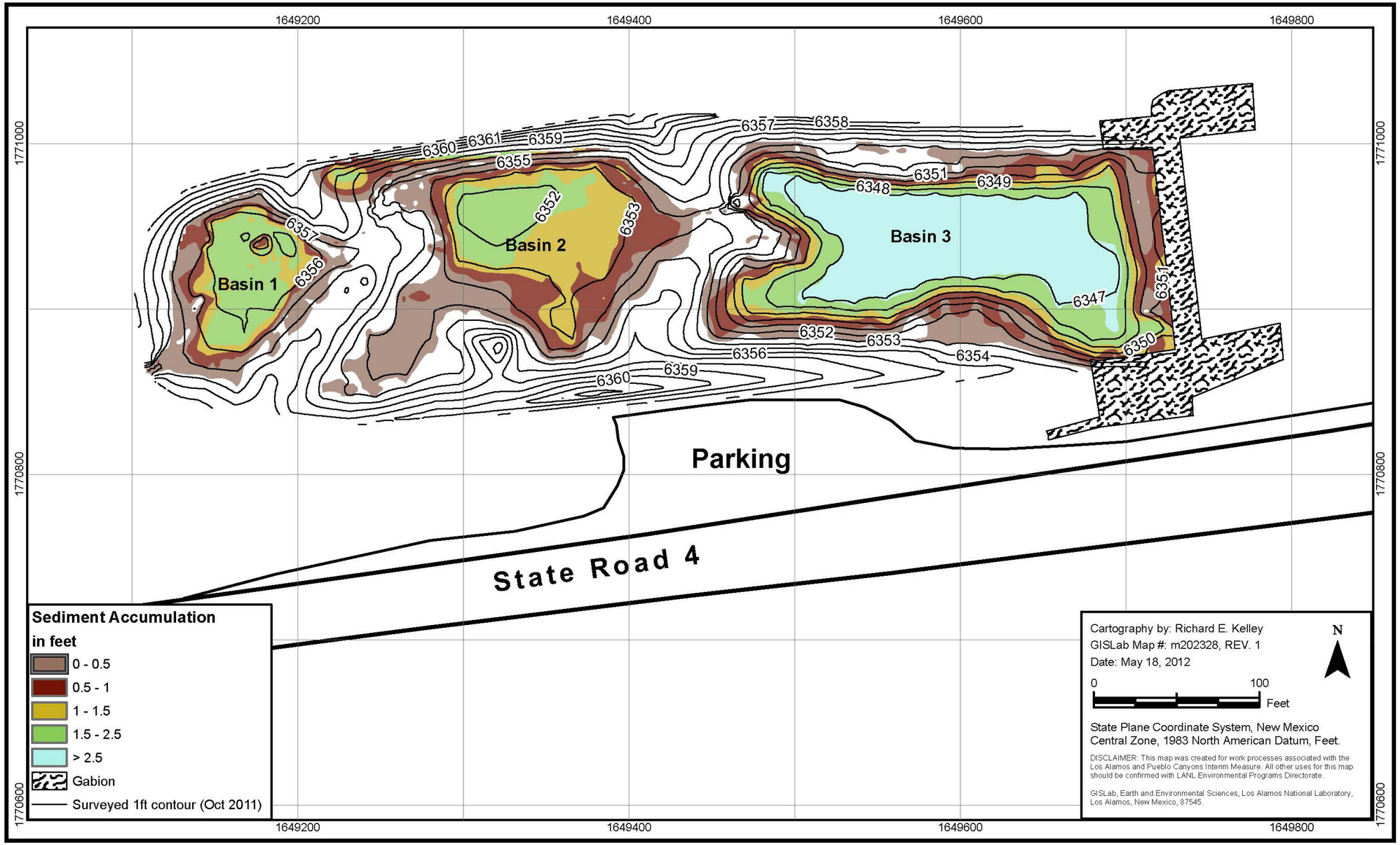


Figure 3.8-1 Postexcavation (July 2011) topographic map of sediment retention basins above the Los Alamos Canyon low-head weir and isopachs of total thickness of accumulated sediment from 2011 monsoon season

Table 3.1-1
Summary of Geomorphic Changes at Pueblo Canyon CVS Cross-Sections

Section Name	Maximum New Sediment Thickness (ft)	Maximum Erosion (ft)	Net Sediment Cross-Sectional Area (ft^2)	2011 Normalized Net Sediment Deposition (m^3/km)*	2010 Normalized Net Sediment Deposition (m^3/km)*	2011 Thalweg Elevation Change (ft)	2010 Thalweg Elevation Change (ft)
CVS#1 −50 ft	0.4	0	3.6	334	2070	0.2	0.5
CVS#1 +50 ft	0.6	0.0	4.7	436	1012	−0.1	−0.3
CVS#2 −50 ft	0.5	0.3	4.3	399	2813	0.4	0.3
CVS#2 +50 ft	0.3	0.3	3.2	297	808	0.1	0.4
CVS#3 −50 ft	0.2	0.4	−1.6	−149	1123	0.0	0.2
CVS#3 +50 ft	0.5	0.0	3.1	288	1179	0.1	0.0
		Average	**2.9**	**268**	**1501**	**0.1**	**0.2**

* Normalized net sediment deposition is total estimated volume per 100 ft divided by distance between surveyed cross-sections (100 ft = 0.0305 km).

Table 3.2-1
Summary of Geomorphic Changes at the Upper Pueblo Canyon Willow-Planting Area Cross-Sections

Section Name	Maximum New Sediment Thickness (ft)	Maximum Erosion (ft)	Net Sediment Cross-Sectional Area (ft^2)	2011 Normalized Net Sediment Deposition (m^3/km)*	2010 Normalized Net Sediment Deposition (m^3/km)*	2011 Thalweg Elevation Change (ft)	2010 Thalweg Elevation Change (ft)
Upper Third							
PU UW-1	1.4	0.4	21.5	1996	2757	1.2	1.0
PU UW-2	1.3	0.0	18.8	1745	947	0.3	1.1
PU UW-3	1.7	1.0	15.2	1411	3713	0.8	1.0
PU UW-4	0.7	0.4	13.5	1253	4149	0.5	0.6
PU UW-5	1.0	0.9	16.6	1541	1745	-0.2	0.4
PU UW-6	0.5	0.5	3.0	278	1513	0.0	0.2
Average, Upper Third			**14.8**	**1371**	**2471**	**0.4**	**0.7**
Middle Third							
PU MW-1	0.4	1.2	2.7	251	1866	−0.9	−0.4
PU MW-2	0.6	0.6	3.7	343	900	−0.8	0.1
PU MW-3	0.9	0.9	0.1	9	2646	−0.1	−0.3
PU MW-4	0.5	0.2	3.2	297	1624	−0.2	0.4
PU MW-5	0.0	0.0	0.0	0	3880	0.1	0.0
PU MW-6	0.6	0.0	1.3	121	−408	0.0	−0.5
Average, Middle Third			**1.8**	**170**	**1751**	**−0.3**	**−0.1**
Lower Third							
PU LW-1	0.6	0.4	1.3	121	1290	−0.1	0.1
PU LW-2	0.7	1.6	−3.9	−362	696	−0.2	−0.3
PU LW-3	0.4	3.6	−22.8	−2116	19	−0.8	−0.5
PU LW-4	1.4	5.5	−21.2	−1968	−1467	0.1	−0.7
PU LW-5	0.9	5.1	−41.8	−3880	−37	−0.4	−0.3
PU LW-6	0.6	3.3	−8.8	−817	−1225	0.2	−1.0
Average, Lower Third			**−16.2**	**−1504**	**−121**	**−0.2**	**−0.4**
Average, Upper Pueblo Canyon Willow-Planting Area			**0.1**	**12**	**1367**	**0.0**	**0.0**

* Normalized net sediment deposition is total estimated volume per 100 ft divided by distance between surveyed cross-sections (100 ft = 0.0305 km).

Table 3.3-1
Summary of Geomorphic Changes at the Pueblo Canyon Wing Ditch Cross-Sections

Section Name	Maximum New Sediment Thickness (ft)	Maximum Erosion (ft)	Net Sediment Cross-Sectional Area (ft^2)	2011 Normalized Net Sediment Deposition (m^3/km)*	2010 Normalized Net Sediment Deposition (m^3/km)*	2011 Thalweg Elevation Change (ft)	2010 Thalweg Elevation Change (ft)
WD-1	1.3	0.4	7.2	668	2191	1.3	1.0
WD-2	0.5	0.2	2.7	251	4242	0.0	1.7
WD-3	0.7	0.9	−4.2	−390	501	0.7	1.3
WD-4	0.0	0.0	0.0	0	−1253	0.1	1.4
WD-5	0.5	0.0	1.7	158	585	0.0	1.1
		Average	**1.5**	**137**	**1253**	**0.4**	**1.3**

* Normalized net sediment deposition is total estimated volume per 100 ft divided by distance between surveyed cross-sections (100 ft = 0.0305 km).

Table 3.4-1
Summary of Geomorphic Changes at the Lower Pueblo Canyon Willow-Planting Area Cross-Sections

Section Name	Maximum New Sediment Thickness (ft)	Maximum Erosion (ft)	Net Sediment Cross-Sectional Area (ft^2)	2011 Normalized Net Sediment Deposition or Erosion (m^3/km)*	2010 Normalized Net Sediment Deposition or Erosion (m^3/km) *	2011 Thalweg Elevation Change (ft)	2010 Thalweg Elevation Change (ft)
Upper Half (P-3FE)							
PU −1100 ft	0.0	0.4	−0.8	−74	678	0.1	0.1
PU −1000 ft	0.8	0.0	7.1	659	−455	0.2	0.0
PU −900 ft	0.4	0.3	1.4	130	1188	−0.2	0.3
PU −800 ft	0.0	0.3	−0.8	−74	2358	−0.2	0.1
PU −700 ft	0.0	0.5	−0.9	−84	2525	−0.5	0.8
PU −600 ft	0.0	0.0	0.0	0	1792	2.3	0.3
PU −500 ft	0.3	0.5	−0.4	−37	1105	2.8	0.5
PU −400 ft	0.0	0.6	−0.3	−28	1300	1.3	0.5
PU −300 ft	0.2	2.6	−1.9	−176	965	−0.9	0.3
PU −200 ft	0.0	0.2	−0.6	−56	2553	−0.3	0.3
PU −100 ft	0.5	0.3	0.3	28	1420	−0.4	0.4
Average, Upper Half			**0.3**	**26**	**1273**	**0.4**	**0.3**
Lower Half (P-4W)							
PU 0 ft	0.6	2.9	−15.1	−1402	−158	−0.2	1.0
PU +100 ft	0.5	0.0	1.0	93	938	0.4	0.2
PU +200 ft	0.4	0.9	0.6	56	93	0.0	0.4
PU +300 ft	0.3	0.0	0.2	19	956	0.1	0.4
PU +400 ft	0.9	0.0	4.2	390	149	0.4	0.4
PU +500 ft	0.2	0.2	0.0	0	928	−0.2	0.4
PU +600 ft	1.0	3.8	−24.8	−2302	−2980	1.2	−0.2
PU +700 ft	0.3	2.3	−8.6	−798	1402	0.2	1.1
PU +800 ft	0.8	3.4	3.3	306	−241	0.4	−0.4
PU +900 ft	0.9	0.0	2.6	241	−56	0.6	−0.5
PU +1000 ft	0.8	0.4	3.2	297	−176	0.2	0.6
PU +1100 ft	0.5	0.8	8.7	808	−1160	0.1	0.1
Average, Lower Half			**−2.1**	**−191**	**−26**	**0.3**	**0.3**

* Normalized net sediment deposition is total estimated volume per 100 ft divided by distance between surveyed cross-sections (100 ft = 0.0305 km).

Table 3.5-1
Summary of Geomorphic Changes at Cross-Sections above the Pueblo Canyon GCS

Section Name	Maximum New Sediment Thickness (ft)	Maximum Erosion (ft)	Net Sediment Cross-Sectional Area (ft^2)	2011 Normalized Net Sediment Deposition or Erosion (m^3/km)*	2010 Normalized Net Sediment Deposition or Erosion (m^3/km)*	2011 Thalweg Elevation Change (ft)	2010 Thalweg Elevation Change (ft)
PUGCS −1500 ft	0.5	0.0	2.9	269	−2785	0.1	0.2
PUGCS −1400 ft	0.3	0.1	1.5	139	121	0.2	0.4
PUGCS −1300 ft	0.3	0.0	0.4	37	2813	0.0	0.3
PUGCS −1200 ft	0.3	0.0	4.4	408	1968	0.6	0.1
PUGCS −1100 ft	0.3	1.1	2.9	269	−678	−0.1	−0.4
PUGCS −1000 ft	0.0	0.2	−0.6	−56	678	0.1	0.1
PUGCS −900 ft	0.0	0.7	−3.4	−316	1903	0.6	0.8
PUGCS −800 ft	0.5	0.9	−0.8	−74	−232	0.2	−1.2
PUGCS −700 ft	0.4	0.3	0.0	0	−390	0.1	−0.5
PUGCS −600 ft	0.0	0.0	0.0	0	−121	0.7	0.1
PUGCS −500 ft	0.5	0.4	1.0	93	28	−0.1	−0.5
PUGCS −400 ft	0.5	0.0	3.8	353	−1170	0.1	−0.2
PUGCS −300 ft	0.3	0.3	−0.6	−56	371	0.1	0.2
PUGCS −200 ft	0.2	0.3	0.1	9	−111	0.1	−0.3
PUGCS −100 ft	0.0	0.0	0.0	0	808	0.1	0.2
		Average	**0.8**	**72**	**214**	**0.2**	**−0.1**

* Normalized net sediment deposition is total estimated volume per 100 ft divided by distance between surveyed cross-sections (100 ft = 0.0305 km).

Table 3.5-2
Summary of Geomorphic Changes at Cross-Sections below the Pueblo Canyon GCS

Section Name	Maximum New Sediment Thickness (ft)	Maximum Erosion (ft)	Net Sediment Cross-Sectional Area (ft^2)	2011 Normalized Net Sediment Deposition or Erosion (m^3/km)*	2010 Normalized Net Sediment Deposition or Erosion (m^3/km)*	2011 Elevation Change (ft)	2010 Thalweg Elevation Change (ft)
PUGCS +100 ft	0.0	0.0	0.0	0	−260	0.1	−0.8
PUGCS +200 ft	0.4	0.2	0.8	74	−1448	0.1	0.1
PUGCS +300 ft	0.0	0.0	0.0	0	−826	−0.1	0.0
		Average	**0.3**	**25**	**−845**	**0.0**	**−0.2**

* Normalized net sediment deposition is total estimated volume per 100 ft divided by distance between surveyed cross-sections (100 ft = 0.0305 km).

Table 3.7-1
Summary of Geomorphic Changes at Cross-Sections above the DP Canyon GCS

Section Name	Maximum New Sediment Thickness (ft)	Maximum Erosion (ft)	Net Sediment Cross-Sectional Area (ft^2)	2011 Normalized Net Sediment Deposition or Erosion (m^3/km)*	2010 Normalized Net Sediment Deposition or Erosion (m^3/km)*	2011 Thalweg Elevation Change (ft)	2010 Thalweg Elevation Change (ft)
DPGCS −1100 ft	0.2	0.5	0.2	19	501	−0.4	0.2
DPGCS −1000 ft	0.5	0.3	4.2	390	260	0.1	0.1
DPGCS −900 ft	0.5	1.5	6.1	566	1105	−0.8	0.7
DPGCS −800 ft	1.7	0.0	10.8	1003	297	1.1	−0.8
DPGCS −700 ft	0.7	0.0	4.1	381	594	0.6	−0.5
DPGCS −600 ft	0.6	0.7	0.1	9	928	0.5	0.2
DPGCS −500 ft	0.7	0.3	0.6	56	1300	0.5	0.2
DPGCS −400 ft	0.8	0.2	1.6	149	1003	0.7	0.4
DPGCS −300 ft	0.7	0.3	4.9	455	1504	0.1	0.8
DPGCS −200 ft	0.6	2.6	−5.6	−520	501	−1.7	−0.3
DPGCS −100 ft	0.0	1.7	−7.2	−668	176	−0.2	−0.6
		Average	**1.8**	**167**	**743**	**0.1**	**0.0**

* Normalized net sediment deposition is total estimated volume per 100 ft divided by distance between surveyed cross-sections (100 ft = 0.0305 km).

Table 3.7-2
Summary of Geomorphic Changes at Cross-Sections below the DP Canyon GCS

Section Name	Maximum New Sediment Thickness (ft)	Maximum Erosion (ft)	Net Sediment Cross-Sectional Area (ft^2)	2011 Normalized Net Sediment Deposition or Erosion (m^3/km)*	2010 Normalized Net Sediment Deposition or Erosion (m^3/km)*	2011 Thalweg Elevation Change (ft)	2010 Thalweg Elevation Change (ft)
DPGCS +125 ft	0.0	1.4	−12.2	−1133	1891	−0.9	1.7
DPGCS +225 ft	0.3	0.7	−3.8	−353	204	−0.1	0.0
		Average	**−8.0**	**−743**	**1048**	**−0.5**	**0.8**

* Normalized net sediment deposition is total estimated volume per 100 ft divided by distance between surveyed cross-sections (100 ft = 0.0305 km).

Table 3.8-1
Sediment Volume Changes at Los Alamos Canyon Low-Head Weir, July 2011 to March 2012

Site	Total Net Change (m^3)	Estimated Percent Coarse Sediment	Estimated Percent Fine Sediment	Estimated Volume Coarse Sediment (m^3)	Estimated Volume Fine Sediment (m^3)
Basin 1 (west)	780	50%	50%	390	390
Basin 2 (central)	1440	5%	95%	72	1368
Basin 3 (east)	4700	0%	100%	0	4700
Total	**6920**			**462**	**6458**

Table 3.8-2
Sediment Accumulation at Los Alamos Canyon Low-Head Weir, 2000–2012

Period	Total Sedimentation (m^3)	Approximate Annual Sedimentation (m^3/yr)
June 2000 to May 2002	822	411
May 2002 to August 2005	3377	1126
August 2005 to July 2007	2555	1278
July 2007 to September 2008	138	138
September 2008 to May 2009	0	—*
May 2009 to July 2010	510	510
July 2010 to March 2011	274	274
March 2011 to July 2011	0	—
July 2011 to March 2012	6920	6920
June 2000 to March 2011	14,596	1216

*— = Not calculated; not in stormwater runoff season.

Appendix A

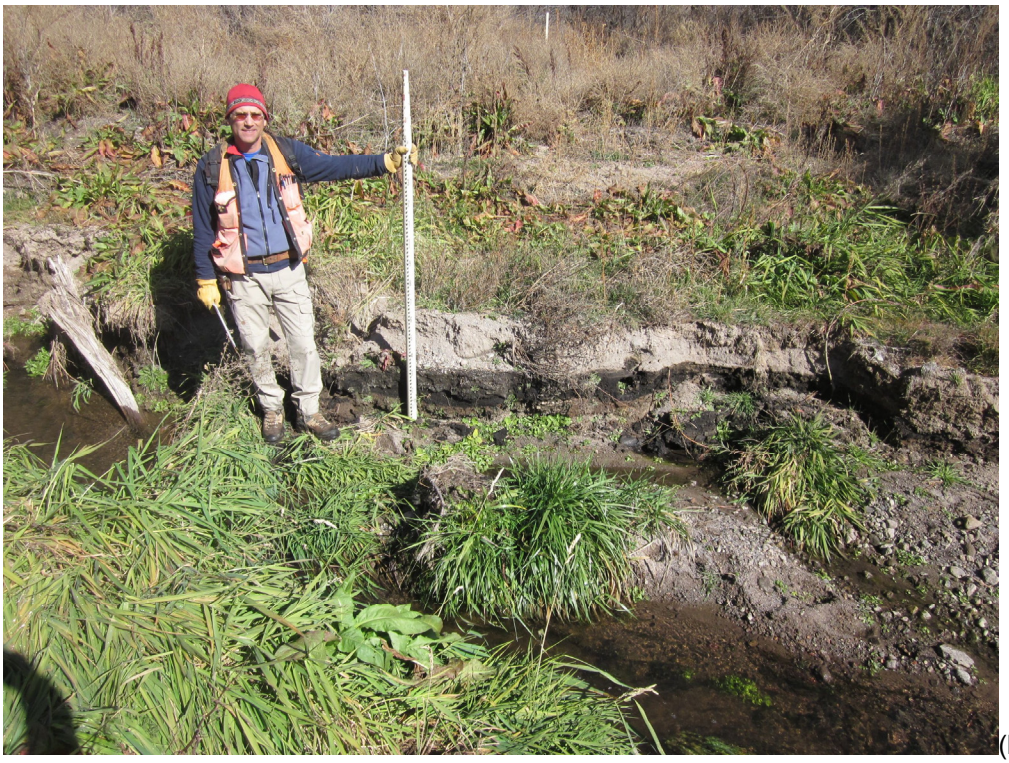
Photographs of Sediment Transport Mitigation Sites

Figure A-1 **March 2012 photograph of cross-section CVS#1 +50 ft, below Pueblo Canyon CVS #1, looking upstream**

Figure A-2 March 2012 photograph of cross-section CVS#3 −50 ft, above Pueblo Canyon CVS #3, looking upstream

Figure A-3 **October 2011 photograph of aggraded area at cross-section UW-3, in the upper third of the upper Pueblo Canyon willow-planting area, where sediment from a tributary drainage buried the previous channel**

(a)



(b)

Figure A-4 **November 2011 photographs of eroding banks in post- Cerro Grande sediment in lower third of upper Pueblo Canyon willow-planting area: (a) cross-section LW-4, looking downstream (b) north bank above cross-section LW-3, showing buried Cerro Grande muck layer**

Figure A-5 **March 2012 photograph of main northern channel at cross-section WD-1 below the Pueblo Canyon wing ditch, which experienced aggradation during the summer 2011 monsoon season**

Figure A-6 **March 2012 photograph of southern channel at cross-section WD-3 below the Pueblo Canyon wing ditch, which experienced bank erosion during the summer 2011 monsoon season**

Figure A-7 **March 2012 photograph of main channel at cross-section PU −300 ft, in the upper half of the lower Pueblo Canyon willow-planting area, which experienced bank erosion during the summer 2011 monsoon season. Note sparse willow stems.**

Figure A-8 **March 2012 photograph of cross-section PU +600 ft, in the lower half of the lower Pueblo Canyon willow-planting area, which experienced bank erosion during the summer 2011 monsoon season. Note willow stems.**

Figure A-9 **November 2011 photograph of southern headcut at cross-section PU 0 ft, in the lower half of the lower Pueblo Canyon willow-planting area, where the emergence of alluvial groundwater perched on Puye Formation bedrock results in seepage erosion. Wetland vegetation and willows are established below headcut.**

(a)

(b)

Figure A-10 November 2011 photographs of Pueblo Canyon GCS: (a) view looking upstream to GCS (b) view looking downstream to GCS

Figure A-11 **March 2012 photograph of cross-section PUGCS −400 ft, above the Pueblo Canyon GCS, which experienced some sediment deposition during the summer 2011 monsoon season**

Figure A-12 **March 2012 photograph of cross-section PUGCS −1100 ft, above the Pueblo Canyon GCS, which some experienced some bank erosion during the summer 2011 monsoon season**

(a)

(b)

Figure A-13 March 2012 photographs of upper Los Alamos Canyon sediment detention basins: (a) basin 1 (b) basin 2

(a)

(b)

Figure A-14 November 2011 photographs of DP Canyon GCS: (a) view looking downstream to GCS (b) view looking upstream to GCS, past E039.1 gaging station

(a)

Figure A-15 November 2011 photographs showing aggradation at cross-sections above the DP Canyon GCS: (a) view looking upstream at cross-section DP GCS −800 ft

(b)

Figure A-15 (continued) **November 2011 photographs showing aggradation at cross-sections above the DP Canyon GCS: (b) view looking upstream at cross-section DP GCS −400 ft**

(c)

Figure A-15 (continued) **November 2011 photographs showing aggradation at cross-sections above the DP Canyon GCS: (c) view looking downstream at cross-section DP GCS −300 ft**

Figure A-15 (continued) **November 2011 photographs showing aggradation at cross-sections above the DP Canyon GCS: (d) view looking upstream at cross-section DP GCS −300 ft**

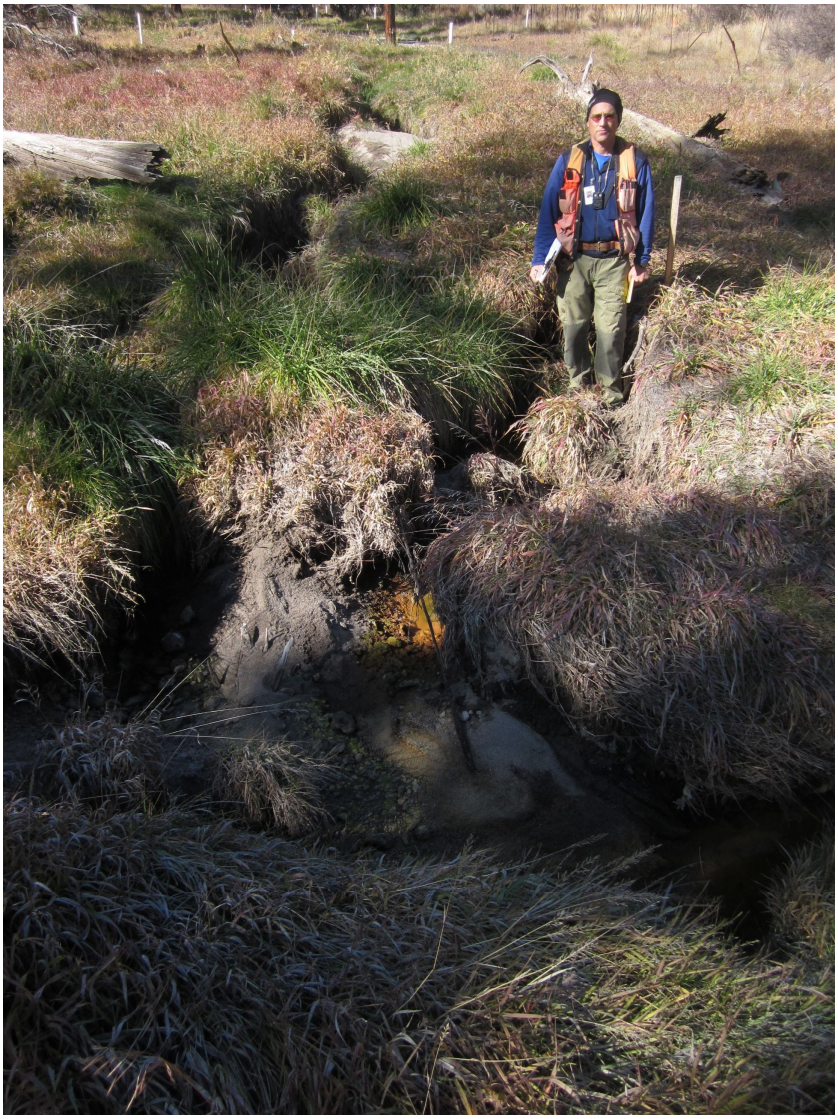


Figure A-16 November 2011 photograph showing scour at cross-section DP GCS −200 ft

(a)

(b)

Figure A-17 March 2012 photographs of Los Alamos Canyon low-head weir: (a) view looking upstream to weir (b) view looking downstream over sediment retention basin 3 to weir

(a)

(b)

Figure A-18 March 2012 photographs of sediment retention basins above Los Alamos Canyon low-head weir: (a) view looking upstream over basin 1 (b) view looking upstream over basin 2

Figure A-18 (continued) **March 2012 photographs of sediment retention basins above Los Alamos Canyon low-head weir: (c) view looking upstream over basin 3**

(a)

(b)

Figure A-19 **Thick willow patches in upper and middle thirds of upper Pueblo Canyon willow-planting area: (a) October 2011 photograph, view looking upstream, past cross-section UW-5 (b) November 2011 photograph, view looking upstream, past cross-section MW-2**

(a)

(b)

Figure A-20 November 2011 photographs of willows laid down by floods and resprouting in upper third of upper Pueblo Canyon willow-planting area: (a) near cross-section UW-3 (b) near cross-section UW-4

(a)

Figure A-21 November 2011 photographs of sparse willows in upper half of lower Pueblo Canyon willow-planting area, in area with thick reed canary grass: (a) willows near cross-section PU −500 ft

(b)

Figure A-21 (continued) **November 2011 photographs of sparse willows in upper half of lower Pueblo Canyon willow-planting area, in area with thick reed canary grass: (b) willow stem that has been damaged by animals**

Figure A-22 November 2011 photograph of sparse willows in lower half of lower Pueblo Canyon willow-planting area, near cross-section PU −900 ft, in area with deposition of coarse-grained sediment

Figure A-23 November 2011 photograph of thick willow patch on high surface near transition zone in lower Pueblo Canyon willow-planting area

Figure A-24 March 2012 photograph of rock armoring along stream banks in the south fork of Acid Canyon, looking upstream

Attachment 1

Cross-Section Survey Data
(on CD included with this document)

Pueblo Canyon Cross-Vane Structures Survey Data

Site	Type of Survey	Purpose	Date Surveyed	Y	X	Z	Calculated Distance in Section or Profile (ft) [h]
Pueblo CVS #1 -50ft[a]	TS[g]	BM[c]	12/9/2010	1777368.14	1634216.59	6646.68	-[d]
	TS	XS[e]	4/19/2010	1777368.02	1634216.58	6646.08	0
	TS	XS	10/5/2011	1777368.10	1634216.65	6646.08	0.11
	TS	XS	10/5/2011	1777372.13	1634219.65	6645.69	5.03
	TS	XS	10/5/2011	1777378.33	1634224.03	6639.34	12.61
	TS	XS	10/5/2011	1777379.85	1634225.25	6638.96	14.56
	TS	XS	10/5/2011	1777386.60	1634230.28	6639.06	22.98
	TS	XS	10/5/2011	1777387.41	1634230.62	6639.10	23.83
	TS	XS	10/5/2011	1777391.99	1634234.04	6639.53	29.55
	TS	XS	10/5/2011	1777394.89	1634236.25	6639.89	33.20
	TS	XS	10/5/2011	1777398.38	1634238.71	6639.30	37.46
	TS	XS	10/5/2011	1777400.58	1634240.57	6638.35	40.34
	TS	XS	10/5/2011	1777404.35	1634243.10	6638.30	44.87
	TS	XS	10/5/2011	1777406.85	1634245.32	6638.30	48.20
	TS	XS	10/5/2011	1777408.72	1634246.59	6638.10	50.46
	TS	XS	10/5/2011	1777412.06	1634249.02	6638.16	54.60
	TS	XS	10/5/2011	1777412.77	1634249.42	6638.31	55.40
	TS	XS	10/5/2011	1777415.80	1634251.47	6638.14	59.06
	TS	XS	10/5/2011	1777416.04	1634251.82	6638.33	59.46
	TS	XS	10/5/2011	1777419.42	1634254.19	6638.43	63.58
	TS	XS	10/5/2011	1777421.34	1634255.73	6639.13	66.04
	TS	XS	10/5/2011	1777423.01	1634257.02	6639.07	68.15
	TS	XS	10/5/2011	1777426.29	1634259.38	6640.50	72.19
	TS	XS	10/5/2011	1777427.57	1634260.50	6640.02	73.89
	TS	XS	10/5/2011	1777430.07	1634262.35	6640.21	77.00
	TS	XS	10/5/2011	1777436.05	1634266.53	6642.37	84.29
	TS	BM	12/9/2010	1777435.96	1634266.54	6642.87	-
Pueblo CVS #1 +50ft	TS	BM	4/19/2010	1777314.14	1634296.24	6642.51	-
	TS	XS	4/19/2010	1777314.245	1634296.3	6641.81	0.00
	TS	XS	10/5/2011	1777314.14	1634296.35	6641.89	0.11
	TS	XS	10/5/2011	1777317.86	1634299.60	6641.03	4.89
	TS	XS	10/5/2011	1777322.93	1634303.92	6636.31	11.55
	TS	XS	10/5/2011	1777326.16	1634306.86	6636.25	15.92
	TS	XS	10/5/2011	1777330.25	1634310.40	6636.52	21.32
	TS	XS	10/5/2011	1777332.53	1634312.30	6636.35	24.29
	TS	XS	10/5/2011	1777333.03	1634312.84	6635.73	25.02
	TS	XS	10/5/2011	1777336.13	1634315.74	6635.62	29.27
	TS	XS	10/5/2011	1777337.57	1634317.02	6635.72	31.19
	TS	XS	10/5/2011	1777340.68	1634319.57	6635.56	35.21
	TS	XS	10/5/2011	1777342.23	1634320.92	6636.02	37.27
	TS	XS	10/5/2011	1777346.23	1634324.88	6636.49	42.89
	TS	XS	10/5/2011	1777347.44	1634325.57	6636.17	44.26
	TS	XS	10/5/2011	1777348.48	1634326.46	6636.22	45.62
	TS	XS	10/5/2011	1777350.29	1634328.20	6637.15	48.13
	TS	XS	10/5/2011	1777351.66	1634329.37	6637.80	49.93
	TS	XS	10/5/2011	1777354.34	1634331.52	6638.53	53.37
	TS	BM	10/5/2011	1777354.17	1634331.53	6639.29	-
Pueblo CVS #1 Thalweg Profile	43	TP[f]	10/5/2011	1777412.06	1634249.01	6638.12	0.00
	44	TP	10/5/2011	1777405.06	1634258.15	6637.78	11.52
	45	TP	10/5/2011	1777398.35	1634269.61	6637.59	24.80

	46	TP	10/5/2011	1777393.47	1634279.00	6637.45	35.38
	47	TP	10/5/2011	1777386.84	1634288.21	6637.15	46.73
	48	TP	10/5/2011	1777379.48	1634296.84	6637.01	58.07
	49	TP	10/5/2011	1777370.68	1634303.23	6636.67	68.95
	50	TP	10/5/2011	1777361.75	1634306.32	6635.83	78.40
	51	TP	10/5/2011	1777350.75	1634308.91	6635.79	89.70
	52	TP	10/5/2011	1777343.12	1634316.13	6635.59	100.20
	53	TP	10/5/2011	1777340.44	1634319.49	6635.47	104.50
Pueblo CVS #2 -50ft	TS	BM	12/20/2010	1776776.26	1635800.06	6611.44	-
	TS	XS	4/20/2010	1776755.74	1635796.69	6614.48	0
	TS	XS	10/5/2011	1776776.22	1635799.97	6610.57	20.75
	TS	XS	10/5/2011	1776795.67	1635801.73	6609.32	40.25
	TS	XS	10/5/2011	1776798.39	1635802.22	6609.01	43.01
	TS	XS	10/5/2011	1776799.21	1635801.96	6608.58	43.79
	TS	XS	10/5/2011	1776802.50	1635802.38	6608.57	47.11
	TS	XS	10/5/2011	1776804.11	1635802.67	6609.13	48.74
	TS	XS	10/5/2011	1776808.82	1635803.09	6609.56	53.46
	TS	XS	10/5/2011	1776815.28	1635803.89	6609.73	59.98
	TS	XS	10/5/2011	1776818.25	1635804.41	6609.06	62.99
	TS	XS	10/5/2011	1776820.61	1635804.70	6609.25	65.36
	TS	XS	10/5/2011	1776824.22	1635804.84	6609.20	68.96
	TS	XS	10/5/2011	1776827.32	1635804.95	6608.71	72.05
	TS	XS	10/5/2011	1776831.06	1635805.22	6608.65	75.80
	TS	XS	10/5/2011	1776835.84	1635806.31	6608.57	80.68
	TS	XS	10/5/2011	1776839.38	1635806.50	6608.65	84.21
	TS	XS	10/5/2011	1776840.84	1635806.87	6609.04	85.71
	TS	XS	10/5/2011	1776842.19	1635806.84	6609.63	87.05
	TS	XS	10/5/2011	1776844.05	1635806.98	6611.29	88.91
	TS	XS	10/5/2011	1776851.35	1635807.92	6612.72	96.27
	TS	BM	10/5/2011	1776851.31	1635807.87	6613.13	-
Pueblo CVS #2 +50ft	TS	BM	4/20/2010	1776736.501	1635883.486	6611.17	-
	TS	XS	4/20/2010	1776736.45	1635883.495	6610.265	0
	TS	XS	10/5/2011	1776736.44	1635883.60	6610.17	0.11
	TS	XS	10/5/2011	1776759.02	1635888.67	6607.94	23.15
	TS	XS	10/5/2011	1776762.44	1635889.52	6607.94	26.67
	TS	XS	10/5/2011	1776765.71	1635890.73	6607.66	30.14
	TS	XS	10/5/2011	1776767.14	1635890.82	6607.37	31.55
	TS	XS	10/5/2011	1776767.29	1635890.89	6607.81	31.71
	TS	XS	10/5/2011	1776769.11	1635891.52	6607.70	33.63
	TS	XS	10/5/2011	1776770.47	1635892.00	6607.74	35.06
	TS	XS	10/5/2011	1776772.72	1635892.67	6607.57	37.41
	TS	XS	10/5/2011	1776773.14	1635892.95	6606.95	37.89
	TS	XS	10/5/2011	1776781.41	1635895.42	6607.23	46.51
	TS	XS	10/5/2011	1776786.65	1635896.99	6607.57	51.98
	TS	XS	10/5/2011	1776789.26	1635897.83	6607.48	54.71
	TS	XS	10/5/2011	1776792.20	1635898.68	6607.16	57.78
	TS	XS	10/5/2011	1776793.84	1635899.04	6607.12	59.45
	TS	XS	10/5/2011	1776799.19	1635900.55	6607.14	65.02
	TS	XS	10/5/2011	1776800.40	1635900.99	6607.11	66.30
	TS	XS	10/5/2011	1776802.28	1635901.70	6607.89	68.30
	TS	XS	10/5/2011	1776806.48	1635903.08	6608.56	72.72
	TS	XS	10/5/2011	1776808.86	1635903.91	6609.07	75.23
	TS	BM	10/5/2011	1776808.82	1635903.67	6609.94	-
Pueblo CVS #2 Thalweg Profile	TP	XS	10/5/2011	1776836.95	1635806.09	6608.57	0
	TP	XS	10/5/2011	1776833.45	1635816.70	6608.42	11.17

	TP	XS	10/5/2011	1776830.20	1635827.35	6608.33	22.31
	TP	XS	10/5/2011	1776827.46	1635838.01	6608.17	33.31
	TP	XS	10/5/2011	1776821.50	1635847.72	6607.96	44.71
	TP	XS	10/5/2011	1776816.56	1635859.28	6607.83	57.28
	TP	XS	10/5/2011	1776810.93	1635871.32	6607.70	70.57
	TP	XS	10/5/2011	1776805.33	1635884.23	6607.40	84.65
	TP	XS	10/5/2011	1776799.85	1635894.57	6607.12	96.34
	TP	XS	10/5/2011	1776794.17	1635899.20	6607.11	103.68
Pueblo CVS #3 -50ft	TS	BM	4/20/2010	1776778.33	1636350.68	6606.99	-
	TS	BM	12/20/2010	1776785.61	1636338.01	6603.06	-
	TS	XS	4/20/2010	1776778.32	1636350.94	6605.86	0
	TS	XS	10/5/2011	1776785.775	1636337.79	6602.32	15.12
	TS	XS	10/5/2011	1776789.335	1636331.245	6601.57	22.57
	TS	XS	10/5/2011	1776790.985	1636328.12	6601.24	26.10
	TS	XS	10/5/2011	1776792.44	1636326.01	6601.93	28.65
	TS	XS	10/5/2011	1776794.34	1636322.15	6601.87	32.95
	TS	XS	10/5/2011	1776797.1	1636316.965	6602.01	38.82
	TS	XS	10/5/2011	1776797.425	1636316.27	6601.20	39.59
	TS	XS	10/5/2011	1776797.95	1636315.405	6600.89	40.60
	TS	XS	10/5/2011	1776800.965	1636309.825	6600.97	46.94
	TS	XS	10/5/2011	1776801.425	1636308.795	6600.73	48.07
	TS	XS	10/5/2011	1776805.555	1636300.97	6600.90	56.91
	TS	XS	10/5/2011	1776805.555	1636300.975	6600.90	56.91
	TS	XS	10/5/2011	1776806.05	1636300.115	6601.19	57.90
	TS	XS	10/5/2011	1776807.14	1636298.13	6601.36	60.16
	TS	XS	10/5/2011	1776807.745	1636296.93	6601.54	61.51
	TS	XS	10/5/2011	1776809.315	1636294.11	6601.73	64.74
	TS	XS	10/5/2011	1776810.215	1636292.805	6601.92	66.31
	TS	XS	10/5/2011	1776811.47	1636290.325	6601.73	69.09
	TS	XS	10/5/2011	1776812.7	1636288.795	6602.29	71.02
	TS	XS	10/5/2011	1776816.57	1636280.715	6603.26	79.97
	TS	BM	12/20/2010	1776816.62	1636280.72	6603.78	-
Pueblo CVS #3 +50ft	TS	BM	4/20/2010	1776863.944	1636402.432	6605.42	-
	TS	CP	4/20/2010	1776863.87	1636402.38	6604.76	0
	TS	CP	10/5/2011	1776864.055	1636402.385	6604.79	0.18
	TS	CP	10/5/2011	1776870.13	1636390.215	6602.11	13.68
	TS	CP	10/5/2011	1776873.625	1636383.31	6601.13	21.42
	TS	CP	10/5/2011	1776874.605	1636381.49	6600.695	23.49
	TS	CP	10/5/2011	1776878.225	1636373.615	6600.28	32.15
	TS	CP	10/5/2011	1776882.655	1636365.415	6600.395	41.47
	TS	CP	10/5/2011	1776886.145	1636358.725	6600.53	49.01
	TS	CP	10/5/2011	1776888.31	1636354.325	6600.305	53.92
	TS	CP	10/5/2011	1776890.86	1636348.73	6599.7	60.06
	TS	CP	10/5/2011	1776893.15	1636344.46	6600.09	64.90
	TS	CP	10/5/2011	1776894.43	1636340.92	6599.64	68.64
	TS	CP	10/5/2011	1776895.865	1636338.915	6599.185	71.08
	TS	CP	10/5/2011	1776898.175	1636334.26	6599.25	76.27
	TS	CP	10/5/2011	1776900.455	1636329.97	6599.15	81.13
	TS	CP	10/5/2011	1776900.81	1636328.58	6599.725	82.53
	TS	CP	10/5/2011	1776902.89	1636324.885	6601.05	86.77
	TS	CP	10/5/2011	1776905.45	1636319.86	6601.67	92.41
	TS	BM	10/5/2011	1776905.53	1636319.805	6602.115	-
Pueblo CVS #3 Thalweg Profile	TS	TCP	10/5/2011	1776801.445	1636308.8	6600.72	0.00
	TS	TCP	10/5/2011	1776810.31	1636313.895	6600.595	10.22
	TS	TCP	10/5/2011	1776818.645	1636318.97	6600.495	19.98

TS	TCP	10/5/2011	1776827.77	1636322.33	6600.34	29.71
TS	TCP	10/5/2011	1776836.685	1636325.485	6600.28	39.16
TS	TCP	10/5/2011	1776847.56	1636325.915	6600.185	50.05
TS	TCP	10/5/2011	1776858.31	1636327.005	6600.07	60.85
TS	TCP	10/5/2011	1776869.3	1636326.685	6599.87	71.85
TS	TCP	10/5/2011	1776877.385	1636322.535	6599.625	80.94
TS	TCP	10/5/2011	1776885.875	1636324.34	6599.375	89.61
TS	TCP	10/5/2011	1776886.7	1636328.48	6599.32	93.84
TS	TCP	10/5/2011	1776892.105	1636335.835	6599.21	102.96
TS	TCP	10/5/2011	1776895.96	1636338.935	6599.155	107.91

[a] CVS = cross-vane structure. #1 = western; #2 = central, #3 = eastern.
Positive numbers (e.g., +50ft) indicate cross-sections downstream of CVS; distance below apex rock.
Negative numbers (e.g., -50ft) indicate cross-sections upstream of CVS; distance above apex rock.

[b] TS = Geodimeter 620 total station survey method.

[c] BM = benchmark

[d] dash = not applicable (benchmark; not a point on section)

[e] XS = cross-section point

[f] TP = thalweg point

[g] GPS = Trimble 5700 global positioning system (GPS) survey method

[h] = calculated distance along sections, from south to north, are relative to original benchmarks. Refer to report LA-UR-11-0936, "Baseline Geomorphic Conditions at Sediment Transport Mitigation Sites in the Los Alamos and Pueblo Canyon Watersheds, Revision 1," for initial survey.

Upper Pueblo Canyon Willow Area Survey Data

Site	Type of Survey	Purpose	Date Surveyed	Y	X	Z	Calculated Distance in Section or Profile (ft)[i]
UW-1[a]	TS[b]	BM[c]	2/16/2011	1775860.95	1641279.72	6523.94	-[d]
	TS	BM	10/6/2011	1775881.32	1641304.90	6522.06	-
	TS	XS[e]	10/20/2009	1775860.760	1641279.470	6523.185	0
	TS	XS	10/6/2011	1775881.36	1641304.94	6521.04	32.76
	TS	XS	10/6/2011	1775882.45	1641306.37	6520.76	34.55
	TS	XS	10/6/2011	1775890.34	1641316.90	6520.12	47.70
	TS	XS	10/6/2011	1775893.45	1641321.35	6519.93	53.12
	TS	XS	10/6/2011	1775894.84	1641322.70	6519.28	55.04
	TS	XS	10/6/2011	1775895.84	1641324.07	6518.80	56.74
	TS	XS	10/6/2011	1775896.19	1641324.67	6518.44	57.43
	TS	XS	10/6/2011	1775896.82	1641325.53	6518.22	58.50
	TS	XS	10/6/2011	1775897.73	1641326.89	6518.22	60.13
	TS	XS	10/6/2011	1775899.45	1641328.76	6518.49	62.66
	TS	XS	10/6/2011	1775901.19	1641331.47	6518.41	65.87
	TS	XS	10/6/2011	1775901.78	1641332.26	6518.26	66.85
	TS	XS	10/6/2011	1775903.27	1641333.86	6518.12	69.03
	TS	XS	10/6/2011	1775903.92	1641334.49	6518.47	69.93
	TS	XS	10/6/2011	1775904.51	1641335.98	6519.07	71.46
	TS	XS	10/6/2011	1775907.16	1641338.74	6518.85	75.27
	TS	XS	10/6/2011	1775908.64	1641341.13	6518.60	78.06
	TS	XS	10/6/2011	1775909.61	1641342.32	6517.83	79.60
	TS	XS	10/6/2011	1775910.43	1641343.23	6517.82	80.82
	TS	XS	10/6/2011	1775911.98	1641345.46	6518.03	83.54
	TS	XS	10/6/2011	1775913.36	1641346.99	6519.31	85.59
	TS	XS	10/6/2011	1775914.44	1641348.29	6519.47	87.28
	TS	XS	10/6/2011	1775917.85	1641352.36	6520.34	92.58
	TS	XS	10/6/2011	1775922.45	1641358.51	6520.48	100.26
	TS	XS	10/6/2011	1775926.02	1641362.87	6520.70	105.90
	TS	XS	10/6/2011	1775928.08	1641365.40	6521.59	109.15
	TS	BM	10/6/2011	1775928.10	1641365.48	6522.10	-
UW-2	TS	BM	2/16/2011	1775804.44	1641384.05	6523.19	-
	TS	XS	10/20/2011	1775804.36	1641383.83	6522.83	0
	TS	XS	10/6/2011	1775804.41	1641383.73	6522.97	0.11
	TS	XS	10/6/2011	1775807.55	1641386.41	6522.39	4.10
	TS	XS	10/6/2011	1775810.63	1641389.29	6519.71	8.31
	TS	XS	10/6/2011	1775812.32	1641390.71	6518.74	10.52
	TS	XS	10/6/2011	1775813.96	1641391.91	6518.03	12.54
	TS	XS	10/6/2011	1775815.20	1641393.42	6517.77	14.47
	TS	XS	10/6/2011	1775815.99	1641393.58	6517.71	15.18
	TS	XS	10/6/2011	1775818.70	1641396.00	6517.39	18.81
	TS	XS	10/6/2011	1775819.53	1641396.77	6517.65	19.94
	TS	XS	10/6/2011	1775821.12	1641398.13	6517.97	22.03
	TS	XS	10/6/2011	1775821.88	1641398.89	6517.94	23.10
	TS	XS	10/6/2011	1775824.84	1641401.59	6518.06	27.10
	TS	XS	10/6/2011	1775825.35	1641401.98	6517.56	27.75
	TS	XS	10/6/2011	1775827.02	1641403.49	6516.42	30.00
	TS	XS	10/6/2011	1775827.89	1641404.61	6516.53	31.39
	TS	XS	10/6/2011	1775829.19	1641405.32	6516.76	32.83
	TS	XS	10/6/2011	1775829.91	1641406.48	6516.45	34.14
	TS	XS	10/6/2011	1775831.34	1641407.32	6517.04	35.77

	TS	XS	10/6/2011	1775832.66	1641408.38	6517.69	37.46
	TS	XS	10/6/2011	1775833.73	1641409.24	6517.53	38.83
	TS	XS	10/6/2011	1775834.58	1641409.92	6517.13	39.92
	TS	XS	10/6/2011	1775835.97	1641411.45	6516.91	41.97
	TS	XS	10/6/2011	1775836.89	1641412.38	6517.25	43.28
	TS	XS	10/6/2011	1775838.32	1641413.31	6517.97	44.97
	TS	XS	10/6/2011	1775839.10	1641413.91	6518.59	45.95
	TS	XS	10/6/2011	1775841.96	1641416.13	6519.80	49.56
	TS	BM	10/6/2011	1775842.03	1641416.19	6520.47	-
UW-3	TS	BM	2/16/2011	1775729.65	1641489.05	6522.08	-
	TS	BM	10/6/2011	1775741.90	1641489.65	6520.81	-
	TS	XS	10/15/2009	1775729.76	1641488.56	6521.60	0
	TS	XS	10/6/2011	1775741.99	1641489.63	6520.06	12.28
	TS	XS	10/6/2011	1775744.55	1641490.15	6519.80	14.88
	TS	XS	10/6/2011	1775747.01	1641490.16	6517.60	17.32
	TS	XS	10/6/2011	1775748.84	1641490.37	6516.93	19.17
	TS	XS	10/6/2011	1775750.11	1641490.62	6516.94	20.45
	TS	XS	10/6/2011	1775751.67	1641491.04	6516.13	22.06
	TS	XS	10/6/2011	1775752.93	1641490.58	6516.49	23.26
	TS	XS	10/6/2011	1775757.91	1641491.28	6516.66	28.28
	TS	XS	10/6/2011	1775761.60	1641491.51	6516.84	31.98
	TS	XS	10/6/2011	1775765.62	1641492.08	6516.76	36.03
	TS	XS	10/6/2011	1775767.11	1641492.11	6516.23	37.52
	TS	XS	10/6/2011	1775769.46	1641492.41	6516.31	39.89
	TS	XS	10/6/2011	1775771.12	1641492.53	6516.41	41.56
	TS	XS	10/6/2011	1775773.53	1641492.68	6515.91	43.97
	TS	XS	10/6/2011	1775774.97	1641492.85	6515.84	45.42
	TS	XS	10/6/2011	1775775.89	1641493.14	6516.16	46.36
	TS	XS	10/6/2011	1775776.64	1641493.18	6517.11	47.11
	TS	XS	10/6/2011	1775780.06	1641493.47	6516.82	50.54
	TS	XS	10/6/2011	1775781.83	1641493.71	6517.53	52.33
	TS	XS	10/6/2011	1775785.89	1641493.92	6517.51	56.39
	TS	XS	10/6/2011	1775792.32	1641494.63	6517.48	62.85
	TS	XS	10/6/2011	1775797.06	1641495.25	6517.33	67.63
	TS	XS	10/6/2011	1775803.80	1641495.75	6517.57	74.39
	TS	BM	10/6/2011	1775803.87	1641495.75	6518.26	-
UW-4	TS	BM	11/12/2009	1775660.77	1641604.11	6524.07	-
	TS	BM	10/6/2011	1775707.13	1641602.38	6518.73	-
	TS	XS	11/12/2009	1775660.73	1641604.12	6523.48	0
	TS	XS	10/6/2011	1775707.22	1641602.38	6518.41	46.53
	TS	XS	10/6/2011	1775711.03	1641602.52	6516.88	50.33
	TS	XS	10/6/2011	1775719.59	1641602.30	6516.54	58.89
	TS	XS	10/6/2011	1775723.74	1641602.08	6516.36	63.04
	TS	XS	10/6/2011	1775729.46	1641602.06	6515.87	68.76
	TS	XS	10/6/2011	1775731.89	1641602.22	6515.55	71.19
	TS	XS	10/6/2011	1775733.97	1641602.23	6515.19	73.27
	TS	XS	10/6/2011	1775734.45	1641602.06	6515.20	73.75
	TS	XS	10/6/2011	1775736.27	1641602.16	6515.38	75.57
	TS	XS	10/6/2011	1775739.53	1641602.48	6514.96	78.82
	TS	XS	10/6/2011	1775744.62	1641602.35	6515.57	83.91
	TS	XS	10/6/2011	1775747.37	1641602.87	6515.17	86.65
	TS	XS	10/6/2011	1775748.16	1641602.69	6514.32	87.45
	TS	XS	10/6/2011	1775749.01	1641602.29	6513.96	88.30
	TS	XS	10/6/2011	1775751.36	1641602.17	6514.27	90.65
	TS	XS	10/6/2011	1775754.32	1641602.21	6515.12	93.61

	TS	XS	10/6/2011	1775757.84	1641602.28	6515.37	97.13
	TS	XS	10/6/2011	1775758.46	1641602.33	6514.97	97.75
	TS	XS	10/6/2011	1775758.86	1641602.08	6515.11	98.16
	TS	XS	10/6/2011	1775759.63	1641601.95	6515.43	98.92
	TS	XS	10/6/2011	1775761.37	1641602.05	6515.14	100.66
	TS	XS	10/6/2011	1775763.05	1641602.05	6515.05	102.35
	TS	XS	10/6/2011	1775765.81	1641601.91	6514.99	105.11
	TS	XS	10/6/2011	1775768.73	1641601.57	6514.74	108.03
	TS	XS	10/6/2011	1775771.10	1641601.39	6514.87	110.40
	TS	XS	10/6/2011	1775772.20	1641601.60	6514.64	111.50
	TS	XS	10/6/2011	1775773.68	1641601.49	6515.59	112.99
	TS	XS	10/6/2011	1775776.93	1641601.65	6515.86	116.23
	TS	XS	10/6/2011	1775779.07	1641601.44	6516.24	118.38
	TS	XS	10/6/2011	1775788.21	1641601.11	6515.56	127.52
	TS	XS	10/6/2011	1775792.63	1641600.98	6516.00	131.94
	TS	XS	10/6/2011	1775796.20	1641600.88	6516.02	135.51
	TS	XS	10/6/2011	1775804.71	1641600.54	6517.86	144.02
	TS	XS	10/6/2011	1775820.89	1641599.69	6518.33	160.23
	TS	BM	11/12/2009	1775820.63	1641599.79	6518.76	-
UW-5	TS	BM	10/15/2009	1775740.02	1641714.91	6517.21	-
	TS	XS	10/15/2009	1775721.22	1641726.71	6527.77	0
	TS	XS	10/6/2011	1775740.08	1641715.00	6516.36	22.20
	TS	XS	10/6/2011	1775741.44	1641713.96	6515.39	23.90
	TS	XS	10/6/2011	1775746.39	1641710.57	6514.83	29.89
	TS	XS	10/6/2011	1775750.57	1641707.87	6514.49	34.87
	TS	XS	10/6/2011	1775751.92	1641706.88	6514.05	36.54
	TS	XS	10/6/2011	1775754.05	1641705.47	6513.54	39.10
	TS	XS	10/6/2011	1775759.68	1641701.75	6513.28	45.85
	TS	XS	10/6/2011	1775760.61	1641701.17	6512.20	46.94
	TS	XS	10/6/2011	1775761.74	1641700.38	6511.75	48.32
	TS	XS	10/6/2011	1775761.89	1641700.01	6512.23	48.65
	TS	XS	10/6/2011	1775764.35	1641698.35	6513.96	51.61
	TS	XS	10/6/2011	1775767.54	1641695.97	6513.89	55.59
	TS	XS	10/6/2011	1775771.80	1641693.30	6513.38	60.62
	TS	XS	10/6/2011	1775775.65	1641691.12	6514.46	65.03
	TS	XS	10/6/2011	1775777.08	1641690.31	6513.92	66.67
	TS	XS	10/6/2011	1775781.16	1641687.91	6513.61	71.40
	TS	XS	10/6/2011	1775784.41	1641685.83	6513.27	75.26
	TS	XS	10/6/2011	1775786.07	1641684.97	6513.17	77.12
	TS	XS	10/6/2011	1775788.03	1641684.03	6513.03	79.27
	TS	XS	10/6/2011	1775790.67	1641682.71	6513.55	82.21
	TS	XS	10/6/2011	1775793.19	1641680.67	6513.52	85.44
	TS	XS	10/6/2011	1775798.30	1641677.64	6514.97	91.37
	TS	XS	10/6/2011	1775805.80	1641673.25	6517.05	100.05
	TS	BM	10/15/2009	1775805.76	1641673.22	6517.63	-
UW-6	TS	BM	10/15/2009	1775781.26	1641807.20	6525.26	-
	TS	XS	10/15/2009	1775781.19	1641807.13	6524.82	0
	TS	XS	10/6/2011	1775781.39	1641807.07	6524.84	0.20
	TS	XS	10/6/2011	1775790.92	1641800.82	6523.78	11.60
	TS	XS	10/6/2011	1775801.49	1641794.35	6512.37	23.99
	TS	XS	10/6/2011	1775803.83	1641792.73	6511.86	26.83
	TS	XS	10/6/2011	1775805.87	1641791.30	6512.18	29.32
	TS	XS	10/6/2011	1775807.75	1641790.13	6510.89	31.53
	TS	XS	10/6/2011	1775809.22	1641789.18	6510.35	33.28
	TS	XS	10/6/2011	1775809.63	1641788.80	6510.70	33.83

	TS	XS	10/6/2011	1775810.26	1641788.47	6511.24	34.54
	TS	XS	10/6/2011	1775812.65	1641787.05	6511.35	37.32
	TS	XS	10/6/2011	1775815.43	1641785.54	6511.67	40.47
	TS	XS	10/6/2011	1775818.44	1641784.16	6511.80	43.76
	TS	XS	10/6/2011	1775820.76	1641781.67	6512.16	47.05
	TS	XS	10/6/2011	1775822.45	1641780.60	6512.03	49.05
	TS	XS	10/6/2011	1775823.55	1641779.92	6511.61	50.34
	TS	XS	10/6/2011	1775824.68	1641778.83	6511.58	51.89
	TS	XS	10/6/2011	1775826.24	1641777.84	6511.27	53.73
	TS	XS	10/6/2011	1775827.39	1641777.00	6512.16	55.15
	TS	XS	10/6/2011	1775830.72	1641774.99	6512.50	59.04
	TS	XS	10/6/2011	1775834.76	1641772.71	6513.24	63.67
	TS	XS	10/6/2011	1775845.48	1641765.66	6515.37	76.50
	TS	BM	10/15/2009	1775845.44	1641765.62	6516.17	-
UW Thalweg Profile	TS	TP[f]	10/6/2011	1775910.54	1641343.41	6517.81	0.00
	TS	XS	10/6/2011	1775902.80	1641350.67	6517.74	10.61
	TS	XS	10/6/2011	1775895.31	1641356.15	6517.56	19.89
	TS	XS	10/6/2011	1775888.26	1641360.58	6517.33	28.22
	TS	XS	10/6/2011	1775881.22	1641364.31	6517.20	36.18
	TS	XS	10/6/2011	1775876.68	1641367.37	6516.76	41.66
	TS	XS	10/6/2011	1775872.03	1641373.98	6516.68	49.74
	TS	XS	10/6/2011	1775868.90	1641379.65	6516.93	56.22
	TS	XS	10/6/2011	1775862.90	1641382.05	6517.04	62.68
	TS	XS	10/6/2011	1775852.79	1641383.20	6517.05	72.86
	TS	XS	10/6/2011	1775847.37	1641393.09	6516.95	84.13
	TS	XS	10/6/2011	1775843.12	1641398.19	6516.83	90.78
	TS	XS	10/6/2011	1775837.64	1641399.01	6516.78	96.31
	TS	XS	10/6/2011	1775829.57	1641405.41	6516.54	106.61
	TS	XS	10/6/2011	1775823.94	1641410.52	6516.59	114.22
	TS	XS	10/6/2011	1775818.18	1641411.98	6516.28	120.16
	TS	XS	10/6/2011	1775812.74	1641414.20	6516.20	126.03
	TS	XS	10/6/2011	1775809.50	1641417.77	6516.36	130.86
	TS	XS	10/6/2011	1775804.58	1641418.77	6516.22	135.87
	TS	XS	10/6/2011	1775799.25	1641423.14	6516.03	142.77
	TS	XS	10/6/2011	1775796.79	1641426.57	6516.11	146.99
	TS	XS	10/6/2011	1775791.30	1641431.33	6516.10	154.25
	TS	XS	10/6/2011	1775784.86	1641436.94	6515.85	162.80
	TS	XS	10/6/2011	1775780.17	1641443.10	6516.46	170.53
	TS	XS	10/6/2011	1775779.99	1641448.93	6517.33	176.37
	TS	XS	10/6/2011	1775780.37	1641461.04	6516.99	188.49
	TS	XS	10/6/2011	1775777.49	1641473.14	6516.42	200.92
	TS	XS	10/6/2011	1775773.89	1641484.01	6516.10	212.37
	TS	XS	10/6/2011	1775774.95	1641493.03	6515.88	221.46
	TS	XS	10/6/2011	1775771.85	1641498.31	6516.06	227.58
	TS	XS	10/6/2011	1775765.80	1641503.92	6515.92	235.83
	TS	XS	10/6/2011	1775764.81	1641514.00	6516.00	245.96
	TS	XS	10/6/2011	1775760.30	1641525.92	6515.50	258.70
	TS	XS	10/6/2011	1775758.91	1641530.93	6515.74	263.91
	TS	XS	10/6/2011	1775753.62	1641535.64	6515.49	270.99
	TS	XS	10/6/2011	1775753.53	1641543.25	6515.49	278.60
	TS	XS	10/6/2011	1775751.13	1641547.37	6514.85	283.37
	TS	XS	10/6/2011	1775745.16	1641551.27	6514.87	290.50
	TS	XS	10/6/2011	1775746.33	1641561.66	6514.53	300.96
	TS	XS	10/6/2011	1775746.93	1641569.37	6514.41	308.69
	TS	XS	10/6/2011	1775745.87	1641574.02	6514.15	313.46

	TS	XS	10/6/2011	1775746.79	1641582.40	6514.15	321.89
	TS	XS	10/6/2011	1775749.17	1641591.33	6514.16	331.13
	TS	XS	10/6/2011	1775749.56	1641599.96	6514.04	339.77
	TS	XS	10/6/2011	1775751.25	1641608.35	6513.94	348.33
	TS	XS	10/6/2011	1775751.42	1641612.58	6514.17	352.57
	TS	XS	10/6/2011	1775750.23	1641622.70	6513.63	362.76
	TS	XS	10/6/2011	1775750.77	1641630.41	6513.61	370.48
	TS	XS	10/6/2011	1775748.88	1641639.13	6513.26	379.40
	TS	XS	10/6/2011	1775748.23	1641647.18	6513.13	387.48
	TS	XS	10/6/2011	1775748.75	1641653.93	6512.60	394.25
	TS	XS	10/6/2011	1775750.17	1641659.74	6512.61	400.23
	TS	XS	10/6/2011	1775751.70	1641667.02	6512.41	407.67
	TS	XS	10/6/2011	1775754.83	1641674.25	6512.50	415.55
	TS	XS	10/6/2011	1775756.25	1641681.96	6512.44	423.38
	TS	XS	10/6/2011	1775758.81	1641690.36	6512.40	432.17
	TS	XS	10/6/2011	1775760.23	1641695.94	6512.05	437.92
	TS	XS	10/6/2011	1775760.23	1641695.92	6512.05	437.94
	TS	XS	10/6/2011	1775761.59	1641701.05	6511.82	443.25
	TS	XS	10/6/2011	1775763.17	1641708.61	6511.43	450.97
	TS	XS	10/6/2011	1775764.66	1641716.83	6511.60	459.32
	TS	XS	10/6/2011	1775766.15	1641726.73	6511.64	469.33
	TS	XS	10/6/2011	1775769.63	1641734.84	6511.19	478.16
	TS	XS	10/6/2011	1775774.59	1641744.29	6511.12	488.83
	TS	XS	10/6/2011	1775778.32	1641752.67	6510.96	498.01
	TS	XS	10/6/2011	1775784.79	1641762.51	6510.98	509.78
	TS	XS	10/6/2011	1775791.44	1641767.88	6510.73	518.33
	TS	XS	10/6/2011	1775795.93	1641770.51	6510.65	523.53
	TS	XS	10/6/2011	1775800.56	1641778.46	6510.42	532.73
	TS	XS	10/6/2011	1775807.62	1641785.62	6510.33	542.78
	TS	XS	10/6/2011	1775808.97	1641789.74	6510.19	547.12
MW-1[g]	TS	BM	2/18/2011	1776025.27	1642644.26	6500.53	-
	TS	BM	2/18/2011	1776065.78	1642581.67	6500.31	-
	TS	XS	10/27/2009	1776025.18	1642644.20	6499.78	0
	TS	XS	10/7/2011	1776065.75	1642581.60	6499.64	74.59
	TS	XS	10/7/2011	1776069.62	1642575.56	6498.83	81.77
	TS	XS	10/7/2011	1776072.80	1642570.78	6499.44	87.51
	TS	XS	10/7/2011	1776075.50	1642566.90	6498.74	92.23
	TS	XS	10/7/2011	1776078.68	1642562.12	6498.48	97.97
	TS	XS	10/7/2011	1776081.86	1642557.17	6498.68	103.86
	TS	XS	10/7/2011	1776086.02	1642550.85	6498.02	111.42
	TS	XS	10/7/2011	1776086.71	1642549.64	6497.87	112.81
	TS	XS	10/7/2011	1776087.04	1642548.89	6497.45	113.62
	TS	XS	10/7/2011	1776087.93	1642547.79	6497.20	115.03
	TS	XS	10/7/2011	1776089.26	1642545.54	6496.72	117.64
	TS	XS	10/7/2011	1776090.21	1642543.25	6493.92	120.08
	TS	XS	10/7/2011	1776091.69	1642542.07	6493.26	121.87
	TS	XS	10/7/2011	1776092.19	1642540.63	6494.14	123.35
	TS	XS	10/7/2011	1776093.01	1642539.37	6496.40	124.86
	TS	XS	10/7/2011	1776095.59	1642535.86	6496.81	129.21
	TS	XS	10/7/2011	1776095.84	1642534.92	6497.30	130.13
	TS	XS	10/7/2011	1776099.82	1642528.81	6497.67	137.42
	TS	XS	10/7/2011	1776103.17	1642523.53	6498.20	143.68
	TS	XS	10/7/2011	1776106.99	1642517.48	6497.23	150.83
	TS	XS	10/7/2011	1776107.60	1642516.79	6496.94	151.74
	TS	XS	10/7/2011	1776109.62	1642513.41	6496.84	155.67

	TS	XS	10/7/2011	1776110.31	1642512.24	6496.49	157.03
	TS	XS	10/7/2011	1776111.79	1642510.00	6496.77	159.72
	TS	XS	10/7/2011	1776114.87	1642505.09	6499.54	165.51
	TS	BM	2/18/2011	1776114.98	1642505.05	6500.33	-
MW-2	TS	BM	2/24/2011	1776121.82	1642643.15	6499.24	-
	TS	BM	10/7/2011	1776154.66	1642614.41	6499.00	-
	TS	XS	10/27/2009	1776027.03	1642721.63	6500.60	0.00
	TS	XS	10/7/2011	1776154.80	1642614.09	6497.61	167.00
	TS	XS	10/7/2011	1776158.88	1642610.43	6496.83	172.49
	TS	XS	10/7/2011	1776160.14	1642609.49	6496.22	174.05
	TS	XS	10/7/2011	1776162.04	1642607.77	6496.06	176.62
	TS	XS	10/7/2011	1776164.80	1642605.86	6496.30	179.96
	TS	XS	10/7/2011	1776167.16	1642603.74	6495.36	183.12
	TS	XS	10/7/2011	1776168.01	1642602.64	6494.65	184.48
	TS	XS	10/7/2011	1776168.67	1642601.94	6494.19	185.44
	TS	XS	10/7/2011	1776169.36	1642601.44	6493.05	186.29
	TS	XS	10/7/2011	1776170.35	1642600.38	6492.88	187.73
	TS	XS	10/7/2011	1776171.23	1642599.82	6493.28	188.76
	TS	XS	10/7/2011	1776172.80	1642598.28	6495.10	190.96
	TS	XS	10/7/2011	1776176.08	1642595.15	6495.39	195.48
	TS	XS	10/7/2011	1776178.19	1642593.12	6495.41	198.40
	TS	XS	10/7/2011	1776179.74	1642591.51	6496.13	200.63
	TS	XS	10/7/2011	1776184.77	1642587.23	6498.04	207.23
	TS	XS	10/7/2011	1776187.14	1642585.30	6499.71	210.29
MW-3	TS	BM	2/24/2011	1776183.77	1642692.96	6498.08	-
	TS	XS	2/24/2011	1776053.27	1642724.56	6498.08	0.00
	TS	XS	10/7/2011	1776183.91	1642692.73	6497.62	134.61
	TS	XS	10/7/2011	1776189.73	1642691.26	6496.82	140.61
	TS	XS	10/7/2011	1776194.30	1642690.24	6496.76	145.29
	TS	XS	10/7/2011	1776199.38	1642689.26	6495.97	150.46
	TS	XS	10/7/2011	1776201.12	1642688.75	6495.67	152.27
	TS	XS	10/7/2011	1776205.37	1642687.73	6495.15	156.64
	TS	XS	10/7/2011	1776208.90	1642686.86	6495.47	160.27
	TS	XS	10/7/2011	1776214.02	1642685.97	6495.07	165.46
	TS	XS	10/7/2011	1776217.92	1642685.29	6494.65	169.41
	TS	XS	10/7/2011	1776220.97	1642684.32	6494.62	172.61
	TS	XS	10/7/2011	1776224.11	1642683.69	6493.22	175.80
	TS	XS	10/7/2011	1776227.30	1642682.93	6492.81	179.09
	TS	XS	10/7/2011	1776230.02	1642682.14	6492.96	181.92
	TS	XS	10/7/2011	1776230.95	1642681.87	6494.46	182.88
	TS	XS	10/7/2011	1776235.16	1642680.89	6498.79	187.20
	TS	XS	10/7/2011	1776238.93	1642680.33	6502.02	-
MW-4	TS	BM	2/24/2011	1776171.54	1642790.38	6496.60	-
	TS	BM	10/7/2011	1776171.42	1642790.33	6496.69	-
	TS	XS	10/27/2009	1776056.41	1642770.23	6499.04	0.00
	TS	XS	10/7/2011	1776171.62	1642790.26	6496.02	116.93
	TS	XS	10/7/2011	1776177.45	1642791.27	6494.98	122.86
	TS	XS	10/7/2011	1776180.65	1642791.49	6494.06	126.04
	TS	XS	10/7/2011	1776184.88	1642792.06	6494.11	130.31
	TS	XS	10/7/2011	1776187.81	1642792.52	6494.27	133.27
	TS	XS	10/7/2011	1776190.49	1642793.17	6493.79	136.03
	TS	XS	10/7/2011	1776193.65	1642793.56	6493.45	139.21
	TS	XS	10/7/2011	1776195.14	1642793.69	6492.78	140.70
	TS	XS	10/7/2011	1776197.07	1642793.90	6492.48	142.63
	TS	XS	10/7/2011	1776198.48	1642794.20	6491.93	144.07

	TS	XS	10/7/2011	1776200.54	1642794.66	6491.89	146.19
	TS	XS	10/7/2011	1776201.80	1642794.65	6491.88	147.42
	TS	XS	10/7/2011	1776203.50	1642794.81	6493.58	149.13
	TS	XS	10/7/2011	1776205.56	1642795.12	6494.32	151.21
	TS	XS	10/7/2011	1776210.60	1642795.76	6494.71	156.29
	TS	XS	10/7/2011	1776220.30	1642796.88	6495.42	166.04
	TS	XS	10/7/2011	1776225.21	1642797.16	6495.61	170.94
	TS	XS	10/7/2011	1776231.32	1642798.72	6498.61	177.22
MW-5	TS	BM	2/25/2011	1776104.69	1642881.32	6495.64	-
	TS	BM	10/11/2011	1776147.34	1642890.46	6495.76	-
	TS	XS	10/30/2009	1776045.83	1642869.72	6498.56	0
	TS	XS	10/11/2011	1776147.295	1642890.545	6495.07	103.55
	TS	XS	10/11/2011	1776151.385	1642891.085	6491.585	107.67
	TS	XS	10/11/2011	1776152.02	1642891.305	6491.35	108.34
	TS	XS	10/11/2011	1776152.495	1642891.525	6490.515	108.84
	TS	XS	10/11/2011	1776154.38	1642891.66	6490.21	110.72
	TS	XS	10/11/2011	1776155.455	1642892.11	6490.28	111.86
	TS	XS	10/11/2011	1776158.47	1642892.48	6492.325	114.89
	TS	XS	10/11/2011	1776161.32	1642893.205	6492.7	117.83
	TS	XS	10/11/2011	1776167.275	1642894.5	6492.88	123.92
	TS	XS	10/11/2011	1776170.805	1642895.13	6492.55	127.51
	TS	XS	10/11/2011	1776172.415	1642895.46	6492.705	129.15
	TS	XS	10/11/2011	1776178.74	1642896.975	6492.9	135.65
	TS	XS	10/11/2011	1776185.17	1642898.37	6493.345	142.23
	TS	XS	10/11/2011	1776193.005	1642899.545	6494.67	150.14
	TS	XS	10/11/2011	1776206.505	1642902.6	6494.665	163.98
	TS	XS	10/11/2011	1776216.615	1642904.78	6494.445	174.32
	TS	XS	10/11/2011	1776230.04	1642907.555	6498.14	188.03
MW-6	TS	BM	10/30/2009	1776025.61	1642984.62	6497.96	-
	TS	BM	2/25/2011	1776083.74	1642990.00	6495.16	-
	TS	BM	10/11/2011	1776122.82	1642990.22	6495.31	-
	TS	XS	10/30/2009	1776025.45	1642984.93	6497.46	0
	TS	XS	10/11/2011	1776122.97	1642990.22	6494.42	97.66
	TS	XS	10/11/2011	1776133.46	1642990.43	6494.35	108.14
	TS	XS	10/11/2011	1776139.28	1642990.74	6492.15	113.98
	TS	XS	10/11/2011	1776142.04	1642990.83	6491.50	116.74
	TS	XS	10/11/2011	1776144.22	1642990.87	6491.42	118.91
	TS	XS	10/11/2011	1776145.55	1642990.88	6491.19	120.25
	TS	XS	10/11/2011	1776147.40	1642990.88	6491.28	122.09
	TS	XS	10/11/2011	1776149.67	1642991.09	6490.68	124.37
	TS	XS	10/11/2011	1776150.22	1642991.07	6489.79	124.92
	TS	XS	10/11/2011	1776151.49	1642991.06	6489.44	126.19
	TS	XS	10/11/2011	1776152.49	1642991.05	6489.54	127.19
	TS	XS	10/11/2011	1776153.37	1642991.20	6490.42	128.07
	TS	XS	10/11/2011	1776156.86	1642991.24	6491.29	131.56
	TS	XS	10/11/2011	1776158.82	1642991.33	6491.42	133.52
	TS	XS	10/11/2011	1776160.90	1642991.37	6491.77	135.60
	TS	XS	10/11/2011	1776167.10	1642991.54	6492.00	141.80
	TS	XS	10/11/2011	1776172.79	1642991.72	6493.53	147.49
	TS	XS	10/11/2011	1776174.58	1642991.74	6493.65	149.29
	TS	XS	10/11/2011	1776182.48	1642992.04	6493.89	157.19
	TS	XS	10/11/2011	1776197.98	1642992.47	6493.74	172.69
	TS	XS	10/11/2011	1776203.00	1642992.48	6493.55	177.71
	TS	XS	10/11/2011	1776205.43	1642992.54	6493.97	180.14
	TS	XS	10/11/2011	1776213.31	1642992.74	6493.79	188.02

	TS	XS	10/11/2011	1776222.11	1642993.16	6497.44	196.83
MW Thalweg Profile	TS	TP	10/11/2011	1776091.59	1642542.02	6493.49	0.00
	TS	TP	10/11/2011	1776100.18	1642544.40	6493.83	8.91
	TS	TP	10/11/2011	1776110.17	1642547.94	6494.24	19.52
	TS	TP	10/11/2011	1776116.66	1642548.49	6494.62	26.03
	TS	TP	10/11/2011	1776127.13	1642549.75	6494.44	36.58
	TS	TP	10/11/2011	1776132.10	1642555.07	6494.54	43.86
	TS	TP	10/11/2011	1776136.64	1642562.26	6494.55	52.36
	TS	TP	10/11/2011	1776142.86	1642571.28	6494.23	63.32
	TS	TP	10/11/2011	1776148.06	1642572.02	6493.47	68.56
	TS	TP	10/11/2011	1776149.50	1642578.76	6493.90	75.46
	TS	TP	10/11/2011	1776156.78	1642586.08	6493.37	85.78
	TS	TP	10/11/2011	1776162.89	1642591.48	6493.41	93.93
	TS	TP	10/11/2011	1776170.12	1642600.34	6492.88	105.37
	TS	TP	10/11/2011	1776174.23	1642606.32	6493.08	112.63
	TS	TP	10/11/2011	1776179.07	1642614.08	6493.15	121.77
	TS	TP	10/11/2011	1776185.13	1642619.82	6493.07	130.12
	TS	TP	10/11/2011	1776191.94	1642624.95	6492.93	138.65
	TS	TP	10/11/2011	1776195.99	1642633.28	6492.71	147.90
	TS	TP	10/11/2011	1776200.71	1642641.83	6492.74	157.67
	TS	TP	10/11/2011	1776208.07	1642658.55	6492.83	175.94
	TS	TP	10/11/2011	1776211.82	1642662.14	6492.62	181.13
	TS	TP	10/11/2011	1776218.19	1642668.15	6492.54	189.89
	TS	TP	10/11/2011	1776224.80	1642673.53	6492.57	198.41
	TS	TP	10/11/2011	1776226.55	1642683.61	6492.81	208.65
	TS	TP	10/11/2011	1776229.06	1642688.22	6492.58	213.89
	TS	TP	10/11/2011	1776226.23	1642694.48	6492.37	220.76
	TS	TP	10/11/2011	1776221.26	1642707.64	6492.88	234.83
	TS	TP	10/11/2011	1776222.60	1642716.27	6492.80	243.56
	TS	TP	10/11/2011	1776215.22	1642734.61	6492.56	263.33
	TS	TP	10/11/2011	1776210.74	1642745.37	6492.14	274.99
	TS	TP	10/11/2011	1776203.49	1642754.49	6491.96	286.63
	TS	TP	10/11/2011	1776205.28	1642763.17	6491.61	295.50
	TS	TP	10/11/2011	1776204.98	1642773.85	6491.77	306.18
	TS	TP	10/11/2011	1776205.46	1642784.24	6491.97	316.58
	TS	TP	10/11/2011	1776203.60	1642790.16	6491.75	322.78
	TS	TP	10/11/2011	1776200.27	1642793.98	6491.82	327.85
	TS	TP	10/11/2011	1776193.19	1642803.92	6491.69	340.06
	TS	TP	10/11/2011	1776188.16	1642817.99	6491.42	355.00
	TS	TP	10/11/2011	1776186.24	1642824.70	6490.45	361.98
	TS	TP	10/11/2011	1776182.18	1642830.42	6490.97	369.00
	TS	TP	10/11/2011	1776174.78	1642838.19	6490.62	379.72
	TS	TP	10/11/2011	1776165.08	1642844.21	6491.07	391.14
	TS	TP	10/11/2011	1776160.74	1642850.15	6491.14	398.50
	TS	TP	10/11/2011	1776157.72	1642861.22	6490.81	409.97
	TS	TP	10/11/2011	1776159.45	1642872.56	6490.18	421.45
	TS	TP	10/11/2011	1776154.33	1642877.05	6489.83	428.26
	TS	TP	10/11/2011	1776154.49	1642885.68	6490.29	436.89
	TS	TP	10/11/2011	1776153.69	1642891.71	6490.23	442.96
	TS	TP	10/11/2011	1776152.24	1642904.63	6490.10	455.97
	TS	TP	10/11/2011	1776151.53	1642913.73	6490.08	465.09
	TS	TP	10/11/2011	1776152.17	1642921.85	6490.18	473.24
	TS	TP	10/11/2011	1776153.95	1642927.27	6489.69	478.94
	TS	TP	10/11/2011	1776152.48	1642934.25	6489.17	486.07
	TS	TP	10/11/2011	1776153.31	1642944.81	6489.83	496.67

	TS	TP	10/11/2011	1776151.40	1642960.05	6489.76	512.03
	TS	TP	10/11/2011	1776151.04	1642972.17	6489.70	524.16
	TS	TP	10/11/2011	1776151.01	1642983.48	6489.63	535.47
	TS	TP	10/11/2011	1776151.58	1642991.14	6489.35	543.14
LW-1[h]	TS	BM	3/2/2011	1776062.47	1643156.80	6493.35	-
	TS	BM	10/11/2011	1776128.71	1643180.87	6491.37	-
	TS	XS	11/5/2009	1776035.30	1643147.53	6494.54	0
	TS	XS	10/11/2011	1776128.92	1643180.95	6490.74	99.40
	TS	XS	10/11/2011	1776131.71	1643181.70	6490.28	102.28
	TS	XS	10/11/2011	1776133.41	1643182.14	6489.67	104.04
	TS	XS	10/11/2011	1776135.93	1643182.89	6489.25	106.66
	TS	XS	10/11/2011	1776137.89	1643183.66	6489.49	108.76
	TS	XS	10/11/2011	1776139.26	1643184.27	6488.83	110.26
	TS	XS	10/11/2011	1776140.42	1643184.42	6488.85	111.40
	TS	XS	10/11/2011	1776141.10	1643184.73	6488.27	112.15
	TS	XS	10/11/2011	1776142.96	1643185.23	6487.81	114.07
	TS	XS	10/11/2011	1776144.60	1643185.87	6487.98	115.83
	TS	XS	10/11/2011	1776146.03	1643186.25	6489.49	117.30
	TS	XS	10/11/2011	1776147.87	1643186.86	6489.76	119.24
	TS	XS	10/11/2011	1776154.38	1643188.88	6490.11	126.05
	TS	XS	10/11/2011	1776160.73	1643190.90	6490.37	132.71
	TS	XS	10/11/2011	1776163.16	1643191.82	6490.55	135.31
	TS	XS	10/11/2011	1776165.65	1643192.66	6490.28	137.94
	TS	XS	10/11/2011	1776168.11	1643193.52	6490.54	140.55
	TS	XS	10/11/2011	1776170.60	1643194.06	6491.91	143.07
	TS	XS	10/11/2011	1776177.53	1643196.11	6491.45	150.30
	TS	XS	10/11/2011	1776182.87	1643197.41	6492.39	155.77
LW-2	TS	BM	3/2/2011	1775993.33	1643248.61	6492.36	-
	TS	BM	10/11/2011	1776099.545	1643273.18	6491.705	-
	TS	BM	11/4/2009	1775993.285	1643248.475	6492.295	0
	TS	XS	10/11/2011	1776099.665	1643273.365	6491.26	109.25
	TS	XS	10/11/2011	1776102.54	1643274.1	6490.97	112.22
	TS	XS	10/11/2011	1776106.15	1643274.845	6489.695	115.90
	TS	XS	10/11/2011	1776109.755	1643275.895	6489.745	119.65
	TS	XS	10/11/2011	1776113	1643276.615	6489.085	122.98
	TS	XS	10/11/2011	1776117.835	1643277.865	6488.795	127.97
	TS	XS	10/11/2011	1776123.455	1643279.48	6488.905	133.81
	TS	XS	10/11/2011	1776128.215	1643280.73	6488.79	138.73
	TS	XS	10/11/2011	1776131.06	1643281.49	6488.475	141.68
	TS	XS	10/11/2011	1776131.585	1643281.555	6487.455	142.20
	TS	XS	10/11/2011	1776132.885	1643281.79	6486.655	143.52
	TS	XS	10/11/2011	1776134.71	1643282.49	6486.235	145.46
	TS	XS	10/11/2011	1776135.83	1643282.65	6486.755	146.58
	TS	XS	10/11/2011	1776137.68	1643283.185	6487.135	148.51
	TS	XS	10/11/2011	1776138.905	1643283.61	6488.79	149.80
	TS	XS	10/11/2011	1776140.555	1643283.825	6489.38	151.45
	TS	XS	10/11/2011	1776145.11	1643285.04	6490.85	156.17
	TS	XS	10/11/2011	1776157.655	1643288.33	6491.035	169.13
	TS	BM	10/11/2011	1776157.775	1643288.38	6491.665	-
LW-3	TS	BM	3/2/2011	1776044.88	1643366.84	6490.80	-
	TS	BM	10/11/2011	1776070.31	1643369.07	6491.05	-
	TS	XS	11/4/2009	1776016.91	1643364.62	6495.54	0
	TS	XS	10/11/2011	1776070.40	1643369.07	6490.15	53.68
	TS	XS	10/11/2011	1776081.74	1643369.67	6488.74	65.03
	TS	XS	10/11/2011	1776082.59	1643369.84	6486.57	65.89

	TS	XS	10/11/2011	1776084.59	1643369.83	6485.02	67.89
	TS	XS	10/11/2011	1776087.35	1643370.06	6485.28	70.66
	TS	XS	10/11/2011	1776088.36	1643370.10	6484.95	71.67
	TS	XS	10/11/2011	1776090.24	1643370.27	6484.67	73.55
	TS	XS	10/11/2011	1776091.96	1643370.39	6484.90	75.27
	TS	XS	10/11/2011	1776094.49	1643370.63	6485.77	77.82
	TS	XS	10/11/2011	1776094.76	1643370.74	6487.68	78.10
	TS	XS	10/11/2011	1776097.47	1643370.80	6487.57	80.80
	TS	XS	10/11/2011	1776100.92	1643371.29	6487.30	84.27
	TS	XS	10/11/2011	1776107.38	1643371.75	6487.21	90.75
	TS	XS	10/11/2011	1776110.79	1643372.07	6487.54	94.18
	TS	XS	10/11/2011	1776112.51	1643372.02	6487.92	95.89
	TS	XS	10/11/2011	1776113.62	1643372.18	6488.26	97.01
	TS	XS	10/11/2011	1776120.04	1643372.85	6488.74	103.46
	TS	XS	10/11/2011	1776123.38	1643373.12	6489.63	106.81
	TS	XS	10/11/2011	1776133.46	1643374.13	6490.08	116.94
LW-4	TS	BM	3/2/2011	1776051.39	1643470.74	6489.93	-
	TS	XS	11/4/2009	1776043.59	1643470.57	6493.54	0
	TS	XS	10/11/2011	1776051.55	1643470.69	6489.11	7.96
	TS	XS	10/11/2011	1776055.38	1643470.76	6488.87	11.79
	TS	XS	10/11/2011	1776059.45	1643470.80	6483.86	15.86
	TS	XS	10/11/2011	1776060.18	1643470.62	6484.20	16.59
	TS	XS	10/11/2011	1776061.43	1643470.70	6483.96	17.84
	TS	XS	10/11/2011	1776063.45	1643470.58	6483.68	19.87
	TS	XS	10/11/2011	1776064.24	1643470.47	6483.79	20.65
	TS	XS	10/11/2011	1776065.92	1643470.56	6484.93	22.34
	TS	XS	10/11/2011	1776067.25	1643470.53	6484.38	23.66
	TS	XS	10/11/2011	1776068.75	1643470.57	6484.15	25.17
	TS	XS	10/11/2011	1776070.40	1643470.59	6484.22	26.81
	TS	XS	10/11/2011	1776070.89	1643470.48	6486.07	27.31
	TS	XS	10/11/2011	1776074.98	1643470.71	6486.63	31.40
	TS	XS	10/11/2011	1776079.81	1643470.24	6487.06	36.22
	TS	XS	10/11/2011	1776083.75	1643470.17	6487.74	40.17
	TS	XS	10/11/2011	1776094.90	1643469.97	6487.75	51.32
	TS	XS	10/11/2011	1776121.87	1643469.44	6489.42	78.29
LW-5	TS	BM	3/2/2011	1776050.27	1643578.66	6490.98	-
	TS	XS	11/5/2009	1776027.78	1643582.86	6492.37	0
	TS	XS	10/12/2011	1776050.23	1643578.61	6490.43	22.85
	TS	XS	10/12/2011	1776069.96	1643574.46	6487.83	43.00
	TS	XS	10/12/2011	1776070.84	1643574.39	6484.20	43.89
	TS	XS	10/12/2011	1776072.27	1643574.21	6483.50	45.32
	TS	XS	10/12/2011	1776074.06	1643573.88	6482.62	47.14
	TS	XS	10/12/2011	1776075.18	1643573.62	6482.35	48.29
	TS	XS	10/12/2011	1776079.86	1643572.49	6482.62	53.10
	TS	XS	10/12/2011	1776083.26	1643572.01	6483.68	56.53
	TS	XS	10/12/2011	1776086.07	1643571.44	6483.74	59.39
	TS	XS	10/12/2011	1776089.08	1643570.81	6484.72	62.47
	TS	XS	10/12/2011	1776091.22	1643570.47	6484.72	64.64
	TS	XS	10/12/2011	1776093.10	1643570.16	6484.90	66.54
	TS	XS	10/12/2011	1776095.58	1643569.72	6486.46	69.06
	TS	XS	10/12/2011	1776104.11	1643568.27	6486.74	77.71
	TS	XS	10/12/2011	1776112.57	1643567.08	6487.85	86.24
	TS	XS	10/12/2011	1776112.62	1643567.18	6488.59	-
LW-6	TS	BM	11/5/2009	1776063.54	1643671.60	6487.18	-
	TS	XS	11/5/2009	1776038.75	1643673.72	6488.61	0

	TS	XS	10/12/2011	1776063.35	1643671.55	6486.37	24.69
	TS	XS	10/12/2011	1776080.24	1643670.20	6486.79	41.64
	TS	XS	10/12/2011	1776085.16	1643669.35	6485.51	46.62
	TS	XS	10/12/2011	1776087.70	1643669.22	6483.43	49.15
	TS	XS	10/12/2011	1776090.10	1643669.17	6483.66	51.55
	TS	XS	10/12/2011	1776091.78	1643669.05	6483.97	53.24
	TS	XS	10/12/2011	1776092.61	1643668.93	6483.88	54.07
	TS	XS	10/12/2011	1776093.69	1643669.11	6481.98	55.13
	TS	XS	10/12/2011	1776095.74	1643668.77	6481.49	57.20
	TS	XS	10/12/2011	1776097.90	1643668.76	6480.99	59.36
	TS	XS	10/12/2011	1776100.33	1643668.30	6481.35	61.82
	TS	XS	10/12/2011	1776100.79	1643668.20	6482.51	62.28
	TS	XS	10/12/2011	1776103.03	1643668.17	6483.72	64.51
	TS	XS	10/12/2011	1776103.89	1643668.18	6486.54	65.38
	TS	XS	10/12/2011	1776110.10	1643667.65	6487.33	71.61
	TS	BM	10/12/2011	1776110.20	1643667.66	6487.67	-
LW Thalweg Profile	TS	TP	10/11/2011	1776142.60	1643185.10	6487.83	19.00
	TS	TP	10/11/2011	1776141.18	1643194.88	6487.66	28.88
	TS	TP	10/11/2011	1776139.37	1643204.82	6487.75	38.98
	TS	TP	10/11/2011	1776135.87	1643213.46	6487.63	48.30
	TS	TP	10/11/2011	1776133.07	1643220.84	6487.27	56.20
	TS	TP	10/11/2011	1776131.02	1643229.33	6487.05	64.94
	TS	TP	10/11/2011	1776130.28	1643235.20	6486.86	70.85
	TS	TP	10/11/2011	1776127.76	1643243.01	6487.18	79.05
	TS	TP	10/11/2011	1776129.07	1643250.59	6486.67	86.75
	TS	TP	10/11/2011	1776130.88	1643260.18	6486.73	96.50
	TS	TP	10/11/2011	1776131.97	1643269.67	6486.48	106.06
	TS	TP	10/11/2011	1776134.54	1643277.57	6486.11	114.37
	TS	TP	10/11/2011	1776134.85	1643282.53	6486.37	119.33
	TS	TP	10/11/2011	1776134.65	1643289.45	6486.15	126.26
	TS	TP	10/11/2011	1776131.03	1643300.53	6486.08	137.91
	TS	TP	10/11/2011	1776129.69	1643306.21	6485.92	143.75
	TS	TP	10/11/2011	1776127.91	1643313.12	6485.55	150.89
	TS	TP	10/11/2011	1776123.68	1643319.79	6485.26	158.79
	TS	TP	10/11/2011	1776120.95	1643330.37	6484.64	169.71
	TS	TP	10/11/2011	1776119.19	1643338.03	6485.09	177.57
	TS	TP	10/11/2011	1776117.59	1643346.78	6485.43	186.47
	TS	TP	10/11/2011	1776110.10	1643351.12	6485.06	195.12
	TS	TP	10/11/2011	1776101.51	1643357.91	6484.61	206.08
	TS	TP	10/11/2011	1776094.89	1643362.94	6484.64	214.39
	TS	TP	10/11/2011	1776090.32	1643369.45	6484.67	222.34
	TS	TP	10/11/2011	1776084.57	1643379.11	6484.56	233.58
	TS	TP	10/11/2011	1776079.41	1643389.39	6484.55	245.08
	TS	TP	10/11/2011	1776076.72	1643400.04	6484.55	256.06
	TS	TP	10/11/2011	1776076.27	1643410.15	6484.23	266.18
	TS	TP	10/11/2011	1776077.64	1643421.42	6484.02	277.54
	TS	TP	10/11/2011	1776072.76	1643433.96	6483.81	291.00
	TS	TP	10/11/2011	1776069.25	1643441.62	6483.91	299.43
	TS	TP	10/11/2011	1776062.59	1643448.38	6483.99	308.91
	TS	TP	10/11/2011	1776061.25	1643458.88	6483.93	319.50
	TS	TP	10/11/2011	1776063.87	1643471.54	6483.64	332.43
	TS	TP	10/11/2011	1776068.42	1643478.77	6483.30	340.97
	TS	TP	10/11/2011	1776067.21	1643489.21	6483.42	351.48
	TS	TP	10/11/2011	1776070.72	1643497.86	6483.38	360.82
	TS	TP	10/11/2011	1776075.36	1643506.00	6482.95	370.19

TS	TP	10/11/2011	1776073.43	1643510.18	6482.80	374.79
TS	TP	10/11/2011	1776075.88	1643514.25	6482.87	379.54
TS	TP	10/11/2011	1776071.97	1643523.40	6482.86	389.49
TS	TP	10/11/2011	1776075.13	1643530.99	6482.78	397.72
TS	TP	10/11/2011	1776072.88	1643538.38	6482.64	405.44
TS	TP	10/11/2011	1776074.40	1643547.12	6482.66	414.31
TS	TP	10/11/2011	1776074.75	1643561.01	6482.60	428.21
TS	TP	10/11/2011	1776076.37	1643573.14	6482.46	440.44
TS	TP	10/11/2011	1776079.92	1643584.05	6482.32	451.92
TS	TP	10/11/2011	1776086.08	1643591.66	6482.08	461.71
TS	TP	10/11/2011	1776092.08	1643601.04	6481.91	472.84
TS	TP	10/11/2011	1776098.74	1643609.97	6481.83	483.98
TS	TP	10/11/2011	1776103.54	1643617.88	6481.68	493.23
TS	TP	10/11/2011	1776105.40	1643629.21	6481.85	504.71
TS	TP	10/11/2011	1776105.58	1643638.35	6481.86	513.86
TS	TP	10/11/2011	1776098.07	1643649.74	6481.50	527.50
TS	TP	10/11/2011	1776099.60	1643655.84	6481.47	533.79
TS	TP	10/11/2011	1776097.07	1643660.94	6481.24	539.48
TS	TP	10/11/2011	1776096.82	1643669.42	6481.09	547.96

[a] UW = upstream willow reach. 1 = western; 6 = eastern.

[b] TS = Geodimeter 620 total station survey method.

[c] BM = benchmark

[d] dash = not applicable (benchmark; not a point on section)

[e] XS = cross-section point

[f] TP = thalweg point.

[g] MW = middle willow reach. 1 = western; 6 = eastern.

[h] LW = downstream willow reach. 1 = western; 6 = eastern.

[i] = calculated distance along sections, from south to north, are relative to original benchmarks. Refer to report LA-UR-11-0936, "Baseline Geomorphic Conditions at Sediment Transport Mitigation Sites in the Los Alamos and Pueblo Canyon Watersheds, Revision 1," for initial survey.

Pueblo Canyon Wing Ditch Survey Data

Site	Type of Survey	Purpose	Date Surveyed	Y	X	Z	Calculated Distance in Section or Profile (ft)[h]
Pueblo WD-1[a]	TS[b]	BM[c]	5/16/2011	1776015.21	1644706.05	6468.15	-[d]
	TS	BM	10/20/2011	1776088.48	1644694.98	6471.34	-
	GPS[f]	XS	11/10/2009	1775948.13	1644693.20	6467.99	0.00
	TS	XS	10/20/2011	1776088.44	1644695.05	6470.73	140.32
	TS	XS	10/20/2011	1776092.09	1644694.23	6470.74	143.97
	TS	XS	10/20/2011	1776100.36	1644692.99	6469.21	152.23
	TS	XS	10/20/2011	1776107.70	1644691.76	6468.15	159.57
	TS	XS	10/20/2011	1776110.81	1644691.37	6468.10	162.69
	TS	XS	10/20/2011	1776113.38	1644690.98	6466.91	165.27
	TS	XS	10/20/2011	1776114.24	1644690.85	6466.66	166.12
	TS	XS	10/20/2011	1776118.88	1644690.28	6467.50	170.78
	TS	XS	10/20/2011	1776121.72	1644689.66	6467.36	173.63
	TS	XS	10/20/2011	1776123.58	1644689.39	6466.61	175.49
	TS	XS	10/20/2011	1776125.50	1644689.00	6466.91	177.42
	TS	XS	10/20/2011	1776127.64	1644688.76	6467.35	179.56
	TS	XS	10/20/2011	1776131.11	1644688.44	6468.01	183.04
	TS	XS	10/20/2011	1776135.96	1644687.56	6468.00	187.92
	TS	XS	10/20/2011	1776146.06	1644686.04	6468.25	198.06
	TS	XS	10/20/2011	1776154.33	1644685.03	6469.49	206.36
	TS	XS	10/20/2011	1776159.28	1644683.99	6470.06	211.35
	TS	XS	10/20/2011	1776166.17	1644683.08	6470.04	218.27
	TS	XS	10/20/2011	1776171.30	1644682.19	6470.19	223.44
	TS	XS	10/20/2011	1776175.82	1644681.77	6470.18	227.98
	TS	XS	10/20/2011	1776178.01	1644681.29	6470.70	230.19
	TS	XS	10/20/2011	1776178.98	1644681.01	6470.46	231.17
	TS	XS	10/20/2011	1776180.63	1644680.89	6469.70	232.82
	TS	XS	10/20/2011	1776182.25	1644680.67	6469.30	234.45
	TS	XS	10/20/2011	1776184.99	1644680.01	6468.99	237.23
	TS	XS	10/20/2011	1776186.17	1644679.86	6467.93	238.42
	TS	XS	10/20/2011	1776189.35	1644679.38	6467.91	241.62
	TS	XS	10/20/2011	1776190.06	1644679.19	6467.60	242.33
	TS	XS	10/20/2011	1776190.69	1644679.07	6467.68	242.97
	TS	XS	10/20/2011	1776191.40	1644679.01	6467.65	243.69
	TS	XS	10/20/2011	1776193.42	1644678.48	6468.88	245.73
	TS	XS	10/20/2011	1776197.17	1644677.81	6469.43	249.51
	TS	XS	10/20/2011	1776201.21	1644677.12	6469.68	253.59
	TS	BM	10/20/2011	1776201.37	1644677.09	6470.24	-
Pueblo WD-2	TS	BM	5/16/2011	1775994.70	1644763.69	6468.32	-
	TS	BM	10/20/2011	1776097.42	1644781.21	6469.50	-
	GPS	XS	11/10/2009	1775907.27	1644748.56	6467.11	0
	TS	XS	10/20/2011	1776097.43	1644781.25	6468.98	192.95
	TS	XS	10/20/2011	1776101.15	1644781.81	6469.01	196.71
	TS	XS	10/20/2011	1776106.27	1644782.68	6468.11	201.90
	TS	XS	10/20/2011	1776112.83	1644783.86	6467.80	208.57
	TS	XS	10/20/2011	1776114.70	1644784.16	6467.45	210.46
	TS	XS	10/20/2011	1776118.85	1644784.97	6466.92	214.69
	TS	XS	10/20/2011	1776125.15	1644786.02	6466.79	221.07

	TS	XS	10/20/2011	1776126.49	1644786.24	6465.63	222.43
	TS	XS	10/20/2011	1776128.65	1644786.63	6465.30	224.63
	TS	XS	10/20/2011	1776129.40	1644786.81	6465.46	225.40
	TS	XS	10/20/2011	1776130.32	1644786.97	6466.22	226.33
	TS	XS	10/20/2011	1776131.19	1644787.19	6466.38	227.23
	TS	XS	10/20/2011	1776131.95	1644787.27	6466.17	227.99
	TS	XS	10/20/2011	1776134.23	1644787.76	6466.43	230.32
	TS	XS	10/20/2011	1776135.10	1644787.89	6466.60	231.20
	TS	XS	10/20/2011	1776136.01	1644788.01	6466.69	232.12
	TS	XS	10/20/2011	1776137.99	1644788.19	6466.85	234.10
	TS	XS	10/20/2011	1776139.79	1644788.62	6466.57	235.95
	TS	XS	10/20/2011	1776141.95	1644788.96	6466.99	238.13
	TS	XS	10/20/2011	1776145.41	1644789.63	6467.82	241.66
	TS	XS	10/20/2011	1776149.34	1644790.38	6467.95	245.65
	TS	XS	10/20/2011	1776158.17	1644792.00	6468.63	254.63
	TS	XS	10/20/2011	1776163.23	1644792.98	6468.83	259.79
	TS	XS	10/20/2011	1776166.88	1644793.56	6468.98	263.48
	TS	XS	10/20/2011	1776168.39	1644793.95	6468.12	265.04
	TS	XS	10/20/2011	1776170.85	1644794.37	6468.33	267.53
	TS	XS	10/20/2011	1776174.02	1644795.01	6468.01	270.77
	TS	XS	10/20/2011	1776176.28	1644795.37	6468.21	273.05
	TS	XS	10/20/2011	1776177.66	1644795.69	6467.95	274.46
	TS	XS	10/20/2011	1776181.50	1644796.39	6468.43	278.37
	TS	XS	10/20/2011	1776182.86	1644796.54	6468.24	279.73
	TS	XS	10/20/2011	1776185.80	1644797.04	6468.08	282.72
	TS	XS	10/20/2011	1776187.59	1644797.33	6467.42	284.53
	TS	XS	10/20/2011	1776187.99	1644797.50	6466.76	284.95
	TS	XS	10/20/2011	1776189.74	1644797.67	6466.64	286.70
	TS	XS	10/20/2011	1776190.90	1644797.90	6466.65	287.89
	TS	XS	10/20/2011	1776191.58	1644798.08	6467.07	288.59
	TS	XS	10/20/2011	1776193.57	1644798.51	6467.26	290.62
	TS	XS	10/20/2011	1776196.54	1644799.10	6467.97	293.65
	TS	XS	10/20/2011	1776200.64	1644799.76	6468.22	297.80
	TS	XS	10/20/2011	1776205.97	1644800.59	6468.45	303.20
	TS	XS	10/20/2011	1776208.20	1644801.01	6469.06	305.47
	TS	XS	10/20/2011	1776210.28	1644801.40	6469.55	307.58
Pueblo WD-3	TS	BM	5/16/2011	1775966.74	1644836.16	6465.29	-
	TS	BM	10/20/2011	1776063.26	1644865.72	6466.32	-
	GPS	XS	11/18/2009	1775888.01	1644812.14	6465.76	0.00
	TS	XS	10/20/2011	1776063.23	1644865.78	6465.59	183.24
	TS	XS	10/20/2011	1776068.48	1644867.12	6465.44	188.65
	TS	XS	10/20/2011	1776071.86	1644868.02	6465.43	192.15
	TS	XS	10/20/2011	1776074.08	1644868.74	6465.68	194.49
	TS	XS	10/20/2011	1776075.55	1644869.18	6465.62	196.01
	TS	XS	10/20/2011	1776081.93	1644871.07	6466.11	202.67
	TS	XS	10/20/2011	1776086.34	1644872.13	6466.35	207.20
	TS	XS	10/20/2011	1776088.92	1644872.84	6466.27	209.88
	TS	XS	10/20/2011	1776093.51	1644874.37	6466.27	214.71
	TS	XS	10/20/2011	1776097.59	1644875.48	6465.51	218.93
	TS	XS	10/20/2011	1776100.62	1644876.49	6465.83	222.13
	TS	XS	10/20/2011	1776103.77	1644877.33	6465.88	225.39
	TS	XS	10/20/2011	1776104.51	1644877.60	6464.60	226.18

	TS	XS	10/20/2011	1776105.64	1644877.95	6464.39	227.35
	TS	XS	10/20/2011	1776106.33	1644878.15	6464.93	228.07
	TS	XS	10/20/2011	1776106.82	1644878.25	6464.66	228.57
	TS	XS	10/20/2011	1776107.80	1644878.48	6464.60	229.57
	TS	XS	10/20/2011	1776108.09	1644878.65	6463.71	229.90
	TS	XS	10/20/2011	1776108.34	1644878.82	6463.58	230.19
	TS	XS	10/20/2011	1776108.80	1644878.97	6463.64	230.67
	TS	XS	10/20/2011	1776110.70	1644879.43	6465.28	232.63
	TS	XS	10/20/2011	1776113.67	1644880.34	6465.73	235.73
	TS	XS	10/20/2011	1776115.03	1644880.76	6465.50	237.16
	TS	XS	10/20/2011	1776121.09	1644882.52	6465.81	243.46
	TS	XS	10/20/2011	1776124.99	1644883.58	6465.96	247.50
	TS	XS	10/20/2011	1776128.24	1644884.44	6466.30	250.87
	TS	XS	10/20/2011	1776132.54	1644885.53	6466.40	255.30
	TS	XS	10/20/2011	1776139.76	1644887.82	6466.60	262.87
	TS	XS	10/20/2011	1776144.32	1644889.30	6466.81	267.67
	TS	XS	10/20/2011	1776146.01	1644889.74	6467.18	269.41
	TS	XS	10/20/2011	1776148.92	1644890.54	6466.49	272.43
	TS	XS	10/20/2011	1776151.67	1644891.40	6466.11	275.31
	TS	XS	10/20/2011	1776152.27	1644891.66	6465.50	275.96
	TS	XS	10/20/2011	1776152.95	1644891.90	6465.89	276.68
	TS	XS	10/20/2011	1776154.34	1644892.23	6466.08	278.11
	TS	XS	10/20/2011	1776155.47	1644892.46	6465.64	279.26
	TS	XS	10/20/2011	1776157.98	1644893.39	6466.49	281.93
	TS	XS	10/20/2011	1776161.56	1644894.47	6466.92	285.67
	TS	XS	10/20/2011	1776165.00	1644895.63	6466.96	289.30
	TS	XS	10/20/2011	1776170.06	1644897.09	6466.72	294.56
	TS	XS	10/20/2011	1776172.92	1644897.86	6466.82	297.52
	TS	XS	10/20/2011	1776175.26	1644898.58	6466.78	299.96
	TS	BM	10/20/2011	1776175.30	1644898.53	6467.66	-
Pueblo WD-4	GPS	XS	11/18/2009	1775857.36	1644867.56	6464.30	0
	TS	XS	10/20/2011	1775924.38	1644900.50	6464.16	74.68
	TS	XS	10/20/2011	1775926.82	1644901.55	6463.64	77.33
	TS	XS	10/20/2011	1775932.51	1644904.23	6463.45	83.62
	TS	XS	10/20/2011	1775940.26	1644908.65	6463.39	92.52
	TS	XS	10/20/2011	1775947.83	1644912.38	6463.73	100.96
	TS	XS	10/20/2011	1775959.29	1644918.22	6463.64	113.83
	TS	XS	10/20/2011	1775965.21	1644921.17	6463.73	120.44
	TS	XS	10/20/2011	1775978.29	1644927.98	6464.14	135.18
	TS	XS	10/20/2011	1775992.97	1644934.59	6464.22	151.27
	TS	XS	10/20/2011	1776000.30	1644938.30	6464.24	159.49
	TS	XS	10/20/2011	1776012.72	1644944.29	6464.17	173.28
	TS	XS	10/20/2011	1776021.91	1644948.71	6464.36	183.47
	TS	XS	10/20/2011	1776023.68	1644949.45	6464.17	185.39
	TS	XS	10/20/2011	1776029.86	1644952.48	6463.44	192.27
	TS	XS	10/20/2011	1776032.04	1644953.63	6463.63	194.73
	TS	XS	10/20/2011	1776033.41	1644954.38	6464.46	196.30
	TS	XS	10/20/2011	1776037.47	1644956.63	6464.74	200.93
	TS	XS	10/20/2011	1776040.94	1644958.07	6464.60	204.68
	TS	XS	10/20/2011	1776049.60	1644962.33	6464.61	214.33
	TS	XS	10/20/2011	1776060.28	1644967.34	6464.65	226.13
	TS	XS	10/20/2011	1776063.01	1644968.84	6464.45	229.24

	TS	XS	10/20/2011	1776066.31	1644970.43	6465.41	232.90
	TS	XS	10/20/2011	1776069.14	1644972.14	6464.56	236.19
	TS	XS	10/20/2011	1776077.19	1644975.79	6464.83	245.03
	TS	XS	10/20/2011	1776083.25	1644978.76	6464.30	251.78
	TS	XS	10/20/2011	1776086.62	1644980.56	6465.58	255.59
	TS	XS	10/20/2011	1776090.83	1644982.93	6465.14	260.42
	TS	XS	10/20/2011	1776097.86	1644986.36	6464.61	268.24
	TS	XS	10/20/2011	1776104.99	1644989.96	6464.97	276.23
	TS	XS	10/20/2011	1776114.69	1644994.87	6465.37	287.10
	TS	XS	10/20/2011	1776123.29	1644999.14	6465.62	296.70
	TS	XS	10/20/2011	1776125.25	1645000.20	6465.01	298.93
	TS	XS	10/20/2011	1776126.49	1645000.87	6464.47	300.33
	TS	XS	10/20/2011	1776128.92	1645001.90	6465.03	302.97
	TS	XS	10/20/2011	1776131.65	1645003.63	6465.87	306.19
	TS	XS	10/20/2011	1776134.31	1645004.97	6467.36	309.17
Pueblo WD-5	GPS	XS	11/18/2019	1775829.80	1644932.14	6462.98	0
	TS	XS	10/20/2011	1775881.69	1644965.34	6462.28	61.60
	TS	XS	10/20/2011	1775893.68	1644972.85	6462.55	75.75
	TS	XS	10/20/2011	1775904.18	1644979.31	6462.33	88.07
	TS	XS	10/20/2011	1775910.21	1644983.11	6462.97	95.21
	TS	XS	10/20/2011	1775913.40	1644985.24	6462.47	99.04
	TS	XS	10/20/2011	1775914.13	1644985.79	6462.00	99.95
	TS	XS	10/20/2011	1775915.37	1644986.67	6461.87	101.47
	TS	XS	10/20/2011	1775916.39	1644987.33	6462.34	102.68
	TS	XS	10/20/2011	1775918.23	1644988.61	6462.85	104.92
	TS	XS	10/20/2011	1775924.02	1644992.09	6462.65	111.68
	TS	XS	10/20/2011	1775937.40	1645000.62	6462.56	127.54
	TS	XS	10/20/2011	1775938.77	1645001.62	6461.83	129.24
	TS	XS	10/20/2011	1775942.46	1645003.64	6462.33	133.44
	TS	XS	10/20/2011	1775953.94	1645010.96	6462.38	147.05
	TS	XS	10/20/2011	1775960.25	1645015.13	6462.49	154.61
	TS	XS	10/20/2011	1775962.12	1645016.33	6462.24	156.83
	TS	XS	10/20/2011	1775972.15	1645022.24	6462.40	168.47
	TS	XS	10/20/2011	1775985.97	1645031.09	6462.86	184.88
	TS	XS	10/20/2011	1776000.87	1645039.96	6463.24	202.22
	TS	XS	10/20/2011	1776013.79	1645048.15	6463.60	217.51
	TS	XS	10/20/2011	1776024.63	1645054.95	6464.19	230.31
	TS	XS	10/20/2011	1776036.29	1645062.25	6464.20	244.07
	TS	XS	10/20/2011	1776044.26	1645067.61	6463.82	253.67
	TS	XS	10/20/2011	1776048.96	1645070.70	6463.72	259.29
	TS	XS	10/20/2011	1776051.56	1645072.13	6463.94	262.25
	TS	XS	10/20/2011	1776053.89	1645073.45	6464.35	264.92
	TS	XS	10/20/2011	1776059.87	1645077.45	6465.42	272.12
	TS	XS	10/20/2011	1776068.27	1645083.00	6466.15	282.18
Pueblo WD Abandoned Channel Thalweg Profile	TS	TP[g]	10/20/2011	1776097.40	1644559.28	6467.23	0
	TS	TP	10/20/2011	1776075.26	1644549.95	6468.19	24.03
	TS	TP	10/20/2011	1776086.08	1644560.05	6467.34	38.83
	TS	TP	10/20/2011	1776096.15	1644567.24	6467.27	51.20
	TS	TP	10/20/2011	1776094.15	1644575.38	6467.47	59.58
	TS	TP	10/20/2011	1776094.38	1644582.16	6467.90	66.37
	TS	TP	10/20/2011	1776093.62	1644592.57	6467.67	76.81
	TS	TP	10/20/2011	1776088.20	1644603.01	6467.81	88.57

	TS	TP	10/20/2011	1776087.71	1644616.40	6467.51	101.97
	TS	TP	10/20/2011	1776094.78	1644628.22	6467.46	115.74
	TS	TP	10/20/2011	1776099.50	1644640.76	6467.23	129.14
	TS	TP	10/20/2011	1776112.00	1644657.18	6467.16	149.78
	TS	TP	10/20/2011	1776118.70	1644674.80	6466.98	168.63
	TS	TP	10/20/2011	1776124.30	1644689.19	6466.50	184.07
	TS	TP	10/20/2011	1776131.27	1644698.28	6465.72	195.52
	TS	TP	10/20/2011	1776135.89	1644714.78	6466.42	212.66
	TS	TP	10/20/2011	1776135.12	1644733.05	6465.57	230.94
	TS	TP	10/20/2011	1776137.02	1644747.19	6465.43	245.21
	TS	TP	10/20/2011	1776135.93	1644757.52	6465.74	255.60
	TS	TP	10/20/2011	1776135.86	1644767.34	6465.50	265.42
	TS	TP	10/20/2011	1776130.86	1644774.39	6465.52	274.06
	TS	TP	10/20/2011	1776128.69	1644786.59	6465.12	286.46
	TS	TP	10/20/2011	1776124.93	1644802.87	6465.20	303.17
	TS	TP	10/20/2011	1776125.35	1644815.59	6464.76	315.89
	TS	TP	10/20/2011	1776123.50	1644828.34	6464.88	328.77
	TS	TP	10/20/2011	1776120.87	1644841.53	6464.95	342.23
	TS	TP	10/20/2011	1776118.40	1644853.34	6464.64	354.29
	TS	TP	10/20/2011	1776114.51	1644865.53	6464.81	367.08
	TS	TP	10/20/2011	1776108.38	1644878.83	6463.70	381.73
	TS	TP	10/20/2011	1776101.30	1644889.08	6464.51	394.19
	TS	TP	10/20/2011	1776096.13	1644895.44	6464.44	402.39
	TS	TP	10/20/2011	1776086.34	1644900.32	6463.60	413.33
	TS	TP	10/20/2011	1776079.82	1644903.52	6463.58	420.59
	TS	TP	10/20/2011	1776071.50	1644911.56	6464.08	432.16
	TS	TP	10/20/2011	1776071.06	1644920.48	6462.46	441.08
	TS	TP	10/20/2011	1776070.69	1644928.18	6463.46	448.79
	TS	TP	10/20/2011	1776069.50	1644936.18	6464.20	456.88
	TS	TP	10/20/2011	1776065.85	1644940.70	6464.11	462.69
	TS	TP	10/20/2011	1776061.29	1644944.94	6463.94	468.92
	TS	TP	10/20/2011	1776053.00	1644946.08	6464.22	477.28
	TS	TP	10/20/2011	1776048.54	1644948.33	6463.37	482.28
	TS	TP	10/20/2011	1776037.98	1644950.09	6464.08	492.98
	TS	TP	10/20/2011	1776029.48	1644952.69	6463.70	501.87
	TS	TP	10/20/2011	1776019.59	1644951.70	6463.56	511.81
	TS	TP	10/20/2011	1776001.98	1644956.44	6463.55	530.05
	TS	TP	10/20/2011	1775985.34	1644961.66	6463.62	547.49
	TS	TP	10/20/2011	1775970.59	1644965.78	6463.03	562.80
	TS	TP	10/20/2011	1775955.59	1644973.51	6462.46	579.67
	TS	TP	10/20/2011	1775943.86	1644973.62	6462.84	591.40
	TS	TP	10/20/2011	1775929.06	1644976.29	6461.93	606.44
	TS	TP	10/20/2011	1775915.35	1644986.57	6461.99	623.58
Pueblo WD Active Channel Thalweg Profile	TS	TP	11/18/2009	1776131.36	1644458.05	6469.57	0
	TS	TP	10/20/2011	1776130.75	1644455.84	6469.45	2.29
	TS	TP	10/20/2011	1776133.90	1644468.74	6469.15	15.58
	TS	TP	10/20/2011	1776134.30	1644479.26	6468.96	26.10
	TS	TP	10/20/2011	1776137.45	1644490.03	6468.70	37.32
	TS	TP	10/20/2011	1776141.50	1644510.71	6468.64	58.39
	TS	TP	10/20/2011	1776147.39	1644521.19	6468.03	70.41
	TS	TP	10/20/2011	1776146.41	1644529.82	6468.21	79.10
	TS	TP	10/20/2011	1776150.19	1644540.51	6467.89	90.44

TS	TP	10/20/2011	1776150.12	1644550.89	6468.27	100.83
TS	TP	10/20/2011	1776150.92	1644562.30	6468.37	112.26
TS	TP	10/20/2011	1776159.26	1644570.57	6467.64	124.01
TS	TP	10/20/2011	1776163.44	1644577.23	6468.14	131.88
TS	TP	10/20/2011	1776161.91	1644589.43	6468.22	144.17
TS	TP	10/20/2011	1776166.24	1644602.31	6467.96	157.76
TS	TP	10/20/2011	1776168.10	1644609.44	6467.85	165.12
TS	TP	10/20/2011	1776173.08	1644613.21	6467.98	171.37
TS	TP	10/20/2011	1776172.43	1644624.28	6467.92	182.46
TS	TP	10/20/2011	1776176.31	1644632.23	6467.86	191.31
TS	TP	10/20/2011	1776179.89	1644639.44	6467.78	199.36
TS	TP	10/20/2011	1776181.45	1644657.38	6467.52	217.37
TS	TP	10/20/2011	1776185.16	1644668.67	6467.74	229.25
TS	TP	10/20/2011	1776190.63	1644678.76	6467.29	240.73
TS	TP	10/20/2011	1776192.42	1644690.91	6467.29	253.01
TS	TP	10/20/2011	1776187.24	1644704.39	6466.74	267.45
TS	TP	10/20/2011	1776184.32	1644716.92	6467.17	280.31
TS	TP	10/20/2011	1776183.24	1644723.19	6467.13	286.67
TS	TP	10/20/2011	1776188.76	1644727.11	6466.73	293.45
TS	TP	10/20/2011	1776189.46	1644736.13	6466.76	302.50
TS	TP	10/20/2011	1776195.00	1644744.57	6467.00	312.59
TS	TP	10/20/2011	1776197.38	1644753.30	6466.82	321.64
TS	TP	10/20/2011	1776192.22	1644765.80	6467.43	335.16
TS	TP	10/20/2011	1776189.45	1644777.24	6466.89	346.93
TS	TP	10/20/2011	1776190.87	1644787.93	6466.46	357.71
TS	TP	10/20/2011	1776190.92	1644797.98	6466.48	367.77
TS	TP	10/20/2011	1776185.87	1644807.96	6466.21	378.96
TS	TP	10/20/2011	1776182.53	1644818.20	6466.67	389.73
TS	TP	10/20/2011	1776175.64	1644833.44	6466.21	406.45
TS	TP	10/20/2011	1776166.79	1644843.58	6466.32	419.91
TS	TP	10/20/2011	1776157.45	1644852.91	6466.20	433.10
TS	TP	10/20/2011	1776155.86	1644870.42	6466.05	450.69
TS	TP	10/20/2011	1776156.59	1644883.19	6465.75	463.48
TS	TP	10/20/2011	1776152.95	1644892.01	6465.88	473.02
TS	TP	10/20/2011	1776150.41	1644904.26	6465.87	485.54
TS	TP	10/20/2011	1776144.47	1644914.71	6466.03	497.56
TS	TP	10/20/2011	1776136.66	1644926.07	6465.68	511.34
TS	TP	10/20/2011	1776138.90	1644931.60	6465.68	517.31
TS	TP	10/20/2011	1776145.76	1644939.53	6465.42	527.80
TS	TP	10/20/2011	1776146.54	1644951.24	6465.83	539.54
TS	TP	10/20/2011	1776144.44	1644965.36	6464.88	553.81
TS	TP	10/20/2011	1776134.85	1644971.91	6464.44	565.42
TS	TP	10/20/2011	1776133.54	1644984.11	6464.74	577.69
TS	TP	10/20/2011	1776130.24	1644992.89	6464.18	587.07
TS	TP	10/20/2011	1776126.69	1645001.03	6464.74	595.95
TS	TP	10/20/2011	1776117.22	1645007.76	6464.79	607.57
TS	TP	10/20/2011	1776104.29	1645011.62	6463.69	621.06
TS	TP	10/20/2011	1776096.30	1645010.05	6464.15	629.20
TS	TP	10/20/2011	1776088.95	1645015.93	6464.09	638.62
TS	TP	10/20/2011	1776085.05	1645027.30	6464.43	650.64
TS	TP	10/20/2011	1776067.96	1645026.65	6464.74	667.74
TS	TP	10/20/2011	1776055.28	1645033.73	6464.56	682.27

	TS	TP	10/20/2011	1776046.21	1645050.63	6464.14	701.45
	TS	TP	10/20/2011	1776048.84	1645071.12	6463.58	722.10
Pueblo WD thalweg, south fork of north channel	GPS	TP	1/26/2012	1776094.463	1645007.641	6465.558	448.37
	GPS	TP	1/26/2012	1776089.313	1645003.763	6465.426	454.82
	GPS	TP	1/26/2012	1776086.226	1645004.118	6465.381	457.92
	GPS	TP	1/26/2012	1776084.85	1644998.511	6465.454	463.70
	GPS	TP	1/26/2012	1776072.472	1645002.132	6464.474	476.59
	GPS	TP	1/26/2012	1776065.815	1645004.475	6463.905	483.65
	GPS	TP	1/26/2012	1776058.723	1645008.085	6464.17	491.61
	GPS	TP	1/26/2012	1776049.976	1645010.404	6463.861	500.66
	GPS	TP	1/26/2012	1776047.725	1645006.327	6464.091	505.32
	GPS	TP	1/26/2012	1776041.605	1645007.666	6463.848	511.58
	GPS	TP	1/26/2012	1776036.019	1645012.486	6463.776	518.96
	GPS	TP	1/26/2012	1776028.853	1645015.51	6463.462	526.74
	GPS	TP	1/26/2012	1776019.461	1645020.396	6463.427	537.32
	GPS	TP	1/26/2012	1776010.87	1645020.049	6463.072	545.92
	GPS	TP	1/26/2012	1776002.347	1645023.17	6462.992	555.00
	GPS	TP	1/26/2012	1775994.433	1645024.244	6462.592	562.99
	GPS	TP	1/26/2012	1775988.512	1645023.755	6462.279	568.93
	GPS	TP	1/26/2012	1775982.074	1645024.925	6462.874	575.47
	GPS	TP	1/26/2012	1775974.136	1645026.186	6462.756	583.51

[a] WD = wing ditch. 1 = westernmost cross-section; 5 = easternmost cross-section.

[b] TS = Geodimeter 620 Total Station survey method.

[c] BM = benchmark

[d] dash = not applicable (benchmark; not a point on section)

[e] XS = cross-section point

[f] GPS = Trimble 5700 global positioning system (GPS) survey method

[g] TP = thalweg point

[h] = calculated distance along sections, from south to north, are relative to original benchmarks. Refer to report LA-UR-11-0936, "Baseline Geomorphic Conditions at Sediment Transport Mitigation Sites in the Los Alamos and Pueblo Canyon Watersheds, Revision 1," for initial survey.

Lower Pueblo Canyon Willow Area Survey Data

Site	Type of Survey	Purpose	Date Surveyed	Y	X	Z	Calculated Distance in Section or Profile (ft) [g]
Pueblo Lower Willows -1100 ft[a]	GPS[b]	BM[c]	11/7/2011	1774998.949	1646271.225	6435.961	-
	GPS	XS[e]	9/17/2009	1774966.303	1646253.815	6436.196	0
	GPS	XS	11/7/2011	1774999.08	1646271.26	6435.32	37.13
	GPS	XS	11/7/2011	1775006.23	1646274.75	6435.15	45.08
	GPS	XS	11/7/2011	1775010.28	1646276.71	6435.17	49.58
	GPS	XS	11/7/2011	1775027.53	1646285.04	6434.91	68.73
	GPS	XS	11/7/2011	1775029.33	1646285.94	6434.63	70.75
	GPS	XS	11/7/2011	1775034.10	1646288.08	6434.64	75.96
	GPS	XS	11/7/2011	1775038.42	1646290.14	6434.66	80.75
	GPS	XS	11/7/2011	1775043.04	1646292.31	6434.52	85.85
	GPS	XS	11/7/2011	1775044.35	1646292.91	6434.73	87.29
	GPS	XS	11/7/2011	1775047.30	1646294.41	6434.54	90.60
	GPS	XS	11/7/2011	1775049.56	1646295.52	6434.55	93.11
	GPS	XS	11/7/2011	1775050.18	1646295.89	6434.70	93.83
	GPS	XS	11/7/2011	1775052.07	1646296.94	6434.56	96.00
	GPS	XS	11/7/2011	1775057.23	1646299.19	6434.75	101.62
	GPS	XS	11/7/2011	1775059.68	1646300.51	6434.77	104.40
	GPS	XS	11/7/2011	1775062.99	1646302.31	6434.47	108.17
	GPS	XS	11/7/2011	1775063.94	1646302.78	6434.71	109.23
	GPS	XS	11/7/2011	1775070.05	1646305.57	6434.27	115.94
	GPS	XS	11/7/2011	1775072.89	1646306.93	6434.53	119.09
	GPS	XS	11/7/2011	1775074.30	1646307.55	6434.09	120.62
	GPS	XS	11/7/2011	1775075.41	1646308.27	6434.12	121.94
	GPS	XS	11/7/2011	1775080.91	1646310.93	6434.30	128.05
	GPS	XS	11/7/2011	1775084.27	1646312.56	6434.48	131.78
	GPS	XS	11/7/2011	1775086.26	1646313.39	6434.22	133.94
	GPS	XS	11/7/2011	1775089.26	1646314.79	6434.71	137.24
	GPS	XS	11/7/2011	1775090.53	1646315.45	6434.62	138.67
	GPS	XS	11/7/2011	1775093.07	1646316.54	6434.51	141.44
	GPS	XS	11/7/2011	1775095.04	1646317.41	6434.10	143.59
	GPS	XS	11/7/2011	1775095.82	1646317.64	6433.44	144.38
	GPS	XS	11/7/2011	1775098.40	1646318.95	6433.03	147.28
	GPS	XS	11/7/2011	1775099.37	1646319.16	6433.20	148.25
	GPS	XS	11/7/2011	1775099.84	1646319.39	6433.46	148.77
	GPS	XS	11/7/2011	1775102.93	1646320.93	6434.04	152.23
	GPS	XS	11/7/2011	1775107.92	1646323.05	6435.04	157.64
	GPS	XS	11/7/2011	1775113.41	1646325.70	6438.18	163.73
	GPS	BM	11/7/2011	1775113.55	1646325.83	6439.13	-
Pueblo Lower Willows -1000 ft	GPS	BM	11/7/2011	1774985.96	1646379.94	6433.70	-
	GPS	XS	9/17/2009	1774896.21	1646332.08	6435.13	0.00
	GPS	XS	11/7/2011	1774986.06	1646379.90	6433.18	101.79
	GPS	XS	11/7/2011	1774990.06	1646382.32	6433.05	106.45
	GPS	XS	11/7/2011	1775000.91	1646388.19	6433.15	118.80
	GPS	XS	11/7/2011	1775002.86	1646389.36	6433.37	121.06
	GPS	XS	11/7/2011	1775004.94	1646390.38	6432.62	123.38
	GPS	XS	11/7/2011	1775006.84	1646391.60	6432.47	125.63
	GPS	XS	11/7/2011	1775009.91	1646393.07	6432.56	129.03
	GPS	XS	11/7/2011	1775012.33	1646394.52	6432.63	131.85
	GPS	XS	11/7/2011	1775012.92	1646394.86	6432.65	132.53
	GPS	XS	11/7/2011	1775015.19	1646396.06	6432.68	135.09

	GPS	XS	11/7/2011	1775015.95	1646396.49	6432.32	135.97
	GPS	XS	11/7/2011	1775016.56	1646396.95	6432.35	136.73
	GPS	XS	11/7/2011	1775017.16	1646397.19	6432.40	137.37
	GPS	XS	11/7/2011	1775017.38	1646397.37	6432.50	137.65
	GPS	XS	11/7/2011	1775019.82	1646398.68	6432.91	140.42
	GPS	XS	11/7/2011	1775020.59	1646399.20	6432.69	141.34
	GPS	XS	11/7/2011	1775021.73	1646399.73	6432.69	142.60
	GPS	XS	11/7/2011	1775022.42	1646400.13	6432.73	143.39
	GPS	XS	11/7/2011	1775027.04	1646402.78	6432.57	148.72
	GPS	XS	11/7/2011	1775029.01	1646403.81	6432.79	150.94
	GPS	XS	11/7/2011	1775033.90	1646406.45	6432.82	156.49
	GPS	XS	11/7/2011	1775037.92	1646408.73	6432.94	161.12
	GPS	XS	11/7/2011	1775043.25	1646411.74	6433.27	167.23
	GPS	XS	11/7/2011	1775046.40	1646413.21	6432.95	170.71
	GPS	XS	11/7/2011	1775047.02	1646413.55	6432.73	171.42
	GPS	XS	11/7/2011	1775051.45	1646415.99	6432.15	176.47
	GPS	XS	11/7/2011	1775051.91	1646416.40	6431.29	177.08
	GPS	XS	11/7/2011	1775053.23	1646417.01	6431.01	178.52
	GPS	XS	11/7/2011	1775053.95	1646417.35	6431.53	179.32
	GPS	XS	11/7/2011	1775055.32	1646417.94	6431.88	180.80
	GPS	XS	11/7/2011	1775056.47	1646418.73	6432.50	182.19
	GPS	XS	11/7/2011	1775058.02	1646419.79	6433.06	184.06
	GPS	XS	11/7/2011	1775061.86	1646421.64	6433.15	188.31
	GPS	XS	11/7/2011	1775064.33	1646423.00	6433.35	191.13
	GPS	XS	11/7/2011	1775065.01	1646423.43	6433.49	191.94
	GPS	XS	11/7/2011	1775068.65	1646425.66	6434.05	196.20
	GPS	XS	11/7/2011	1775070.97	1646426.73	6434.78	198.75
	GPS	BM	11/7/2011	1775071.12	1646426.85	6435.60	-
Pueblo Lower Willows -900 ft	GPS	BM	11/7/2011	1774914.94	1646450.03	6432.85	-
	GPS	XS	9/17/2009	1774815.42	1646397.42	6433.99	0
	GPS	XS	11/7/2011	1774915.06	1646450.05	6432.14	112.68
	GPS	XS	11/7/2011	1774922.34	1646455.42	6432.01	121.64
	GPS	XS	11/7/2011	1774923.61	1646456.30	6431.81	123.17
	GPS	XS	11/7/2011	1774926.67	1646458.49	6431.68	126.91
	GPS	XS	11/7/2011	1774927.41	1646459.13	6431.41	127.87
	GPS	XS	11/7/2011	1774927.77	1646459.39	6431.27	128.31
	GPS	XS	11/7/2011	1774932.02	1646462.51	6431.54	133.54
	GPS	XS	11/7/2011	1774934.38	1646464.25	6431.45	136.45
	GPS	XS	11/7/2011	1774936.46	1646465.80	6431.46	139.02
	GPS	XS	11/7/2011	1774939.19	1646467.71	6431.74	142.34
	GPS	XS	11/7/2011	1774941.24	1646469.22	6431.89	144.87
	GPS	XS	11/7/2011	1774942.51	1646470.32	6431.56	146.51
	GPS	XS	11/7/2011	1774943.46	1646470.99	6431.45	147.67
	GPS	XS	11/7/2011	1774944.48	1646471.83	6431.50	148.98
	GPS	XS	11/7/2011	1774945.35	1646472.34	6431.25	149.98
	GPS	XS	11/7/2011	1774947.10	1646473.66	6431.27	152.16
	GPS	XS	11/7/2011	1774948.82	1646474.87	6431.65	154.26
	GPS	XS	11/7/2011	1774953.83	1646478.53	6431.44	160.43
	GPS	XS	11/7/2011	1774957.56	1646481.24	6431.31	165.01
	GPS	XS	11/7/2011	1774957.57	1646481.25	6431.27	165.03
	GPS	XS	11/7/2011	1774959.07	1646482.33	6431.45	166.87
	GPS	XS	11/7/2011	1774962.23	1646484.77	6431.25	170.84
	GPS	XS	11/7/2011	1774964.28	1646485.99	6431.02	173.22
	GPS	XS	11/7/2011	1774964.69	1646486.32	6429.77	173.74
	GPS	XS	11/7/2011	1774965.52	1646486.91	6429.43	174.75

	GPS	XS	11/7/2011	1774966.38	1646487.57	6429.75	175.83
	GPS	XS	11/7/2011	1774966.68	1646487.86	6430.25	176.23
	GPS	XS	11/7/2011	1774967.52	1646488.48	6431.05	177.28
	GPS	XS	11/7/2011	1774969.82	1646490.21	6431.24	180.14
	GPS	XS	11/7/2011	1774973.53	1646492.82	6431.39	184.67
	GPS	XS	11/7/2011	1774976.43	1646495.10	6431.62	188.33
	GPS	XS	11/7/2011	1774980.43	1646497.90	6431.68	193.20
	GPS	XS	11/7/2011	1774984.63	1646501.01	6431.69	198.40
	GPS	XS	11/7/2011	1774988.49	1646504.13	6431.69	203.32
	GPS	XS	11/7/2011	1774993.40	1646507.65	6431.78	209.35
	GPS	XS	11/7/2011	1774997.46	1646510.79	6431.80	214.46
	GPS	XS	11/7/2011	1775000.92	1646513.51	6431.91	218.83
	GPS	XS	11/7/2011	1775003.81	1646515.48	6431.46	222.33
	GPS	XS	11/7/2011	1775005.89	1646517.44	6431.86	225.13
	GPS	XS	11/7/2011	1775009.74	1646519.89	6431.89	229.69
	GPS	XS	11/7/2011	1775011.64	1646521.28	6431.75	232.05
	GPS	XS	11/7/2011	1775012.73	1646522.01	6432.13	233.36
	GPS	XS	11/7/2011	1775015.98	1646524.24	6431.99	237.30
	GPS	XS	11/7/2011	1775018.24	1646525.76	6432.05	240.02
	GPS	BM	11/7/2011	1775018.20	1646525.81	6433.22	-
Pueblo Lower Willows -800 ft	GPS	BM	11/7/2011	1774867.67	1646547.90	6430.60	-
	GPS	XS	9/17/2009	1774745.34	1646475.64	6432.96	0
	GPS	XS	11/7/2011	1774867.78	1646548.05	6430.11	142.25
	GPS	XS	11/7/2011	1774872.21	1646550.32	6430.34	147.22
	GPS	XS	11/7/2011	1774874.22	1646551.40	6430.27	149.49
	GPS	XS	11/7/2011	1774875.69	1646552.29	6430.67	151.22
	GPS	XS	11/7/2011	1774878.50	1646553.78	6430.70	154.40
	GPS	XS	11/7/2011	1774879.64	1646554.44	6430.49	155.71
	GPS	XS	11/7/2011	1774882.47	1646555.92	6430.46	158.90
	GPS	XS	11/7/2011	1774886.70	1646558.22	6430.50	163.72
	GPS	XS	11/7/2011	1774891.41	1646560.82	6430.55	169.09
	GPS	XS	11/7/2011	1774896.75	1646563.62	6430.28	175.12
	GPS	XS	11/7/2011	1774897.42	1646564.07	6430.24	175.92
	GPS	XS	11/7/2011	1774898.72	1646564.76	6429.76	177.40
	GPS	XS	11/7/2011	1774901.29	1646566.06	6430.22	180.27
	GPS	XS	11/7/2011	1774902.77	1646566.92	6430.06	181.98
	GPS	XS	11/7/2011	1774904.80	1646568.10	6429.83	184.32
	GPS	XS	11/7/2011	1774905.41	1646568.48	6428.22	185.04
	GPS	XS	11/7/2011	1774906.00	1646568.96	6429.88	185.79
	GPS	XS	11/7/2011	1774906.90	1646569.41	6429.76	186.80
	GPS	XS	11/7/2011	1774907.86	1646569.95	6427.63	187.90
	GPS	XS	11/7/2011	1774908.67	1646570.17	6427.50	188.71
	GPS	XS	11/7/2011	1774909.67	1646570.91	6427.71	189.95
	GPS	XS	11/7/2011	1774910.59	1646571.02	6428.68	190.80
	GPS	XS	11/7/2011	1774911.84	1646571.83	6430.00	192.28
	GPS	XS	11/7/2011	1774913.12	1646572.67	6430.01	193.82
	GPS	XS	11/7/2011	1774914.64	1646573.32	6429.72	195.46
	GPS	XS	11/7/2011	1774917.55	1646574.92	6429.66	198.78
	GPS	XS	11/7/2011	1774919.61	1646576.16	6430.00	201.18
	GPS	XS	11/7/2011	1774923.78	1646578.38	6429.91	205.91
	GPS	XS	11/7/2011	1774925.00	1646579.03	6429.81	207.29
	GPS	XS	11/7/2011	1774925.92	1646579.56	6430.04	208.35
	GPS	XS	11/7/2011	1774930.11	1646581.88	6429.81	213.13
	GPS	XS	11/7/2011	1774933.93	1646583.73	6430.12	217.37
	GPS	XS	11/7/2011	1774937.64	1646585.84	6429.98	221.64

	GPS	XS	11/7/2011	1774940.04	1646587.21	6430.19	224.40
	GPS	XS	11/7/2011	1774942.85	1646588.78	6430.09	227.62
	GPS	XS	11/7/2011	1774947.23	1646591.04	6430.29	232.54
	GPS	XS	11/7/2011	1774948.58	1646591.86	6430.21	234.12
	GPS	XS	11/7/2011	1774949.88	1646592.71	6429.95	235.67
	GPS	XS	11/7/2011	1774952.05	1646593.78	6430.23	238.09
	GPS	XS	11/7/2011	1774956.78	1646596.24	6430.39	243.41
	GPS	XS	11/7/2011	1774959.66	1646597.87	6430.32	246.72
	GPS	XS	11/7/2011	1774960.32	1646598.27	6430.19	247.50
	GPS	XS	11/7/2011	1774961.26	1646598.71	6430.31	248.53
	GPS	XS	11/7/2011	1774963.33	1646599.93	6430.04	250.94
	GPS	XS	11/7/2011	1774965.72	1646601.21	6430.20	253.64
	GPS	XS	11/7/2011	1774967.30	1646602.13	6430.32	255.48
	GPS	XS	11/7/2011	1774970.02	1646603.67	6430.39	258.60
	GPS	XS	11/7/2011	1774970.61	1646604.02	6430.03	259.28
	GPS	XS	11/7/2011	1774971.75	1646604.61	6430.08	260.57
	GPS	XS	11/7/2011	1774972.24	1646604.91	6430.36	261.14
	GPS	XS	11/7/2011	1774976.03	1646606.90	6430.58	265.42
	GPS	XS	11/7/2011	1774979.41	1646608.63	6430.71	269.21
	GPS	BM	11/7/2011	1774979.50	1646608.73	6431.25	-
Pueblo Lower Willows -700 ft	GPS	BM	11/7/2011	1774796.41	1646620.42	6431.37	-
	GPS	BM	11/7/2011	1774824.39	1646636.03	6429.58	-
	GPS	XS	9/15/2009	1774730.70	1646572.53	6430.29	0
	GPS	XS	11/7/2011	1774824.57	1646636.06	6428.94	113.35
	GPS	XS	11/7/2011	1774830.40	1646639.30	6428.96	119.99
	GPS	XS	11/7/2011	1774831.47	1646639.95	6429.02	121.24
	GPS	XS	11/7/2011	1774832.92	1646640.83	6428.78	122.94
	GPS	XS	11/7/2011	1774834.43	1646641.59	6428.96	124.62
	GPS	XS	11/7/2011	1774837.27	1646643.20	6428.77	127.87
	GPS	XS	11/7/2011	1774840.63	1646645.02	6428.88	131.68
	GPS	XS	11/7/2011	1774842.41	1646646.10	6428.71	133.76
	GPS	XS	11/7/2011	1774848.94	1646649.67	6429.02	141.18
	GPS	XS	11/7/2011	1774852.51	1646651.63	6428.97	145.24
	GPS	XS	11/7/2011	1774853.79	1646652.31	6428.61	146.68
	GPS	XS	11/7/2011	1774854.43	1646652.78	6428.34	147.47
	GPS	XS	11/7/2011	1774855.27	1646653.25	6428.36	148.43
	GPS	XS	11/7/2011	1774858.01	1646654.64	6428.56	151.49
	GPS	XS	11/7/2011	1774860.99	1646656.17	6428.24	154.82
	GPS	XS	11/7/2011	1774861.93	1646656.69	6427.43	155.89
	GPS	XS	11/7/2011	1774863.13	1646657.53	6427.02	157.36
	GPS	XS	11/7/2011	1774863.89	1646657.99	6427.24	158.25
	GPS	XS	11/7/2011	1774865.10	1646658.49	6427.95	159.53
	GPS	XS	11/7/2011	1774868.05	1646660.18	6428.62	162.93
	GPS	XS	11/7/2011	1774869.57	1646661.19	6428.19	164.76
	GPS	XS	11/7/2011	1774872.55	1646662.75	6428.44	168.11
	GPS	XS	11/7/2011	1774875.10	1646664.18	6428.41	171.03
	GPS	XS	11/7/2011	1774875.95	1646664.62	6428.53	171.98
	GPS	XS	11/7/2011	1774877.63	1646665.54	6428.41	173.89
	GPS	XS	11/7/2011	1774878.37	1646665.95	6428.48	174.74
	GPS	XS	11/7/2011	1774882.52	1646668.26	6428.62	179.48
	GPS	XS	11/7/2011	1774883.91	1646669.10	6428.98	181.11
	GPS	XS	11/7/2011	1774885.50	1646669.83	6428.70	182.84
	GPS	XS	11/7/2011	1774889.39	1646672.21	6428.74	187.40
	GPS	XS	11/7/2011	1774890.75	1646673.04	6428.59	188.99
	GPS	XS	11/7/2011	1774892.58	1646673.96	6428.93	191.03

	GPS	XS	11/7/2011	1774898.45	1646677.33	6428.67	197.79
	GPS	XS	11/7/2011	1774900.49	1646678.45	6428.40	200.12
	GPS	XS	11/7/2011	1774905.14	1646681.05	6428.22	205.44
	GPS	XS	11/7/2011	1774908.89	1646683.22	6428.21	209.77
	GPS	XS	11/7/2011	1774909.87	1646683.68	6428.08	210.85
	GPS	XS	11/7/2011	1774913.75	1646685.81	6428.30	215.27
	GPS	XS	11/7/2011	1774915.00	1646686.54	6428.13	216.71
	GPS	XS	11/7/2011	1774919.93	1646689.26	6428.31	222.34
	GPS	XS	11/7/2011	1774922.68	1646690.59	6428.04	225.37
	GPS	XS	11/7/2011	1774924.62	1646691.69	6428.12	227.60
	GPS	XS	11/7/2011	1774926.62	1646692.81	6427.88	229.89
	GPS	XS	11/7/2011	1774928.59	1646693.87	6428.04	232.12
	GPS	XS	11/7/2011	1774931.01	1646695.39	6428.00	234.98
	GPS	XS	11/7/2011	1774932.72	1646696.21	6428.21	236.87
	GPS	XS	11/7/2011	1774936.37	1646698.25	6428.12	241.05
	GPS	XS	11/7/2011	1774937.07	1646698.50	6428.18	241.77
	GPS	XS	11/7/2011	1774941.34	1646700.98	6428.06	246.72
	GPS	XS	11/7/2011	1774944.37	1646702.81	6428.95	250.26
	GPS	BM	11/7/2011	1774944.53	1646702.79	6429.69	-
Pueblo Lower Willows -600 ft	GPS	BM	11/7/2011	1774764.43	1646716.77	6429.14	-
	GPS	BM	11/7/2011	1774800.12	1646735.58	6428.09	-
	GPS	XS	9/15/2009	1774665.09	1646672.30	6427.34	0
	GPS	XS	11/7/2011	1774800.28	1646735.68	6427.43	149.31
	GPS	XS	11/7/2011	1774800.86	1646735.97	6427.38	149.96
	GPS	XS	11/7/2011	1774801.76	1646736.53	6426.84	151.01
	GPS	XS	11/7/2011	1774803.35	1646737.40	6426.82	152.81
	GPS	XS	11/7/2011	1774804.59	1646737.98	6427.42	154.18
	GPS	XS	11/7/2011	1774805.96	1646738.84	6427.56	155.79
	GPS	XS	11/7/2011	1774811.37	1646741.75	6427.52	161.93
	GPS	XS	11/7/2011	1774811.99	1646742.15	6427.09	162.66
	GPS	XS	11/7/2011	1774814.71	1646743.48	6426.90	165.69
	GPS	XS	11/7/2011	1774815.45	1646743.82	6427.26	166.49
	GPS	XS	11/7/2011	1774813.26	1646742.76	6426.78	164.06
	GPS	XS	11/7/2011	1774818.09	1646745.32	6427.30	169.53
	GPS	XS	11/7/2011	1774818.41	1646745.53	6427.08	169.91
	GPS	XS	11/7/2011	1774820.03	1646746.48	6427.41	171.78
	GPS	XS	11/7/2011	1774822.55	1646747.76	6427.18	174.61
	GPS	XS	11/7/2011	1774826.40	1646749.93	6427.46	179.02
	GPS	XS	11/7/2011	1774827.83	1646750.71	6427.13	180.64
	GPS	XS	11/7/2011	1774832.01	1646752.93	6426.35	185.37
	GPS	XS	11/7/2011	1774833.75	1646753.87	6426.83	187.34
	GPS	XS	11/7/2011	1774835.53	1646754.84	6426.57	189.37
	GPS	XS	11/7/2011	1774839.08	1646756.81	6427.04	193.43
	GPS	XS	11/7/2011	1774843.24	1646759.03	6426.56	198.13
	GPS	XS	11/7/2011	1774848.14	1646761.80	6426.95	203.76
	GPS	XS	11/7/2011	1774857.23	1646766.67	6426.56	214.06
	GPS	XS	11/7/2011	1774860.44	1646768.39	6426.29	217.70
	GPS	XS	11/7/2011	1774864.27	1646770.50	6426.15	222.07
	GPS	XS	11/7/2011	1774865.73	1646771.05	6426.47	223.62
	GPS	XS	11/7/2011	1774869.56	1646773.26	6426.36	228.03
	GPS	XS	11/7/2011	1774870.30	1646773.70	6426.01	228.89
	GPS	XS	11/7/2011	1774871.20	1646774.14	6426.19	229.90
	GPS	XS	11/7/2011	1774874.52	1646775.93	6426.40	233.66
	GPS	XS	11/7/2011	1774875.71	1646776.48	6426.00	234.97
	GPS	XS	11/7/2011	1774877.08	1646777.32	6426.33	236.57

	GPS	XS	11/7/2011	1774878.97	1646778.39	6426.23	238.74
	GPS	XS	11/7/2011	1774881.39	1646779.67	6426.39	241.48
	GPS	XS	11/7/2011	1774882.28	1646780.18	6426.12	242.50
	GPS	XS	11/7/2011	1774885.40	1646781.71	6426.49	245.98
	GPS	XS	11/7/2011	1774886.90	1646782.46	6426.11	247.65
	GPS	XS	11/7/2011	1774887.41	1646782.80	6425.87	248.26
	GPS	XS	11/7/2011	1774888.61	1646783.19	6426.31	249.51
	GPS	XS	11/7/2011	1774891.73	1646784.95	6426.16	253.09
	GPS	XS	11/7/2011	1774892.89	1646785.48	6425.93	254.36
	GPS	XS	11/7/2011	1774894.94	1646786.76	6426.01	256.77
	GPS	XS	11/7/2011	1774895.88	1646787.14	6424.60	257.78
	GPS	XS	11/7/2011	1774896.61	1646787.45	6424.24	258.57
	GPS	XS	11/7/2011	1774897.30	1646787.88	6424.44	259.38
	GPS	XS	11/7/2011	1774897.85	1646788.34	6425.70	260.07
	GPS	XS	11/7/2011	1774900.46	1646789.71	6426.07	263.03
	GPS	XS	11/7/2011	1774901.89	1646790.31	6425.98	264.57
	GPS	XS	11/7/2011	1774902.87	1646790.88	6426.29	265.71
	GPS	XS	11/7/2011	1774906.65	1646792.79	6426.52	269.94
	GPS	XS	11/7/2011	1774914.01	1646796.61	6426.61	278.23
	GPS	XS	11/7/2011	1774920.74	1646800.25	6426.76	285.88
	GPS	BM	11/7/2011	1774920.79	1646800.26	6427.66	-
Pueblo Lower Willows -500 ft	GPS	XS	9/15/2009	1774594.57	1646733.79	6426.32	-
	GPS	BM	11/7/2011	1774750.29	1646826.21	6426.74	0
	GPS	XS	9/15/2009	1774750.41	1646826.40	6426.27	181.28
	GPS	XS	11/7/2011	1774755.01	1646829.00	6426.39	186.56
	GPS	XS	11/7/2011	1774756.37	1646829.79	6426.12	188.13
	GPS	XS	11/7/2011	1774760.35	1646832.11	6426.15	192.74
	GPS	XS	11/7/2011	1774761.55	1646832.64	6426.38	194.05
	GPS	XS	11/7/2011	1774765.83	1646835.01	6426.27	198.94
	GPS	XS	11/7/2011	1774771.00	1646837.84	6426.25	204.83
	GPS	XS	11/7/2011	1774777.29	1646841.38	6426.05	212.04
	GPS	XS	11/7/2011	1774783.38	1646844.59	6425.97	218.93
	GPS	XS	11/7/2011	1774786.21	1646846.11	6426.00	222.12
	GPS	XS	11/7/2011	1774788.18	1646847.17	6426.29	224.36
	GPS	XS	11/7/2011	1774791.24	1646848.83	6426.28	227.84
	GPS	XS	11/7/2011	1774796.38	1646851.49	6426.07	233.63
	GPS	XS	11/7/2011	1774797.77	1646852.37	6424.24	235.27
	GPS	XS	11/7/2011	1774799.17	1646853.13	6424.27	236.86
	GPS	XS	11/7/2011	1774800.17	1646853.69	6425.76	238.01
	GPS	XS	11/7/2011	1774802.61	1646855.13	6426.06	240.84
	GPS	XS	11/7/2011	1774806.28	1646857.26	6426.18	245.08
	GPS	XS	11/7/2011	1774811.84	1646860.37	6426.05	251.45
	GPS	XS	11/7/2011	1774813.68	1646861.36	6425.93	253.54
	GPS	XS	11/7/2011	1774817.44	1646863.45	6425.67	257.85
	GPS	XS	11/7/2011	1774819.36	1646864.40	6425.32	259.98
	GPS	XS	11/7/2011	1774823.08	1646866.46	6425.26	264.24
	GPS	XS	11/7/2011	1774825.88	1646868.13	6424.97	267.49
	GPS	XS	11/7/2011	1774828.20	1646869.30	6424.50	270.09
	GPS	XS	11/7/2011	1774832.11	1646871.36	6424.23	274.50
	GPS	XS	11/7/2011	1774835.10	1646872.97	6423.22	277.89
	GPS	XS	11/7/2011	1774835.68	1646873.54	6420.49	278.68
	GPS	XS	11/7/2011	1774836.71	1646873.89	6420.32	279.75
	GPS	XS	11/7/2011	1774838.08	1646874.61	6420.59	281.30
	GPS	XS	11/7/2011	1774840.13	1646875.75	6423.66	283.64
	GPS	XS	11/7/2011	1774843.36	1646877.67	6424.19	287.40

	GPS	XS	11/7/2011	1774844.05	1646877.98	6423.75	288.15
	GPS	XS	11/7/2011	1774845.41	1646878.77	6423.83	289.72
	GPS	XS	11/7/2011	1774846.14	1646879.25	6424.28	290.60
	GPS	XS	11/7/2011	1774848.38	1646880.54	6424.33	293.18
	GPS	XS	11/7/2011	1774849.08	1646880.90	6424.03	293.97
	GPS	XS	11/7/2011	1774851.62	1646882.35	6423.84	296.89
	GPS	XS	11/7/2011	1774852.65	1646882.68	6424.10	297.95
	GPS	XS	11/7/2011	1774855.97	1646884.75	6424.55	301.86
	GPS	XS	11/7/2011	1774861.21	1646887.49	6424.63	307.77
	GPS	XS	11/7/2011	1774869.41	1646892.23	6424.57	317.24
	GPS	XS	11/7/2011	1774875.57	1646895.64	6424.64	324.28
	GPS	BM	11/7/2011	1774875.64	1646895.73	6425.21	-
Pueblo Lower Willows -400 ft	GPS	BM	11/7/2011	1774705.24	1646909.03	6424.91	-
	GPS	XS	9/15/2009	1774529.98	1646812.18	6424.74	0
	GPS	XS	11/7/2011	1774705.28	1646909.19	6424.32	200.35
	GPS	XS	11/7/2011	1774709.91	1646912.50	6424.27	206.01
	GPS	XS	11/7/2011	1774717.17	1646917.36	6424.10	214.72
	GPS	XS	11/7/2011	1774718.34	1646918.10	6424.22	216.10
	GPS	XS	11/7/2011	1774718.97	1646918.55	6424.01	216.87
	GPS	XS	11/7/2011	1774723.20	1646921.54	6423.89	222.02
	GPS	XS	11/7/2011	1774723.89	1646922.04	6424.03	222.87
	GPS	XS	11/7/2011	1774725.14	1646922.92	6423.76	224.39
	GPS	XS	11/7/2011	1774727.23	1646924.49	6423.41	226.99
	GPS	XS	11/7/2011	1774727.93	1646924.78	6423.11	227.74
	GPS	XS	11/7/2011	1774728.80	1646925.45	6423.29	228.82
	GPS	XS	11/7/2011	1774730.12	1646926.39	6423.00	230.43
	GPS	XS	11/7/2011	1774734.94	1646929.82	6423.36	236.33
	GPS	XS	11/7/2011	1774742.98	1646935.28	6423.54	246.02
	GPS	XS	11/7/2011	1774745.02	1646936.70	6423.81	248.49
	GPS	XS	11/7/2011	1774745.64	1646937.09	6423.21	249.22
	GPS	XS	11/7/2011	1774746.67	1646938.03	6423.84	250.58
	GPS	XS	11/7/2011	1774750.16	1646940.27	6423.67	254.73
	GPS	XS	11/7/2011	1774755.80	1646944.32	6423.81	261.64
	GPS	XS	11/7/2011	1774761.51	1646948.26	6423.92	268.56
	GPS	XS	11/7/2011	1774762.32	1646948.78	6422.72	269.52
	GPS	XS	11/7/2011	1774762.93	1646949.26	6421.27	270.29
	GPS	XS	11/7/2011	1774764.00	1646950.35	6422.25	271.76
	GPS	XS	11/7/2011	1774764.65	1646950.63	6423.65	272.47
	GPS	XS	11/7/2011	1774770.59	1646954.73	6423.34	279.67
	GPS	XS	11/7/2011	1774771.94	1646955.76	6422.26	281.35
	GPS	XS	11/7/2011	1774772.71	1646956.26	6423.36	282.27
	GPS	XS	11/7/2011	1774778.65	1646960.41	6423.10	289.50
	GPS	XS	11/7/2011	1774780.06	1646961.40	6423.04	291.21
	GPS	XS	11/7/2011	1774780.56	1646961.53	6422.45	291.71
	GPS	XS	11/7/2011	1774781.98	1646962.39	6422.98	293.37
	GPS	XS	11/7/2011	1774783.69	1646963.74	6422.95	295.53
	GPS	XS	11/7/2011	1774784.34	1646964.30	6422.55	296.37
	GPS	XS	11/7/2011	1774786.15	1646965.14	6423.20	298.36
	GPS	XS	11/7/2011	1774787.21	1646965.90	6422.85	299.66
	GPS	XS	11/7/2011	1774788.29	1646966.61	6422.95	300.95
	GPS	XS	11/7/2011	1774790.12	1646968.17	6422.92	303.33
	GPS	XS	11/7/2011	1774793.05	1646969.40	6422.91	306.48
	GPS	XS	11/7/2011	1774794.34	1646971.16	6419.78	308.48
	GPS	XS	11/7/2011	1774795.40	1646971.68	6419.71	309.66
	GPS	XS	11/7/2011	1774796.54	1646972.38	6419.43	310.99

	GPS	XS	11/7/2011	1774797.30	1646972.88	6422.13	311.91
	GPS	XS	11/7/2011	1774798.38	1646973.77	6422.51	313.29
	GPS	XS	11/7/2011	1774799.66	1646974.43	6421.66	314.73
	GPS	XS	11/7/2011	1774800.72	1646975.18	6421.70	316.02
	GPS	XS	11/7/2011	1774801.99	1646976.17	6422.96	317.62
	GPS	XS	11/7/2011	1774803.27	1646977.13	6422.90	319.21
	GPS	XS	11/7/2011	1774805.27	1646978.45	6422.70	321.60
	GPS	XS	11/7/2011	1774807.72	1646980.27	6422.20	324.65
	GPS	XS	11/7/2011	1774808.77	1646981.07	6422.78	325.96
	GPS	XS	11/7/2011	1774810.85	1646982.44	6422.79	328.45
	GPS	XS	11/7/2011	1774814.52	1646985.11	6423.59	332.97
	GPS	XS	11/7/2011	1774817.11	1646986.79	6423.91	336.05
	GPS	BM	11/7/2011	1774817.26	1646986.93	6424.44	-
Pueblo Lower Willows -300 ft	GPS	BM	10/31/2011	1774653.60	1646998.91	6422.86	-
	GPS	XS	9/15/2009	1774537.40	1646932.87	6422.63	-
	GPS	XS	10/31/2011	1774653.75	1646998.94	6422.33	133.80
	GPS	XS	10/31/2011	1774656.88	1647000.65	6422.63	137.37
	GPS	XS	10/31/2011	1774659.87	1647002.36	6422.39	140.81
	GPS	XS	10/31/2011	1774661.02	1647002.88	6422.55	142.07
	GPS	XS	10/31/2011	1774667.49	1647006.42	6421.92	149.45
	GPS	XS	10/31/2011	1774668.62	1647006.90	6421.73	150.67
	GPS	XS	10/31/2011	1774669.62	1647007.54	6421.88	151.85
	GPS	XS	10/31/2011	1774678.32	1647012.22	6421.77	161.73
	GPS	XS	10/31/2011	1774679.74	1647013.10	6421.37	163.39
	GPS	XS	10/31/2011	1774681.09	1647013.74	6421.80	164.88
	GPS	XS	10/31/2011	1774683.66	1647015.19	6421.63	167.84
	GPS	XS	10/31/2011	1774691.36	1647019.21	6421.53	176.52
	GPS	XS	10/31/2011	1774692.17	1647019.59	6421.64	177.41
	GPS	XS	10/31/2011	1774695.19	1647021.13	6421.65	180.80
	GPS	XS	10/31/2011	1774696.15	1647021.52	6421.52	181.82
	GPS	XS	10/31/2011	1774698.93	1647023.44	6421.43	185.19
	GPS	XS	10/31/2011	1774700.13	1647023.94	6421.35	186.49
	GPS	XS	10/31/2011	1774701.21	1647024.58	6421.68	187.74
	GPS	XS	10/31/2011	1774704.20	1647026.09	6421.50	191.08
	GPS	XS	10/31/2011	1774704.84	1647026.35	6421.68	191.77
	GPS	XS	10/31/2011	1774705.78	1647026.81	6421.32	192.81
	GPS	XS	10/31/2011	1774706.74	1647027.46	6421.46	193.97
	GPS	XS	10/31/2011	1774708.66	1647028.50	6421.55	196.15
	GPS	XS	10/31/2011	1774710.78	1647029.56	6421.35	198.52
	GPS	XS	10/31/2011	1774711.61	1647030.17	6421.57	199.54
	GPS	XS	10/31/2011	1774714.02	1647031.40	6421.34	202.25
	GPS	XS	10/31/2011	1774715.32	1647032.02	6421.67	203.68
	GPS	XS	10/31/2011	1774718.33	1647033.64	6421.47	207.10
	GPS	XS	10/31/2011	1774719.51	1647034.36	6421.69	208.48
	GPS	XS	10/31/2011	1774722.04	1647035.69	6421.74	211.34
	GPS	XS	10/31/2011	1774723.38	1647036.39	6421.46	212.85
	GPS	XS	10/31/2011	1774725.07	1647037.33	6421.77	214.79
	GPS	XS	10/31/2011	1774727.20	1647038.59	6421.53	217.26
	GPS	XS	10/31/2011	1774728.47	1647039.19	6420.87	218.66
	GPS	XS	10/31/2011	1774729.82	1647039.93	6421.40	220.20
	GPS	XS	10/31/2011	1774731.45	1647040.79	6421.42	222.05
	GPS	XS	10/31/2011	1774732.79	1647041.48	6421.19	223.55
	GPS	XS	10/31/2011	1774734.89	1647042.60	6421.62	225.93
	GPS	XS	10/31/2011	1774737.16	1647043.87	6421.80	228.53
	GPS	XS	10/31/2011	1774738.28	1647044.09	6421.20	229.62

	GPS	XS	10/31/2011	1774739.04	1647044.87	6421.41	230.66
	GPS	XS	10/31/2011	1774740.51	1647045.76	6421.51	232.38
	GPS	XS	10/31/2011	1774742.05	1647046.52	6421.36	234.09
	GPS	XS	10/31/2011	1774743.06	1647046.84	6418.65	235.13
	GPS	XS	10/31/2011	1774746.47	1647048.25	6418.28	238.80
	GPS	XS	10/31/2011	1774746.85	1647048.35	6418.65	239.18
	GPS	XS	10/31/2011	1774747.09	1647049.20	6420.94	239.80
	GPS	XS	10/31/2011	1774748.81	1647050.07	6420.90	241.73
	GPS	XS	10/31/2011	1774749.74	1647050.45	6421.71	242.72
	GPS	XS	10/31/2011	1774754.09	1647052.66	6421.62	247.60
	GPS	XS	10/31/2011	1774755.05	1647053.26	6421.35	248.73
	GPS	XS	10/31/2011	1774756.58	1647054.21	6421.30	250.52
	GPS	XS	10/31/2011	1774757.47	1647054.52	6421.04	251.46
	GPS	XS	10/31/2011	1774762.58	1647057.28	6420.63	257.27
	GPS	XS	10/31/2011	1774763.82	1647057.88	6421.36	258.64
	GPS	XS	10/31/2011	1774766.14	1647059.34	6420.88	261.37
	GPS	XS	10/31/2011	1774767.10	1647059.74	6421.22	262.41
	GPS	XS	10/31/2011	1774768.63	1647060.62	6420.75	264.18
	GPS	XS	10/31/2011	1774771.01	1647062.02	6421.37	266.93
	GPS	XS	10/31/2011	1774776.99	1647065.42	6421.38	273.81
	GPS	XS	10/31/2011	1774778.88	1647066.37	6421.62	275.93
	GPS	XS	10/31/2011	1774786.29	1647070.18	6424.94	284.25
	GPS	BM	10/31/2011	1774786.38	1647070.25	6425.54	-
Pueblo Lower Willows -200 ft	GPS	BM	10/31/2011	1774603.78	1647084.69	6421.21	-
	GPS	XS	9/10/2009	1774447.40	1646996.29	6421.18	-
	GPS	XS	10/31/2011	1774603.90	1647084.72	6420.47	0
	GPS	XS	10/31/2011	1774610.68	1647088.61	6420.56	187.58
	GPS	XS	10/31/2011	1774613.93	1647090.25	6420.29	191.21
	GPS	XS	10/31/2011	1774615.97	1647091.46	6420.05	193.58
	GPS	XS	10/31/2011	1774617.10	1647091.94	6419.82	194.80
	GPS	XS	10/31/2011	1774618.08	1647092.71	6420.01	196.04
	GPS	XS	10/31/2011	1774619.60	1647093.61	6419.60	197.81
	GPS	XS	10/31/2011	1774621.71	1647094.56	6420.01	200.11
	GPS	XS	10/31/2011	1774625.29	1647096.68	6419.86	204.26
	GPS	XS	10/31/2011	1774630.45	1647099.59	6420.02	210.18
	GPS	XS	10/31/2011	1774632.45	1647100.72	6419.77	212.49
	GPS	XS	10/31/2011	1774633.79	1647101.61	6420.03	214.09
	GPS	XS	10/31/2011	1774634.91	1647102.21	6419.70	215.36
	GPS	XS	10/31/2011	1774643.14	1647106.91	6419.74	224.84
	GPS	XS	10/31/2011	1774644.34	1647107.45	6419.25	226.15
	GPS	XS	10/31/2011	1774646.29	1647108.74	6419.59	228.48
	GPS	XS	10/31/2011	1774649.93	1647110.59	6419.36	232.56
	GPS	XS	10/31/2011	1774651.72	1647111.68	6417.93	234.65
	GPS	XS	10/31/2011	1774652.59	1647112.27	6418.95	235.70
	GPS	XS	10/31/2011	1774653.05	1647112.61	6419.05	236.27
	GPS	XS	10/31/2011	1774654.17	1647113.11	6419.42	237.49
	GPS	XS	10/31/2011	1774655.72	1647114.01	6419.24	239.29
	GPS	XS	10/31/2011	1774656.47	1647114.55	6419.37	240.21
	GPS	XS	10/31/2011	1774662.81	1647118.14	6419.32	247.49
	GPS	XS	10/31/2011	1774664.59	1647118.97	6418.54	249.45
	GPS	XS	10/31/2011	1774666.13	1647119.73	6419.31	251.16
	GPS	XS	10/31/2011	1774667.50	1647120.57	6417.96	252.77
	GPS	XS	10/31/2011	1774668.22	1647120.98	6419.12	253.60
	GPS	XS	10/31/2011	1774669.61	1647121.80	6419.18	255.21
	GPS	XS	10/31/2011	1774671.00	1647122.83	6418.74	256.93

	GPS	XS	10/31/2011	1774672.17	1647123.14	6419.40	258.09
	GPS	XS	10/31/2011	1774672.31	1647123.56	6419.46	258.43
	GPS	XS	10/31/2011	1774675.35	1647125.09	6419.60	261.82
	GPS	XS	10/31/2011	1774676.55	1647125.57	6419.10	263.10
	GPS	XS	10/31/2011	1774678.39	1647126.83	6419.10	265.33
	GPS	XS	10/31/2011	1774679.18	1647127.20	6418.51	266.19
	GPS	XS	10/31/2011	1774680.18	1647127.82	6418.92	267.37
	GPS	XS	10/31/2011	1774681.53	1647128.65	6418.76	268.96
	GPS	XS	10/31/2011	1774682.42	1647128.95	6419.06	269.88
	GPS	XS	10/31/2011	1774684.90	1647130.38	6419.10	272.74
	GPS	XS	10/31/2011	1774686.07	1647131.19	6419.74	274.16
	GPS	XS	10/31/2011	1774688.96	1647132.74	6419.22	277.44
	GPS	XS	10/31/2011	1774689.90	1647133.18	6419.53	278.47
	GPS	XS	10/31/2011	1774694.48	1647136.03	6419.78	283.86
	GPS	XS	10/31/2011	1774696.58	1647137.02	6419.52	286.17
	GPS	XS	10/31/2011	1774702.74	1647140.89	6419.91	293.44
	GPS	XS	10/31/2011	1774704.89	1647142.20	6419.73	295.97
	GPS	XS	10/31/2011	1774706.40	1647143.03	6419.86	297.69
	GPS	XS	10/31/2011	1774710.02	1647144.89	6419.59	301.75
	GPS	XS	10/31/2011	1774710.40	1647145.36	6417.11	302.32
	GPS	XS	10/31/2011	1774712.73	1647146.30	6417.15	304.80
	GPS	XS	10/31/2011	1774713.32	1647146.53	6416.47	305.43
	GPS	XS	10/31/2011	1774714.05	1647147.01	6416.18	306.30
	GPS	XS	10/31/2011	1774714.82	1647147.25	6416.36	307.09
	GPS	XS	10/31/2011	1774715.01	1647147.78	6419.56	307.51
	GPS	XS	10/31/2011	1774716.95	1647148.64	6419.53	309.63
	GPS	XS	10/31/2011	1774720.07	1647150.06	6419.86	313.04
	GPS	XS	10/31/2011	1774721.47	1647150.93	6419.29	314.69
	GPS	XS	10/31/2011	1774723.34	1647151.75	6419.80	316.73
	GPS	XS	10/31/2011	1774725.23	1647152.81	6419.37	318.89
	GPS	XS	10/31/2011	1774726.66	1647153.92	6419.62	320.68
	GPS	XS	10/31/2011	1774727.98	1647154.62	6419.29	322.18
	GPS	XS	10/31/2011	1774728.88	1647155.28	6419.67	323.28
	GPS	XS	10/31/2011	1774730.99	1647156.40	6419.69	325.67
	GPS	XS	10/31/2011	1774732.81	1647157.46	6419.44	327.78
	GPS	XS	10/31/2011	1774736.24	1647159.52	6419.67	331.78
	GPS	XS	10/31/2011	1774740.32	1647161.97	6419.44	336.53
	GPS	XS	10/31/2011	1774745.90	1647165.49	6419.43	343.12
	GPS	XS	10/31/2011	1774747.11	1647166.09	6419.67	344.48
	GPS	XS	10/31/2011	1774751.96	1647169.01	6420.06	350.13
	GPS	XS	10/31/2011	1774778.72	1647184.26	6428.25	380.93
	GPS	BM	10/31/2011	1774751.87	1647168.91	6420.74	-
	GPS	BM	10/31/2011	1774778.86	1647184.29	6428.81	-
Pueblo Lower Willows -100 ft	GPS	BM	10/31/2011	1774522.35	1647162.52	6418.73	-
	GPS	XS	9/15/2009	1774377.14	1647080.75	6418.98	0
	GPS	XS	10/31/2011	1774522.65	1647162.68	6417.97	166.99
	GPS	XS	10/31/2011	1774535.62	1647168.05	6417.89	180.93
	GPS	XS	10/31/2011	1774548.02	1647172.87	6417.93	194.13
	GPS	XS	10/31/2011	1774555.61	1647176.21	6417.78	202.40
	GPS	XS	10/31/2011	1774559.60	1647177.66	6417.80	206.59
	GPS	XS	10/31/2011	1774560.94	1647178.18	6417.51	208.02
	GPS	XS	10/31/2011	1774565.77	1647180.26	6417.53	213.26
	GPS	XS	10/31/2011	1774567.87	1647181.01	6417.32	215.47
	GPS	XS	10/31/2011	1774569.73	1647181.91	6417.41	217.54
	GPS	XS	10/31/2011	1774574.72	1647183.87	6417.37	222.87

	GPS	XS	10/31/2011	1774578.74	1647185.59	6417.74	227.23
	GPS	XS	10/31/2011	1774579.27	1647185.77	6417.41	227.78
	GPS	XS	10/31/2011	1774580.15	1647186.17	6417.75	228.75
	GPS	XS	10/31/2011	1774582.04	1647186.93	6417.35	230.77
	GPS	XS	10/31/2011	1774582.87	1647187.26	6417.78	231.66
	GPS	XS	10/31/2011	1774586.30	1647188.74	6417.44	235.39
	GPS	XS	10/31/2011	1774588.28	1647189.43	6417.80	237.47
	GPS	XS	10/31/2011	1774590.55	1647190.30	6417.61	239.89
	GPS	XS	10/31/2011	1774594.68	1647192.21	6418.14	244.43
	GPS	XS	10/31/2011	1774599.01	1647193.89	6417.32	249.05
	GPS	XS	10/31/2011	1774602.96	1647195.32	6417.44	253.22
	GPS	XS	10/31/2011	1774605.60	1647196.55	6417.26	256.13
	GPS	XS	10/31/2011	1774606.67	1647196.96	6417.15	257.27
	GPS	XS	10/31/2011	1774607.68	1647197.36	6417.58	258.35
	GPS	XS	10/31/2011	1774611.52	1647198.83	6416.98	262.44
	GPS	XS	10/31/2011	1774612.52	1647199.47	6416.37	263.62
	GPS	XS	10/31/2011	1774613.52	1647199.81	6415.84	264.67
	GPS	XS	10/31/2011	1774614.34	1647200.09	6414.87	265.53
	GPS	XS	10/31/2011	1774615.49	1647200.40	6414.79	266.70
	GPS	XS	10/31/2011	1774615.81	1647200.77	6414.45	267.14
	GPS	XS	10/31/2011	1774615.80	1647200.56	6414.30	267.04
	GPS	XS	10/31/2011	1774618.17	1647201.44	6413.81	269.55
	GPS	XS	10/31/2011	1774618.79	1647201.63	6414.05	270.19
	GPS	XS	10/31/2011	1774620.37	1647202.42	6415.18	271.96
	GPS	XS	10/31/2011	1774621.14	1647202.77	6415.21	272.81
	GPS	XS	10/31/2011	1774622.17	1647203.28	6414.63	273.95
	GPS	XS	10/31/2011	1774624.43	1647204.13	6417.26	276.36
	GPS	XS	10/31/2011	1774631.89	1647207.48	6418.03	284.53
	GPS	XS	10/31/2011	1774635.62	1647208.75	6417.69	288.43
	GPS	XS	10/31/2011	1774644.00	1647212.26	6417.65	297.51
	GPS	XS	10/31/2011	1774646.72	1647213.28	6417.78	300.39
	GPS	XS	10/31/2011	1774653.16	1647216.01	6417.93	307.38
	GPS	XS	10/31/2011	1774655.06	1647216.57	6417.50	309.33
	GPS	XS	10/31/2011	1774656.25	1647217.11	6417.77	310.64
	GPS	XS	10/31/2011	1774658.92	1647218.17	6417.06	313.50
	GPS	XS	10/31/2011	1774659.61	1647218.48	6416.42	314.26
	GPS	XS	10/31/2011	1774664.04	1647220.30	6416.14	319.03
	GPS	XS	10/31/2011	1774664.90	1647220.56	6414.59	319.92
	GPS	XS	10/31/2011	1774665.68	1647220.90	6414.37	320.78
	GPS	XS	10/31/2011	1774666.12	1647221.22	6414.39	321.31
	GPS	XS	10/31/2011	1774666.80	1647221.36	6415.42	321.98
	GPS	XS	10/31/2011	1774668.95	1647222.52	6415.87	324.42
	GPS	XS	10/31/2011	1774670.24	1647223.15	6417.02	325.86
	GPS	XS	10/31/2011	1774672.43	1647223.76	6417.53	328.10
	GPS	XS	10/31/2011	1774673.06	1647224.04	6417.64	328.78
	GPS	XS	10/31/2011	1774680.89	1647227.42	6418.00	337.31
	GPS	XS	10/31/2011	1774688.31	1647230.37	6418.53	345.27
	GPS	XS	10/31/2011	1774692.01	1647231.70	6418.86	349.18
	GPS	XS	10/31/2011	1774700.29	1647235.17	6419.29	358.15
	GPS	XS	10/31/2011	1774709.64	1647239.37	6420.06	368.39
	GPS	XS	10/31/2011	1774715.81	1647241.59	6420.78	374.92
	GPS	XS	10/31/2011	1774718.55	1647242.90	6421.18	377.96
	GPS	BM	10/31/2011	1774718.69	1647242.97	6421.41	-
Pueblo Lower Willows 0 ft	GPS	BM	9/1/2009	1774370.773	1647186.219	6416.87	-
	GPS	BM	10/31/2011	1774519.705	1647251.699	6417.075	-

GPS	XS	10/31/2011	1774519.87	1647251.746	6416.568	162.86
GPS	XS	10/31/2011	1774526.923	1647255.014	6416.543	170.63
GPS	XS	10/31/2011	1774531.047	1647256.901	6416.15	175.17
GPS	XS	10/31/2011	1774537.758	1647259.954	6416.236	182.54
GPS	XS	10/31/2011	1774539.382	1647260.634	6415.916	184.30
GPS	XS	10/31/2011	1774540.522	1647261.18	6415.33	185.56
GPS	XS	10/31/2011	1774542.688	1647262.159	6415.861	187.94
GPS	XS	10/31/2011	1774545.82	1647263.555	6416.348	191.37
GPS	XS	10/31/2011	1774547.229	1647264.304	6415.633	192.96
GPS	XS	10/31/2011	1774548.124	1647264.741	6415.566	193.96
GPS	XS	10/31/2011	1774548.975	1647265.134	6415.112	194.89
GPS	XS	10/31/2011	1774550.503	1647265.823	6415.945	196.57
GPS	XS	10/31/2011	1774553.981	1647267.394	6416.173	200.39
GPS	XS	10/31/2011	1774558.059	1647269.455	6415.968	204.95
GPS	XS	10/31/2011	1774561.74	1647271.214	6416.275	209.03
GPS	XS	10/31/2011	1774563.37	1647271.933	6415.374	210.81
GPS	XS	10/31/2011	1774564.526	1647272.557	6415.72	212.12
GPS	XS	10/31/2011	1774565.845	1647273.275	6415.301	213.62
GPS	XS	10/31/2011	1774567.005	1647273.653	6416.163	214.83
GPS	XS	10/31/2011	1774568.532	1647274.341	6415.737	216.50
GPS	XS	10/31/2011	1774569.603	1647274.848	6415.913	217.69
GPS	XS	10/31/2011	1774571.074	1647275.645	6415.543	219.36
GPS	XS	10/31/2011	1774571.978	1647276.061	6415.351	220.35
GPS	XS	10/31/2011	1774572.715	1647276.605	6414.927	221.25
GPS	XS	10/31/2011	1774574.609	1647277.169	6415.606	223.21
GPS	XS	10/31/2011	1774575.815	1647277.617	6415.62	224.49
GPS	XS	10/31/2011	1774575.846	1647277.807	6415.627	224.60
GPS	XS	10/31/2011	1774577.033	1647278.327	6416.035	225.89
GPS	XS	10/31/2011	1774581.008	1647280.344	6415.776	230.34
GPS	XS	10/31/2011	1774581.5	1647280.472	6414.597	230.85
GPS	XS	10/31/2011	1774583.821	1647281.409	6413.735	233.35
GPS	XS	10/31/2011	1774585.091	1647281.983	6413.392	234.74
GPS	XS	10/31/2011	1774586.24	1647282.376	6413.435	235.95
GPS	XS	10/31/2011	1774587.034	1647282.64	6413.173	236.78
GPS	XS	10/31/2011	1774587.416	1647282.931	6413.036	237.25
GPS	XS	10/31/2011	1774587.942	1647283.138	6413.236	237.81
GPS	XS	10/31/2011	1774588.356	1647283.544	6413.635	238.36
GPS	XS	10/31/2011	1774591.105	1647284.63	6414.275	241.31
GPS	XS	10/31/2011	1774594.724	1647286.241	6414.479	245.27
GPS	XS	10/31/2011	1774599.264	1647288.356	6414.375	250.28
GPS	XS	10/31/2011	1774603.639	1647290.441	6414.163	255.13
GPS	XS	10/31/2011	1774604.485	1647290.651	6413.96	255.98
GPS	XS	10/31/2011	1774607.48	1647292.058	6415.422	259.29
GPS	XS	10/31/2011	1774616.506	1647296.021	6415.717	269.15
GPS	XS	10/31/2011	1774623.92	1647299.645	6415.185	277.40
GPS	XS	10/31/2011	1774624.626	1647299.726	6412.775	278.07
GPS	XS	10/31/2011	1774626.634	1647300.745	6412.246	280.32
GPS	XS	10/31/2011	1774628.699	1647301.65	6413.178	282.58
GPS	XS	10/31/2011	1774632.994	1647303.769	6413.7	287.36
GPS	XS	10/31/2011	1774634.78	1647304.402	6415.361	289.25
GPS	XS	10/31/2011	1774644.759	1647309.369	6415.9	300.39
GPS	XS	10/31/2011	1774653.226	1647313.284	6416.126	309.72
GPS	XS	10/31/2011	1774664.698	1647318.607	6415.8	322.36
GPS	XS	10/31/2011	1774673.214	1647322.535	6416.207	331.74
GPS	BM	10/31/2011	1774673.322	1647322.569	6416.611	-

Pueblo Lower Willows +100 ft	GPS	BM	10/31/2011	1774534.66	1647332.13	6415.65	-
	GPS	BM	10/31/2011	1774603.51	1647375.53	6413.91	-
	GPS	XS	9/28/2009	1774302.75	1647179.26	6416.23	0
	GPS	XS	10/31/2011	1774534.83	1647332.17	6415.02	277.92
	GPS	XS	10/31/2011	1774538.94	1647334.66	6414.81	282.72
	GPS	XS	10/31/2011	1774541.91	1647336.65	6414.34	286.29
	GPS	XS	10/31/2011	1774548.43	1647340.66	6413.93	293.95
	GPS	XS	10/31/2011	1774549.60	1647341.34	6414.61	295.30
	GPS	XS	10/31/2011	1774551.06	1647342.38	6414.57	297.09
	GPS	XS	10/31/2011	1774552.22	1647343.03	6414.15	298.42
	GPS	XS	10/31/2011	1774553.32	1647343.66	6414.22	299.69
	GPS	XS	10/31/2011	1774556.03	1647345.61	6413.38	303.02
	GPS	XS	10/31/2011	1774556.91	1647346.06	6414.14	304.00
	GPS	XS	10/31/2011	1774558.31	1647346.95	6413.84	305.66
	GPS	XS	10/31/2011	1774561.71	1647349.06	6413.80	309.66
	GPS	XS	10/31/2011	1774564.66	1647350.90	6413.78	313.14
	GPS	XS	10/31/2011	1774565.96	1647351.74	6414.17	314.69
	GPS	XS	10/31/2011	1774567.69	1647352.84	6413.46	316.73
	GPS	XS	10/31/2011	1774571.26	1647355.00	6413.37	320.91
	GPS	XS	10/31/2011	1774572.84	1647356.07	6414.00	322.81
	GPS	XS	10/31/2011	1774574.16	1647356.96	6413.55	324.40
	GPS	XS	10/31/2011	1774576.33	1647358.26	6414.10	326.93
	GPS	XS	10/31/2011	1774581.91	1647361.70	6414.21	333.48
	GPS	XS	10/31/2011	1774582.66	1647362.13	6414.29	334.35
	GPS	XS	10/31/2011	1774585.28	1647363.80	6414.07	337.46
	GPS	XS	10/31/2011	1774590.30	1647367.05	6414.51	343.43
	GPS	XS	10/31/2011	1774603.60	1647375.67	6413.60	359.29
	GPS	XS	10/31/2011	1774609.19	1647379.16	6413.31	365.88
	GPS	XS	10/31/2011	1774613.34	1647382.24	6412.20	371.03
	GPS	XS	10/31/2011	1774614.91	1647382.67	6409.87	372.58
	GPS	XS	10/31/2011	1774617.71	1647384.64	6408.77	376.01
	GPS	XS	10/31/2011	1774621.26	1647387.05	6408.55	380.30
	GPS	XS	10/31/2011	1774624.36	1647388.57	6407.67	383.72
	GPS	XS	10/31/2011	1774625.90	1647390.00	6408.00	385.79
	GPS	XS	10/31/2011	1774626.64	1647390.15	6408.71	386.50
	GPS	XS	10/31/2011	1774629.21	1647391.95	6409.51	389.63
	GPS	XS	10/31/2011	1774632.30	1647394.01	6411.60	393.34
	GPS	XS	10/31/2011	1774634.66	1647395.69	6412.25	396.24
	GPS	XS	10/31/2011	1774636.57	1647396.86	6412.82	398.48
	GPS	XS	10/31/2011	1774641.03	1647399.83	6413.43	403.83
	GPS	BM	10/31/2011	1774641.14	1647399.98	6414.17	-
Pueblo Lower Willows +200 ft	GPS	BM	10/31/2011	1774526.14	1647445.32	6414.57	-
	GPS	XS	9/28/2009	1774232.07	1647250.77	6414.32	0
	GPS	XS	10/31/2011	1774526.28	1647445.43	6413.86	352.77
	GPS	XS	10/31/2011	1774528.92	1647447.20	6414.21	355.95
	GPS	XS	10/31/2011	1774530.93	1647448.74	6414.03	358.47
	GPS	XS	10/31/2011	1774534.76	1647451.39	6412.65	363.13
	GPS	XS	10/31/2011	1774538.26	1647453.84	6410.26	367.41
	GPS	XS	10/31/2011	1774541.38	1647455.95	6406.60	371.17
	GPS	XS	10/31/2011	1774542.26	1647456.38	6406.56	372.14
	GPS	XS	10/31/2011	1774543.00	1647457.03	6406.21	373.12
	GPS	XS	10/31/2011	1774543.74	1647457.89	6406.32	374.21
	GPS	XS	10/31/2011	1774547.53	1647460.47	6406.94	378.79
	GPS	XS	10/31/2011	1774551.87	1647463.39	6407.20	384.03
	GPS	XS	10/31/2011	1774552.21	1647463.62	6404.96	384.44

	GPS	XS	10/31/2011	1774552.69	1647464.10	6404.77	385.10
	GPS	XS	10/31/2011	1774553.73	1647464.76	6404.85	386.33
	GPS	XS	10/31/2011	1774554.56	1647465.15	6405.12	387.24
	GPS	XS	10/31/2011	1774555.90	1647466.20	6405.25	388.94
	GPS	XS	10/31/2011	1774556.65	1647467.03	6405.49	390.02
	GPS	XS	10/31/2011	1774562.51	1647471.01	6405.89	397.11
	GPS	XS	10/31/2011	1774563.33	1647471.53	6405.57	398.08
	GPS	XS	10/31/2011	1774566.44	1647473.62	6407.35	401.82
	GPS	XS	10/31/2011	1774572.55	1647477.95	6408.53	409.31
	GPS	XS	10/31/2011	1774579.05	1647482.86	6410.97	417.44
	GPS	BM	10/31/2011	1774579.10	1647482.92	6411.83	-
Pueblo Lower Willows +300 ft	GPS	BM	10/31/2011	1774449.31	1647515.87	6413.89	-
	GPS	BM	10/31/2011	1774466.01	1647527.30	6412.64	-
	GPS	XS	9/22/2009	1774169.56	1647328.27	6413.23	0
	GPS	XS	10/31/2011	1774449.39	1647515.92	6413.27	336.93
	GPS	XS	10/31/2011	1774466.77	1647527.56	6411.96	357.85
	GPS	XS	10/31/2011	1774467.64	1647528.43	6409.57	359.05
	GPS	XS	10/31/2011	1774474.14	1647532.76	6404.76	366.86
	GPS	XS	10/31/2011	1774476.76	1647534.58	6404.08	370.06
	GPS	XS	10/31/2011	1774477.82	1647535.46	6403.81	371.43
	GPS	XS	10/31/2011	1774478.98	1647536.80	6403.56	373.13
	GPS	XS	10/31/2011	1774480.19	1647537.28	6402.88	374.40
	GPS	XS	10/31/2011	1774480.81	1647537.68	6402.68	375.15
	GPS	XS	10/31/2011	1774482.93	1647539.04	6402.86	377.66
	GPS	XS	10/31/2011	1774483.80	1647539.83	6402.96	378.83
	GPS	XS	10/31/2011	1774484.89	1647540.13	6402.95	379.89
	GPS	XS	10/31/2011	1774486.42	1647541.26	6402.85	381.80
	GPS	XS	10/31/2011	1774486.90	1647541.92	6402.45	382.56
	GPS	XS	10/31/2011	1774487.91	1647542.51	6402.33	383.73
	GPS	XS	10/31/2011	1774488.63	1647542.97	6402.56	384.59
	GPS	XS	10/31/2011	1774489.76	1647543.66	6402.90	385.90
	GPS	XS	10/31/2011	1774492.92	1647545.99	6403.15	389.82
	GPS	XS	10/31/2011	1774495.53	1647547.85	6403.78	393.03
	GPS	XS	10/31/2011	1774498.92	1647550.66	6405.97	397.42
	GPS	XS	10/31/2011	1774502.95	1647553.27	6406.03	402.22
	GPS	BM	10/31/2011	1774503.04	1647553.32	6406.33	-
	GPS	BM	10/31/2011	1774547.53	1647585.13	6419.45	-
Pueblo Lower Willows +400 ft	GPS	BM	10/31/2011	1774439.92	1647634.38	6407.42	-
	GPS	XS	9/22/2009	1774116.21	1647412.00	6411.78	0
	GPS	XS	10/31/2011	1774440.11	1647634.44	6406.83	392.93
	GPS	XS	10/31/2011	1774447.56	1647639.93	6406.32	402.18
	GPS	XS	10/31/2011	1774449.65	1647641.02	6403.10	404.51
	GPS	XS	10/31/2011	1774450.82	1647642.02	6402.31	406.05
	GPS	XS	10/31/2011	1774451.79	1647642.49	6401.90	407.11
	GPS	XS	10/31/2011	1774452.33	1647642.81	6401.33	407.74
	GPS	XS	10/31/2011	1774454.06	1647643.96	6401.22	409.82
	GPS	XS	10/31/2011	1774454.36	1647644.17	6401.01	410.18
	GPS	XS	10/31/2011	1774455.13	1647644.57	6400.72	411.04
	GPS	XS	10/31/2011	1774456.16	1647645.37	6400.65	412.35
	GPS	XS	10/31/2011	1774456.57	1647645.68	6400.90	412.86
	GPS	XS	10/31/2011	1774456.75	1647646.13	6401.73	413.26
	GPS	XS	10/31/2011	1774458.20	1647646.95	6402.26	414.92
	GPS	XS	10/31/2011	1774458.91	1647647.30	6401.81	415.71
	GPS	XS	10/31/2011	1774461.44	1647649.18	6402.83	418.85
	GPS	XS	10/31/2011	1774461.83	1647649.35	6402.39	419.28

	GPS	XS	10/31/2011	1774467.52	1647653.49	6405.43	426.31
	GPS	XS	10/31/2011	1774478.33	1647661.31	6413.51	439.65
	GPS	XS	10/31/2011	1774482.32	1647664.46	6414.52	444.72
	GPS	BM	10/31/2011	1774482.38	1647664.50	6414.98	-
Pueblo Lower Willows +500 ft	GPS	BM	10/31/2011	1774364.73	1647708.20	6405.66	-
	GPS	XS	9/22/2009	1774057.48	1647476.97	6411.83	0
	GPS	XS	10/31/2011	1774364.86	1647708.27	6404.97	384.68
	GPS	XS	10/31/2011	1774372.84	1647714.68	6404.24	394.91
	GPS	XS	10/31/2011	1774374.46	1647715.61	6403.81	396.77
	GPS	XS	10/31/2011	1774378.86	1647719.16	6403.64	402.42
	GPS	XS	10/31/2011	1774381.32	1647721.20	6402.35	405.61
	GPS	XS	10/31/2011	1774383.47	1647722.62	6402.20	408.18
	GPS	XS	10/31/2011	1774385.47	1647724.10	6401.29	410.67
	GPS	XS	10/31/2011	1774386.52	1647724.66	6401.20	411.84
	GPS	XS	10/31/2011	1774387.06	1647725.08	6400.90	412.53
	GPS	XS	10/31/2011	1774388.00	1647725.66	6400.63	413.62
	GPS	XS	10/31/2011	1774390.77	1647727.59	6400.08	417.00
	GPS	XS	10/31/2011	1774392.18	1647728.89	6399.59	418.90
	GPS	XS	10/31/2011	1774392.63	1647729.23	6399.32	419.47
	GPS	XS	10/31/2011	1774393.11	1647729.90	6399.61	420.26
	GPS	XS	10/31/2011	1774393.80	1647730.51	6399.80	421.18
	GPS	XS	10/31/2011	1774394.87	1647731.21	6399.97	422.45
	GPS	XS	10/31/2011	1774395.47	1647731.74	6400.28	423.25
	GPS	XS	10/31/2011	1774398.83	1647734.34	6400.50	427.50
	GPS	XS	10/31/2011	1774400.93	1647736.14	6401.70	430.26
	GPS	XS	10/31/2011	1774409.39	1647742.69	6409.00	440.96
	GPS	XS	10/31/2011	1774410.07	1647743.21	6409.06	441.81
	GPS	BM	10/31/2011	1774410.13	1647743.24	6409.79	-
Pueblo Lower Willows +600 ft	GPS	BM	9/22/2009	1774259.71	1647749.29	6404.05	-
	GPS	XS	10/20/2011	1774007.78	1647574.16	6409.65	0
	GPS	XS	10/20/2011	1774259.85	1647749.42	6403.72	307.01
	GPS	XS	10/20/2011	1774263.79	1647752.28	6403.47	311.87
	GPS	XS	10/20/2011	1774267.52	1647754.85	6401.80	316.41
	GPS	XS	10/20/2011	1774269.15	1647755.87	6401.28	318.33
	GPS	XS	10/20/2011	1774272.91	1647758.72	6400.02	323.04
	GPS	XS	10/20/2011	1774276.24	1647760.76	6399.49	326.93
	GPS	XS	10/20/2011	1774281.20	1647763.62	6398.11	332.65
	GPS	XS	10/20/2011	1774282.11	1647764.52	6396.38	333.90
	GPS	XS	10/20/2011	1774284.36	1647766.44	6396.93	336.85
	GPS	XS	10/20/2011	1774286.13	1647767.28	6396.82	338.78
	GPS	XS	10/20/2011	1774286.98	1647768.01	6397.38	339.90
	GPS	XS	10/20/2011	1774287.85	1647768.98	6397.77	341.16
	GPS	XS	10/20/2011	1774289.64	1647770.14	6398.33	343.29
	GPS	XS	10/20/2011	1774291.87	1647771.06	6398.10	345.65
	GPS	XS	10/20/2011	1774291.85	1647771.60	6397.57	345.95
	GPS	XS	10/20/2011	1774292.91	1647772.42	6397.73	347.28
	GPS	XS	10/20/2011	1774293.65	1647773.07	6397.38	348.26
	GPS	XS	10/20/2011	1774297.56	1647775.62	6397.27	352.93
	GPS	XS	10/20/2011	1774300.51	1647777.89	6397.72	356.64
	GPS	XS	10/20/2011	1774301.77	1647778.76	6398.12	358.17
	GPS	XS	10/20/2011	1774303.46	1647779.62	6397.94	360.05
	GPS	XS	10/20/2011	1774305.81	1647781.17	6397.40	362.86
	GPS	XS	10/20/2011	1774307.00	1647782.33	6398.09	364.51
	GPS	XS	10/20/2011	1774309.03	1647784.19	6401.62	367.24
	GPS	XS	10/20/2011	1774318.68	1647790.70	6405.79	378.88

	GPS	XS	10/20/2011	1774324.82	1647794.80	6405.89	386.26
	GPS	XS	10/20/2011	1774328.86	1647797.99	6405.83	391.39
	GPS	BM	10/20/2011	1774328.98	1647798.06	6406.40	-
Pueblo Lower Willows +700 ft	GPS	BM	10/20/2011	1774061.59	1647740.11	6405.81	-
	GPS	XS	9/22/2009	1773969.80	1647672.77	6405.91	0
	GPS	XS	10/20/2011	1774061.63	1647740.20	6405.11	113.93
	GPS	XS	10/20/2011	1774064.90	1647742.77	6405.08	118.09
	GPS	XS	10/20/2011	1774068.98	1647745.90	6405.00	123.22
	GPS	XS	10/20/2011	1774071.70	1647747.45	6404.00	126.34
	GPS	XS	10/20/2011	1774077.88	1647751.43	6400.94	133.67
	GPS	XS	10/20/2011	1774081.16	1647753.54	6400.08	137.57
	GPS	XS	10/20/2011	1774083.95	1647755.19	6399.57	140.79
	GPS	XS	10/20/2011	1774086.87	1647757.10	6399.31	144.28
	GPS	XS	10/20/2011	1774092.59	1647760.41	6397.46	150.85
	GPS	XS	10/20/2011	1774092.90	1647761.13	6396.79	151.53
	GPS	XS	10/20/2011	1774096.93	1647763.05	6396.09	155.93
	GPS	XS	10/20/2011	1774098.86	1647764.78	6395.44	158.50
	GPS	XS	10/20/2011	1774100.64	1647766.53	6395.30	160.96
	GPS	XS	10/20/2011	1774104.17	1647767.49	6394.86	164.40
	GPS	XS	10/20/2011	1774108.16	1647771.66	6395.22	170.06
	GPS	XS	10/20/2011	1774112.82	1647774.46	6394.80	175.48
	GPS	XS	10/20/2011	1774115.31	1647776.18	6394.78	178.51
	GPS	XS	10/20/2011	1774118.16	1647778.63	6394.45	182.26
	GPS	XS	10/20/2011	1774122.44	1647780.61	6394.94	186.89
	GPS	XS	10/20/2011	1774126.44	1647783.40	6395.18	191.77
	GPS	XS	10/20/2011	1774132.43	1647787.71	6395.41	199.15
	GPS	XS	10/20/2011	1774136.22	1647789.96	6395.13	203.54
	GPS	XS	10/20/2011	1774137.92	1647791.57	6395.33	205.86
	GPS	XS	10/20/2011	1774141.11	1647793.50	6395.40	209.58
	GPS	XS	10/20/2011	1774142.62	1647794.82	6398.76	211.57
	GPS	XS	10/20/2011	1774145.06	1647796.51	6399.14	214.54
	GPS	XS	10/20/2011	1774147.91	1647798.49	6399.60	218.01
	GPS	BM	10/20/2011	1774147.97	1647798.55	6400.15	-
Pueblo Lower Willows +800 ft	GPS	BM	10/20/2011	1774001.57	1647812.76	6401.58	-
	GPS	XS	9/22/2009	1773933.14	1647766.74	6401.92	0
	GPS	XS	10/20/2011	1774001.67	1647812.84	6400.88	82.59
	GPS	XS	10/20/2011	1774002.44	1647813.42	6400.69	83.56
	GPS	XS	10/20/2011	1774005.26	1647815.20	6397.26	86.89
	GPS	XS	10/20/2011	1774008.72	1647817.71	6397.21	91.17
	GPS	XS	10/20/2011	1774009.23	1647817.18	6393.62	91.30
	GPS	XS	10/20/2011	1774010.09	1647817.93	6393.29	92.43
	GPS	XS	10/20/2011	1774011.05	1647818.88	6393.58	93.75
	GPS	XS	10/20/2011	1774011.24	1647818.95	6393.82	93.95
	GPS	XS	10/20/2011	1774013.56	1647820.56	6393.52	96.78
	GPS	XS	10/20/2011	1774013.96	1647820.73	6393.95	97.20
	GPS	XS	10/20/2011	1774017.32	1647823.14	6394.14	101.33
	GPS	XS	10/20/2011	1774019.42	1647824.33	6393.90	103.74
	GPS	XS	10/20/2011	1774023.82	1647827.82	6393.92	109.34
	GPS	XS	10/20/2011	1774028.16	1647830.60	6394.00	114.48
	GPS	XS	10/20/2011	1774031.45	1647832.69	6394.88	118.38
	GPS	XS	10/20/2011	1774036.45	1647834.71	6396.68	123.67
	GPS	XS	10/20/2011	1774040.62	1647838.47	6396.54	129.22
	GPS	XS	10/20/2011	1774046.75	1647842.40	6396.36	136.51
	GPS	XS	10/20/2011	1774052.47	1647847.02	6396.42	143.82
	GPS	XS	10/20/2011	1774057.27	1647849.41	6396.91	149.14

	GPS	XS	10/20/2011	1774062.29	1647853.18	6399.03	155.41
	GPS	XS	10/20/2011	1774063.99	1647854.36	6399.48	157.48
	GPS	XS	10/20/2011	1774067.48	1647856.74	6401.70	161.71
	GPS	XS	10/20/2011	1774069.49	1647858.10	6401.65	164.14
	GPS	XS	10/20/2011	1774071.22	1647859.12	6401.47	166.14
	GPS	BM	10/20/2011	1774071.31	1647859.21	6402.09	-
Pueblo Lower Willows +900 ft	GPS	BM	10/20/2011	1773942.66	1647891.78	6397.70	-
	GPS	XS	9/22/2009	1773925.08	1647880.42	6399.48	0
	GPS	XS	10/20/2011	1773942.77	1647891.84	6396.81	21.05
	GPS	XS	10/20/2011	1773948.60	1647895.81	6395.45	28.11
	GPS	XS	10/20/2011	1773950.72	1647897.54	6395.44	30.83
	GPS	XS	10/20/2011	1773952.60	1647898.76	6395.42	33.07
	GPS	XS	10/20/2011	1773955.31	1647900.39	6395.24	36.23
	GPS	XS	10/20/2011	1773957.03	1647901.67	6395.61	38.37
	GPS	XS	10/20/2011	1773957.74	1647902.21	6395.87	39.26
	GPS	XS	10/20/2011	1773960.61	1647904.04	6395.10	42.66
	GPS	XS	10/20/2011	1773964.05	1647906.46	6394.77	46.87
	GPS	XS	10/20/2011	1773967.27	1647908.66	6394.44	50.77
	GPS	XS	10/20/2011	1773969.54	1647910.41	6393.34	53.63
	GPS	XS	10/20/2011	1773974.52	1647914.02	6392.95	59.78
	GPS	XS	10/20/2011	1773978.37	1647916.47	6392.95	64.33
	GPS	XS	10/20/2011	1773979.38	1647916.55	6392.63	65.22
	GPS	XS	10/20/2011	1773980.21	1647917.37	6392.36	66.36
	GPS	XS	10/20/2011	1773981.41	1647918.32	6392.31	67.89
	GPS	XS	10/20/2011	1773981.82	1647918.52	6392.61	68.34
	GPS	XS	10/20/2011	1773984.87	1647921.14	6392.36	72.34
	GPS	XS	10/20/2011	1773985.95	1647921.31	6391.81	73.33
	GPS	XS	10/20/2011	1773988.47	1647923.61	6391.93	76.70
	GPS	XS	10/20/2011	1773988.78	1647923.89	6392.47	77.12
	GPS	XS	10/20/2011	1773990.62	1647924.92	6392.87	79.22
	GPS	XS	10/20/2011	1774002.07	1647932.97	6400.55	93.22
	GPS	XS	10/20/2011	1774004.20	1647934.46	6400.87	95.81
	GPS	BM	10/20/2011	1774004.25	1647934.55	6401.28	-
Pueblo Lower Willows +1000 ft	GPS	BM	10/20/2011	1773829.53	1647935.59	6397.56	-
	GPS	XS	9/22/2009	1773819.59	1647928.69	6398.11	0
	GPS	XS	10/20/2011	1773829.59	1647935.65	6397.04	12.19
	GPS	XS	10/20/2011	1773830.48	1647936.24	6396.94	13.26
	GPS	XS	10/20/2011	1773834.09	1647938.70	6395.42	17.63
	GPS	XS	10/20/2011	1773835.75	1647939.90	6395.31	19.67
	GPS	XS	10/20/2011	1773837.72	1647940.94	6395.60	21.89
	GPS	XS	10/20/2011	1773838.82	1647941.70	6395.23	23.23
	GPS	XS	10/20/2011	1773840.48	1647942.89	6393.92	25.27
	GPS	XS	10/20/2011	1773842.43	1647944.13	6394.10	27.58
	GPS	XS	10/20/2011	1773844.63	1647945.58	6394.95	30.21
	GPS	XS	10/20/2011	1773849.39	1647948.97	6394.65	36.05
	GPS	XS	10/20/2011	1773853.87	1647951.76	6394.85	41.33
	GPS	XS	10/20/2011	1773855.92	1647953.13	6394.68	43.79
	GPS	XS	10/20/2011	1773857.48	1647954.91	6393.93	46.09
	GPS	XS	10/20/2011	1773860.10	1647955.90	6392.46	48.81
	GPS	XS	10/20/2011	1773863.52	1647958.14	6392.08	52.90
	GPS	XS	10/20/2011	1773867.32	1647961.35	6391.76	57.84
	GPS	XS	10/20/2011	1773871.20	1647963.58	6391.88	62.30
	GPS	XS	10/20/2011	1773872.32	1647964.30	6390.76	63.64
	GPS	XS	10/20/2011	1773873.44	1647965.37	6390.60	65.16
	GPS	XS	10/20/2011	1773873.85	1647965.72	6391.49	65.69

	GPS	XS	10/20/2011	1773875.65	1647967.34	6391.70	68.10
	GPS	XS	10/20/2011	1773876.70	1647967.66	6390.52	69.15
	GPS	XS	10/20/2011	1773878.39	1647968.05	6390.33	70.76
	GPS	XS	10/20/2011	1773880.11	1647969.16	6390.70	72.81
	GPS	XS	10/20/2011	1773880.31	1647969.49	6391.29	73.16
	GPS	XS	10/20/2011	1773881.94	1647970.73	6391.27	75.21
	GPS	XS	10/20/2011	1773882.55	1647971.29	6391.68	76.02
	GPS	XS	10/20/2011	1773887.92	1647974.89	6391.90	82.48
	GPS	XS	10/20/2011	1773897.84	1647980.68	6396.57	93.95
	GPS	XS	10/20/2011	1773903.55	1647984.91	6397.55	101.05
	GPS	XS	10/20/2011	1773907.75	1647988.18	6397.47	106.36
	GPS	BM	10/20/2011	1773907.84	1647988.34	6397.95	-
Pueblo Lower Willows +1100 ft	GPS	BM	10/20/2011	1773763.61	1648015.89	6395.96	-
	GPS	XS	9/22/2009	1773763.48	1648015.76	6395.44	0
	GPS	XS	10/20/2011	1773763.67	1648015.91	6395.47	0.25
	GPS	XS	10/20/2011	1773766.02	1648018.03	6394.39	3.41
	GPS	XS	10/20/2011	1773772.05	1648021.76	6393.78	10.46
	GPS	XS	10/20/2011	1773778.38	1648025.85	6393.32	18.00
	GPS	XS	10/20/2011	1773784.73	1648030.09	6392.88	25.63
	GPS	XS	10/20/2011	1773791.61	1648034.51	6393.01	33.81
	GPS	XS	10/20/2011	1773796.94	1648037.99	6393.18	40.18
	GPS	XS	10/20/2011	1773799.56	1648039.70	6392.33	43.30
	GPS	XS	10/20/2011	1773803.31	1648042.04	6390.36	47.72
	GPS	XS	10/20/2011	1773803.83	1648042.60	6389.74	48.46
	GPS	XS	10/20/2011	1773805.19	1648043.63	6389.74	50.16
	GPS	XS	10/20/2011	1773805.59	1648043.88	6390.78	50.63
	GPS	XS	10/20/2011	1773809.82	1648046.82	6390.79	55.78
	GPS	XS	10/20/2011	1773813.47	1648049.22	6390.83	60.16
	GPS	XS	10/20/2011	1773813.84	1648049.37	6389.74	60.54
	GPS	XS	10/20/2011	1773814.56	1648050.06	6389.47	61.53
	GPS	XS	10/20/2011	1773816.37	1648051.18	6389.97	63.65
	GPS	XS	10/20/2011	1773817.12	1648051.65	6390.72	64.54
	GPS	XS	10/20/2011	1773823.37	1648055.97	6390.63	72.14
	GPS	XS	10/20/2011	1773828.14	1648059.24	6390.64	77.92
	GPS	XS	10/20/2011	1773832.97	1648062.48	6390.86	83.73
	GPS	XS	10/20/2011	1773838.88	1648066.33	6391.08	90.79
	GPS	XS	10/20/2011	1773843.75	1648069.45	6390.82	96.57
	GPS	XS	10/20/2011	1773847.92	1648072.58	6391.36	101.78
	GPS	XS	10/20/2011	1773850.60	1648074.32	6391.38	104.97
	GPS	XS	10/20/2011	1773861.47	1648081.60	6395.12	118.05
	GPS	XS	10/20/2011	1773864.75	1648083.81	6395.20	122.01
	GPS	XS	10/20/2011	1773870.11	1648087.27	6394.91	128.39
	GPS	BM	10/20/2011	1773870.13	1648087.34	6395.67	-
Pueblo Lower Willows Thalweg Profile	GPS	TP[f]	11/15/2011	1775098.69	1646318.78	6433.14	0
	GPS	TP	11/15/2011	1775096.10	1646323.67	6432.44	5.53
	GPS	TP	11/15/2011	1775098.57	1646327.01	6432.55	9.68
	GPS	TP	11/15/2011	1775098.99	1646332.78	6432.75	15.47
	GPS	TP	11/15/2011	1775093.26	1646348.51	6432.47	32.21
	GPS	TP	11/15/2011	1775087.96	1646354.72	6432.34	40.37
	GPS	TP	11/15/2011	1775085.40	1646359.91	6431.88	46.15
	GPS	TP	11/15/2011	1775083.73	1646362.79	6432.06	49.49
	GPS	TP	11/15/2011	1775081.08	1646364.43	6432.08	52.60
	GPS	TP	11/15/2011	1775077.51	1646364.69	6431.68	56.18
	GPS	TP	11/15/2011	1775074.33	1646365.62	6432.28	59.50
	GPS	TP	11/15/2011	1775070.70	1646368.37	6431.78	64.05

GPS	TP	11/15/2011	1775066.83	1646374.51	6431.35	71.31
GPS	TP	11/15/2011	1775064.11	1646379.07	6431.58	76.62
GPS	TP	11/15/2011	1775060.30	1646381.97	6431.43	81.40
GPS	TP	11/15/2011	1775058.01	1646389.38	6431.75	89.16
GPS	TP	11/15/2011	1775056.12	1646396.35	6431.55	96.38
GPS	TP	11/15/2011	1775050.59	1646401.98	6431.98	104.28
GPS	TP	11/15/2011	1775051.63	1646407.01	6431.68	109.42
GPS	TP	11/15/2011	1775054.23	1646410.21	6431.16	113.54
GPS	TP	11/15/2011	1775052.92	1646417.31	6431.04	120.76
GPS	TP	11/15/2011	1775051.26	1646427.19	6430.63	130.78
GPS	TP	11/15/2011	1775048.28	1646433.90	6430.79	138.13
GPS	TP	11/15/2011	1775042.37	1646437.13	6430.60	144.85
GPS	TP	11/15/2011	1775036.84	1646446.47	6429.63	155.71
GPS	TP	11/15/2011	1775032.09	1646448.64	6429.53	160.93
GPS	TP	11/15/2011	1775028.23	1646450.78	6430.63	165.35
GPS	TP	11/15/2011	1775019.66	1646451.06	6430.41	173.91
GPS	TP	11/15/2011	1775012.59	1646454.79	6429.96	181.91
GPS	TP	11/15/2011	1775005.67	1646459.52	6429.82	190.29
GPS	TP	11/15/2011	1775001.01	1646462.78	6429.97	195.98
GPS	TP	11/15/2011	1774994.22	1646468.07	6429.67	204.59
GPS	TP	11/15/2011	1774991.21	1646471.78	6429.61	209.36
GPS	TP	11/15/2011	1774990.12	1646473.43	6428.95	211.34
GPS	TP	11/15/2011	1774987.53	1646476.41	6429.82	215.29
GPS	TP	11/15/2011	1774981.02	1646477.08	6429.37	221.84
GPS	TP	11/15/2011	1774977.99	1646478.03	6429.62	225.01
GPS	TP	11/15/2011	1774974.47	1646479.40	6429.72	228.79
GPS	TP	11/15/2011	1774965.52	1646486.81	6429.49	240.41
GPS	TP	11/15/2011	1774963.09	1646489.63	6429.52	244.13
GPS	TP	11/15/2011	1774959.03	1646493.90	6429.37	250.03
GPS	TP	11/15/2011	1774949.17	1646499.69	6428.98	261.46
GPS	TP	11/15/2011	1774941.19	1646501.12	6428.98	269.56
GPS	TP	11/15/2011	1774937.96	1646504.06	6428.63	273.93
GPS	TP	11/15/2011	1774927.87	1646508.93	6428.76	285.14
GPS	TP	11/15/2011	1774915.89	1646515.14	6428.13	298.63
GPS	TP	11/15/2011	1774910.61	1646522.64	6428.27	307.80
GPS	TP	11/15/2011	1774905.99	1646529.61	6427.60	316.16
GPS	TP	11/15/2011	1774907.60	1646536.44	6427.25	323.18
GPS	TP	11/15/2011	1774907.51	1646542.06	6428.43	328.80
GPS	TP	11/15/2011	1774906.16	1646550.75	6428.00	337.60
GPS	TP	11/15/2011	1774903.57	1646560.58	6427.39	347.76
GPS	TP	11/15/2011	1774908.73	1646570.88	6427.51	359.28
GPS	TP	11/15/2011	1774909.30	1646573.66	6427.47	362.12
GPS	TP	11/15/2011	1774908.37	1646579.17	6427.46	367.71
GPS	TP	11/15/2011	1774903.26	1646586.15	6427.80	376.36
GPS	TP	11/15/2011	1774900.00	1646591.95	6427.54	383.02
GPS	TP	11/15/2011	1774898.45	1646597.61	6426.92	388.88
GPS	TP	11/15/2011	1774897.69	1646601.14	6427.31	392.49
GPS	TP	11/15/2011	1774892.70	1646603.90	6427.62	398.19
GPS	TP	11/15/2011	1774890.33	1646607.45	6427.39	402.46
GPS	TP	11/15/2011	1774889.80	1646609.41	6427.03	404.49
GPS	TP	11/15/2011	1774888.43	1646613.80	6426.65	409.09
GPS	TP	11/15/2011	1774883.97	1646617.83	6427.23	415.11
GPS	TP	11/15/2011	1774881.43	1646620.80	6427.30	419.01
GPS	TP	11/15/2011	1774879.60	1646627.42	6426.73	425.88
GPS	TP	11/15/2011	1774875.94	1646633.94	6427.49	433.36

GPS	TP	11/15/2011	1774877.20	1646637.33	6426.79	436.97
GPS	TP	11/15/2011	1774874.56	1646642.77	6426.84	443.02
GPS	TP	11/15/2011	1774868.71	1646650.44	6427.02	452.66
GPS	TP	11/15/2011	1774862.03	1646659.39	6426.89	463.84
GPS	TP	11/15/2011	1774858.01	1646666.79	6426.88	472.26
GPS	TP	11/15/2011	1774854.45	1646673.57	6427.18	479.91
GPS	TP	11/15/2011	1774852.18	1646676.80	6426.76	483.87
GPS	TP	11/15/2011	1774848.38	1646677.94	6426.64	487.83
GPS	TP	11/15/2011	1774846.53	1646680.87	6426.47	491.29
GPS	TP	11/15/2011	1774843.76	1646686.43	6426.80	497.51
GPS	TP	11/15/2011	1774840.36	1646694.26	6426.90	506.04
GPS	TP	11/15/2011	1774839.22	1646703.56	6426.75	515.41
GPS	TP	11/15/2011	1774832.37	1646710.58	6426.70	525.22
GPS	TP	11/15/2011	1774825.57	1646712.75	6427.06	532.36
GPS	TP	11/15/2011	1774822.09	1646716.11	6427.41	537.19
GPS	TP	11/15/2011	1774820.63	1646720.76	6427.02	542.07
GPS	TP	11/15/2011	1774817.88	1646723.95	6427.41	546.27
GPS	TP	11/15/2011	1774817.31	1646727.69	6426.67	550.06
GPS	TP	11/15/2011	1774816.85	1646733.25	6426.30	555.64
GPS	TP	11/15/2011	1774815.02	1646739.29	6426.02	561.95
GPS	TP	11/15/2011	1774813.08	1646744.45	6426.97	567.46
GPS	TP	11/15/2011	1774809.41	1646755.99	6426.81	579.58
GPS	TP	11/15/2011	1774806.16	1646762.24	6426.60	586.62
GPS	TP	11/15/2011	1774801.59	1646765.17	6427.02	592.04
GPS	TP	11/15/2011	1774797.55	1646767.41	6426.54	596.67
GPS	TP	11/15/2011	1774796.80	1646774.18	6426.24	603.48
GPS	TP	11/15/2011	1774795.31	1646779.90	6426.05	609.39
GPS	TP	11/15/2011	1774796.33	1646792.25	6426.08	621.78
GPS	TP	11/15/2011	1774796.55	1646797.84	6426.07	627.37
GPS	TP	11/15/2011	1774799.82	1646804.21	6425.95	634.53
GPS	TP	11/15/2011	1774801.89	1646813.76	6425.84	644.30
GPS	TP	11/15/2011	1774798.59	1646823.49	6425.58	654.58
GPS	TP	11/15/2011	1774798.82	1646824.03	6423.91	655.17
GPS	TP	11/15/2011	1774798.60	1646825.76	6423.93	656.91
GPS	TP	11/15/2011	1774799.58	1646827.59	6424.68	658.99
GPS	TP	11/15/2011	1774802.71	1646831.52	6424.47	664.01
GPS	TP	11/15/2011	1774805.67	1646836.03	6424.13	669.40
GPS	TP	11/15/2011	1774805.97	1646838.11	6424.44	671.51
GPS	TP	11/15/2011	1774805.99	1646843.91	6424.29	677.30
GPS	TP	11/15/2011	1774800.85	1646849.70	6424.02	685.04
GPS	TP	11/15/2011	1774798.38	1646853.39	6423.99	689.49
GPS	TP	11/15/2011	1774794.04	1646866.73	6423.86	703.52
GPS	TP	11/15/2011	1774794.09	1646869.47	6423.86	706.25
GPS	TP	11/15/2011	1774791.03	1646871.49	6423.46	709.92
GPS	TP	11/15/2011	1774791.47	1646874.83	6423.44	713.29
GPS	TP	11/15/2011	1774788.82	1646877.31	6423.56	716.93
GPS	TP	11/15/2011	1774784.77	1646887.83	6423.34	728.20
GPS	TP	11/15/2011	1774780.16	1646897.49	6423.26	738.90
GPS	TP	11/15/2011	1774779.66	1646905.03	6422.95	746.46
GPS	TP	11/15/2011	1774776.64	1646914.37	6422.61	756.27
GPS	TP	11/15/2011	1774771.25	1646924.32	6422.39	767.59
GPS	TP	11/15/2011	1774768.27	1646930.51	6422.42	774.46
GPS	TP	11/15/2011	1774768.03	1646931.07	6421.38	775.06
GPS	TP	11/15/2011	1774764.24	1646942.55	6421.70	787.16
GPS	TP	11/15/2011	1774763.11	1646950.11	6421.04	794.80

GPS	TP	11/15/2011	1774763.52	1646960.22	6420.65	804.92
GPS	TP	11/15/2011	1774770.67	1646968.66	6419.98	815.98
GPS	TP	11/15/2011	1774769.37	1646974.91	6419.71	822.36
GPS	TP	11/15/2011	1774770.21	1646978.33	6420.84	825.88
GPS	TP	11/15/2011	1774765.57	1646983.83	6420.29	833.07
GPS	TP	11/15/2011	1774764.88	1646984.20	6419.49	833.86
GPS	TP	11/15/2011	1774762.49	1646987.36	6419.41	837.82
GPS	TP	11/15/2011	1774764.78	1646990.06	6418.79	841.37
GPS	TP	11/15/2011	1774763.55	1646993.52	6419.05	845.04
GPS	TP	11/15/2011	1774763.88	1646995.31	6419.05	846.85
GPS	TP	11/15/2011	1774762.70	1646997.76	6418.97	849.57
GPS	TP	11/15/2011	1774764.95	1646999.05	6418.68	852.17
GPS	TP	11/15/2011	1774765.03	1646999.79	6418.57	852.92
GPS	TP	11/15/2011	1774765.45	1647001.62	6418.54	854.80
GPS	TP	11/15/2011	1774765.22	1647004.87	6418.68	858.06
GPS	TP	11/15/2011	1774769.36	1647004.30	6419.27	862.25
GPS	TP	11/15/2011	1774763.13	1647008.68	6418.39	869.87
GPS	TP	11/15/2011	1774757.14	1647012.97	6418.43	877.24
GPS	TP	11/15/2011	1774758.39	1647018.64	6418.37	883.05
GPS	TP	11/15/2011	1774756.56	1647024.74	6418.23	889.41
GPS	TP	11/15/2011	1774756.81	1647028.19	6418.61	892.87
GPS	TP	11/15/2011	1774753.63	1647036.05	6418.78	901.35
GPS	TP	11/15/2011	1774751.61	1647036.72	6418.47	903.48
GPS	TP	11/15/2011	1774744.39	1647051.86	6418.44	920.24
GPS	TP	11/15/2011	1774743.51	1647052.53	6417.56	921.35
GPS	TP	11/15/2011	1774746.86	1647056.88	6418.32	926.85
GPS	TP	11/15/2011	1774745.91	1647059.79	6418.33	929.91
GPS	TP	11/15/2011	1774743.49	1647060.77	6417.84	932.52
GPS	TP	11/15/2011	1774740.84	1647069.78	6417.88	941.91
GPS	TP	11/15/2011	1774740.61	1647077.77	6417.75	949.90
GPS	TP	11/15/2011	1774734.38	1647087.92	6417.61	961.81
GPS	TP	11/15/2011	1774729.88	1647093.86	6417.63	969.27
GPS	TP	11/15/2011	1774726.24	1647103.58	6417.78	979.65
GPS	TP	11/15/2011	1774727.38	1647105.46	6417.52	981.83
GPS	TP	11/15/2011	1774723.73	1647108.34	6417.54	986.48
GPS	TP	11/15/2011	1774721.65	1647108.69	6417.40	988.59
GPS	TP	11/15/2011	1774721.14	1647108.72	6416.42	989.11
GPS	TP	11/15/2011	1774714.58	1647111.27	6417.03	996.14
GPS	TP	11/15/2011	1774708.83	1647115.08	6417.14	1003.03
GPS	TP	11/15/2011	1774705.60	1647118.38	6417.20	1007.66
GPS	TP	11/15/2011	1774704.40	1647119.17	6417.07	1009.09
GPS	TP	11/15/2011	1774703.35	1647123.01	6416.66	1013.07
GPS	TP	11/15/2011	1774705.17	1647127.45	6416.61	1017.87
GPS	TP	11/15/2011	1774711.78	1647132.01	6415.95	1025.90
GPS	TP	11/15/2011	1774714.02	1647137.28	6415.96	1031.63
GPS	TP	11/15/2011	1774712.15	1647142.25	6416.15	1036.94
GPS	TP	11/15/2011	1774714.48	1647145.60	6416.19	1041.02
GPS	TP	11/15/2011	1774713.64	1647148.32	6416.19	1043.87
GPS	TP	11/15/2011	1774711.94	1647151.45	6416.17	1047.43
GPS	TP	11/15/2011	1774707.59	1647154.24	6416.41	1052.60
GPS	TP	11/15/2011	1774706.51	1647155.32	6415.59	1054.13
GPS	TP	11/15/2011	1774706.76	1647158.12	6416.02	1056.94
GPS	TP	11/15/2011	1774708.04	1647163.86	6415.55	1062.81
GPS	TP	11/15/2011	1774703.18	1647165.55	6415.36	1067.96
GPS	TP	11/15/2011	1774698.44	1647166.38	6415.50	1072.77

GPS	TP	11/15/2011	1774696.82	1647169.68	6416.02	1076.44
GPS	TP	11/15/2011	1774696.72	1647171.25	6415.46	1078.02
GPS	TP	11/15/2011	1774698.57	1647180.09	6415.39	1087.05
GPS	TP	11/15/2011	1774695.22	1647184.63	6415.32	1092.69
GPS	TP	11/15/2011	1774699.48	1647191.89	6415.48	1101.10
GPS	TP	11/15/2011	1774697.72	1647199.49	6414.60	1108.90
GPS	TP	11/15/2011	1774691.04	1647210.78	6414.08	1122.03
GPS	TP	11/15/2011	1774684.04	1647210.08	6413.51	1129.06
GPS	TP	11/15/2011	1774676.37	1647209.81	6413.95	1136.73
GPS	TP	11/15/2011	1774669.40	1647217.06	6414.77	1146.79
GPS	TP	11/15/2011	1774664.75	1647221.57	6414.06	1153.27
GPS	TP	11/15/2011	1774664.04	1647225.94	6413.85	1157.69
GPS	TP	11/15/2011	1774659.83	1647225.72	6413.54	1161.90
GPS	TP	11/15/2011	1774655.82	1647226.22	6413.95	1165.95
GPS	TP	11/15/2011	1774651.15	1647234.12	6413.53	1175.12
GPS	TP	11/15/2011	1774648.07	1647235.41	6414.03	1178.46
GPS	TP	11/15/2011	1774645.82	1647237.54	6414.06	1181.56
GPS	TP	11/15/2011	1774643.79	1647241.96	6412.79	1186.42
GPS	TP	11/15/2011	1774640.07	1647243.66	6413.89	1190.51
GPS	TP	11/15/2011	1774638.76	1647246.60	6413.13	1193.73
GPS	TP	11/15/2011	1774629.80	1647250.83	6413.38	1203.64
GPS	TP	11/15/2011	1774623.29	1647254.46	6413.29	1211.09
GPS	TP	11/15/2011	1774620.13	1647260.51	6413.26	1217.92
GPS	TP	11/15/2011	1774614.03	1647264.93	6413.28	1225.44
GPS	TP	11/15/2011	1774603.56	1647267.87	6412.95	1236.32
GPS	TP	11/15/2011	1774600.93	1647270.73	6413.07	1240.21
GPS	TP	11/15/2011	1774595.70	1647272.94	6413.19	1245.88
GPS	TP	11/15/2011	1774593.53	1647271.52	6413.28	1248.48
GPS	TP	11/15/2011	1774591.72	1647273.04	6413.16	1250.84
GPS	TP	11/15/2011	1774588.99	1647275.80	6413.17	1254.71
GPS	TP	11/15/2011	1774587.07	1647284.45	6413.06	1263.58
GPS	TP	11/15/2011	1774587.82	1647281.98	6413.02	1266.16
GPS	TP	11/15/2011	1774586.80	1647289.13	6412.95	1273.38
GPS	TP	11/15/2011	1774583.77	1647293.13	6412.97	1278.40
GPS	TP	11/15/2011	1774587.20	1647299.66	6412.65	1285.77
GPS	TP	11/15/2011	1774587.51	1647307.33	6412.72	1293.44
GPS	TP	11/15/2011	1774585.82	1647316.06	6412.34	1302.34
GPS	TP	11/15/2011	1774587.81	1647322.66	6412.41	1309.23
GPS	TP	11/15/2011	1774588.75	1647330.17	6412.36	1316.80
GPS	TP	11/15/2011	1774587.63	1647331.59	6412.24	1318.61
GPS	TP	11/15/2011	1774589.38	1647336.38	6412.47	1323.71
GPS	TP	11/15/2011	1774595.94	1647344.17	6412.62	1333.89
GPS	TP	11/15/2011	1774605.71	1647343.19	6411.93	1343.71
GPS	TP	11/15/2011	1774609.59	1647344.13	6411.91	1347.71
GPS	TP	11/15/2011	1774613.07	1647348.86	6411.71	1353.57
GPS	TP	11/15/2011	1774613.84	1647353.40	6411.33	1358.18
GPS	TP	11/15/2011	1774614.29	1647355.35	6410.53	1360.18
GPS	TP	11/15/2011	1774615.35	1647357.35	6409.62	1362.44
GPS	TP	11/15/2011	1774615.93	1647357.83	6408.77	1363.20
GPS	TP	11/15/2011	1774617.91	1647360.45	6408.51	1366.49
GPS	TP	11/15/2011	1774619.21	1647364.04	6408.59	1370.30
GPS	TP	11/15/2011	1774622.41	1647369.69	6408.11	1376.79
GPS	TP	11/15/2011	1774622.55	1647376.58	6408.10	1383.69
GPS	TP	11/15/2011	1774623.07	1647382.19	6407.87	1389.32
GPS	TP	11/15/2011	1774623.68	1647387.58	6407.93	1394.75

GPS	TP	11/15/2011	1774625.38	1647394.41	6408.23	1401.79
GPS	TP	11/15/2011	1774625.29	1647401.03	6408.04	1408.41
GPS	TP	11/15/2011	1774624.69	1647407.39	6407.92	1414.79
GPS	TP	11/15/2011	1774624.29	1647411.84	6407.63	1419.26
GPS	TP	11/15/2011	1774625.31	1647415.53	6407.45	1423.09
GPS	TP	11/15/2011	1774625.38	1647419.69	6407.39	1427.25
GPS	TP	11/15/2011	1774620.85	1647423.56	6406.49	1433.20
GPS	TP	11/15/2011	1774617.59	1647429.89	6407.45	1440.33
GPS	TP	11/15/2011	1774613.38	1647435.47	6407.17	1447.31
GPS	TP	11/15/2011	1774610.30	1647439.00	6407.08	1452.00
GPS	TP	11/15/2011	1774600.49	1647445.86	6406.46	1463.97
GPS	TP	11/15/2011	1774592.45	1647451.35	6405.87	1473.71
GPS	TP	11/15/2011	1774589.33	1647453.52	6405.24	1477.51
GPS	TP	11/15/2011	1774585.63	1647455.69	6405.78	1481.80
GPS	TP	11/15/2011	1774580.94	1647456.22	6405.76	1486.51
GPS	TP	11/15/2011	1774574.44	1647457.54	6404.93	1493.14
GPS	TP	11/15/2011	1774568.65	1647457.60	6404.74	1498.94
GPS	TP	11/15/2011	1774564.95	1647461.11	6405.15	1504.04
GPS	TP	11/15/2011	1774562.61	1647461.68	6405.57	1506.45
GPS	TP	11/15/2011	1774554.42	1647460.99	6405.14	1514.66
GPS	TP	11/15/2011	1774551.69	1647464.58	6404.86	1519.18
GPS	TP	11/15/2011	1774547.61	1647469.01	6404.43	1525.20
GPS	TP	11/15/2011	1774546.53	1647473.62	6404.10	1529.93
GPS	TP	11/15/2011	1774541.53	1647477.54	6404.00	1536.29
GPS	TP	11/15/2011	1774534.19	1647479.61	6403.73	1543.91
GPS	TP	11/15/2011	1774525.09	1647482.33	6403.58	1553.41
GPS	TP	11/15/2011	1774520.73	1647486.37	6403.41	1559.36
GPS	TP	11/15/2011	1774514.72	1647489.97	6403.20	1566.36
GPS	TP	11/15/2011	1774513.71	1647493.29	6403.28	1569.83
GPS	TP	11/15/2011	1774510.00	1647496.89	6402.86	1575.00
GPS	TP	11/15/2011	1774506.36	1647501.65	6402.68	1580.99
GPS	TP	11/15/2011	1774502.94	1647506.24	6402.53	1586.71
GPS	TP	11/15/2011	1774497.31	1647512.41	6402.57	1595.07
GPS	TP	11/15/2011	1774496.11	1647522.13	6403.03	1604.86
GPS	TP	11/15/2011	1774493.41	1647526.89	6402.94	1610.32
GPS	TP	11/15/2011	1774490.87	1647529.67	6402.62	1614.10
GPS	TP	11/15/2011	1774490.04	1647532.44	6402.28	1616.98
GPS	TP	11/15/2011	1774489.89	1647534.22	6401.97	1618.77
GPS	TP	11/15/2011	1774490.15	1647536.61	6401.86	1621.17
GPS	TP	11/15/2011	1774488.85	1647541.24	6402.13	1625.99
GPS	TP	11/15/2011	1774487.48	1647542.64	6402.23	1627.94
GPS	TP	11/15/2011	1774480.89	1647548.27	6402.12	1636.62
GPS	TP	11/15/2011	1774480.95	1647555.11	6402.22	1643.45
GPS	TP	11/15/2011	1774481.34	1647560.16	6401.87	1648.53
GPS	TP	11/15/2011	1774482.27	1647563.52	6401.44	1652.01
GPS	TP	11/15/2011	1774480.47	1647570.12	6401.84	1658.85
GPS	TP	11/15/2011	1774479.82	1647573.99	6401.11	1662.77
GPS	TP	11/15/2011	1774479.71	1647576.17	6401.05	1664.96
GPS	TP	11/15/2011	1774478.91	1647579.71	6402.16	1668.59
GPS	TP	11/15/2011	1774476.66	1647582.85	6402.22	1672.45
GPS	TP	11/15/2011	1774477.56	1647588.26	6402.04	1677.93
GPS	TP	11/15/2011	1774480.13	1647591.82	6401.68	1682.32
GPS	TP	11/15/2011	1774480.85	1647592.86	6401.28	1683.59
GPS	TP	11/15/2011	1774480.37	1647595.28	6400.96	1686.05
GPS	TP	11/15/2011	1774480.64	1647598.42	6401.35	1689.21

GPS	TP	11/15/2011	1774476.52	1647602.94	6401.72	1695.33
GPS	TP	11/15/2011	1774474.79	1647611.90	6401.23	1704.45
GPS	TP	11/15/2011	1774470.59	1647616.23	6401.13	1710.49
GPS	TP	11/15/2011	1774466.98	1647619.21	6401.15	1715.17
GPS	TP	11/15/2011	1774465.77	1647629.96	6400.83	1725.99
GPS	TP	11/15/2011	1774461.95	1647633.50	6401.06	1731.20
GPS	TP	11/15/2011	1774462.43	1647635.76	6400.69	1733.50
GPS	TP	11/15/2011	1774454.84	1647644.70	6400.75	1745.23
GPS	TP	11/15/2011	1774452.66	1647648.15	6400.60	1749.31
GPS	TP	11/15/2011	1774448.39	1647651.05	6400.36	1754.47
GPS	TP	11/15/2011	1774445.13	1647656.55	6400.27	1760.87
GPS	TP	11/15/2011	1774443.39	1647662.57	6400.08	1767.13
GPS	TP	11/15/2011	1774439.03	1647668.27	6399.92	1774.31
GPS	TP	11/15/2011	1774436.84	1647673.11	6399.80	1779.62
GPS	TP	11/15/2011	1774432.77	1647676.39	6400.27	1784.85
GPS	TP	11/15/2011	1774428.59	1647680.93	6400.14	1791.01
GPS	TP	11/15/2011	1774425.04	1647687.86	6399.88	1798.80
GPS	TP	11/15/2011	1774423.79	1647693.29	6399.86	1804.38
GPS	TP	11/15/2011	1774420.26	1647697.09	6399.69	1809.57
GPS	TP	11/15/2011	1774418.27	1647701.68	6399.61	1814.57
GPS	TP	11/15/2011	1774417.71	1647703.41	6399.09	1816.39
GPS	TP	11/15/2011	1774415.44	1647705.65	6399.03	1819.58
GPS	TP	11/15/2011	1774414.49	1647707.28	6399.54	1821.47
GPS	TP	11/15/2011	1774411.37	1647711.54	6399.56	1826.75
GPS	TP	11/15/2011	1774403.88	1647717.79	6399.11	1836.50
GPS	TP	11/15/2011	1774401.06	1647720.91	6399.71	1840.71
GPS	TP	11/15/2011	1774392.43	1647729.92	6399.17	1853.18
GPS	TP	11/15/2011	1774390.41	1647733.96	6399.02	1857.70
GPS	TP	11/15/2011	1774387.94	1647736.56	6399.07	1861.29
GPS	TP	11/15/2011	1774384.77	1647738.75	6398.61	1865.14
GPS	TP	11/15/2011	1774383.67	1647740.73	6398.61	1867.40
GPS	TP	11/15/2011	1774380.36	1647741.92	6399.30	1870.92
GPS	TP	11/15/2011	1774376.53	1647747.16	6399.36	1877.41
GPS	TP	11/15/2011	1774373.52	1647752.76	6399.14	1883.77
GPS	TP	11/15/2011	1774366.58	1647755.45	6399.07	1891.21
GPS	TP	11/15/2011	1774361.44	1647760.08	6398.70	1898.14
GPS	TP	11/15/2011	1774355.94	1647763.20	6398.64	1904.45
GPS	TP	11/15/2011	1774351.55	1647765.96	6398.68	1909.65
GPS	TP	11/15/2011	1774346.33	1647767.53	6398.71	1915.09
GPS	TP	11/15/2011	1774342.95	1647767.66	6398.48	1918.47
GPS	TP	11/15/2011	1774339.52	1647771.02	6397.81	1923.28
GPS	TP	11/15/2011	1774334.87	1647771.74	6397.97	1927.99
GPS	TP	11/15/2011	1774327.11	1647774.29	6397.84	1936.16
GPS	TP	11/15/2011	1774318.91	1647777.50	6397.51	1944.96
GPS	TP	11/15/2011	1774312.82	1647776.27	6397.44	1951.17
GPS	TP	11/15/2011	1774309.49	1647777.42	6396.91	1954.69
GPS	TP	11/15/2011	1774305.13	1647777.70	6397.23	1959.06
GPS	TP	11/15/2011	1774301.53	1647776.58	6397.24	1962.83
GPS	TP	11/15/2011	1774294.39	1647777.33	6396.91	1970.01
GPS	TP	11/15/2011	1774291.45	1647776.14	6396.70	1973.18
GPS	TP	11/15/2011	1774289.58	1647773.82	6397.33	1976.16
GPS	TP	11/15/2011	1774285.69	1647769.64	6396.41	1981.87
GPS	TP	11/15/2011	1774282.05	1647765.81	6396.50	1987.16
GPS	TP	11/15/2011	1774275.76	1647764.75	6396.69	1993.53
GPS	TP	11/15/2011	1774270.71	1647766.80	6396.33	1998.99

GPS	TP	11/15/2011	1774266.77	1647767.99	6396.15	2003.10
GPS	TP	11/15/2011	1774260.98	1647768.23	6396.59	2008.90
GPS	TP	11/15/2011	1774257.73	1647769.20	6396.40	2012.29
GPS	TP	11/15/2011	1774255.98	1647772.88	6396.15	2016.36
GPS	TP	11/15/2011	1774249.92	1647774.06	6396.25	2022.54
GPS	TP	11/15/2011	1774242.61	1647774.24	6395.27	2029.85
GPS	TP	11/15/2011	1774236.01	1647775.27	6395.29	2036.53
GPS	TP	11/15/2011	1774231.62	1647774.25	6395.87	2041.04
GPS	TP	11/15/2011	1774228.04	1647774.00	6395.08	2044.63
GPS	TP	11/15/2011	1774223.62	1647773.79	6394.89	2049.05
GPS	TP	11/15/2011	1774218.16	1647774.44	6395.74	2054.55
GPS	TP	11/15/2011	1774208.53	1647779.02	6395.34	2065.22
GPS	TP	11/15/2011	1774201.17	1647780.64	6395.04	2072.75
GPS	TP	11/15/2011	1774193.16	1647781.86	6394.96	2080.85
GPS	TP	11/15/2011	1774186.38	1647783.01	6394.70	2087.73
GPS	TP	11/15/2011	1774182.45	1647784.30	6394.25	2091.86
GPS	TP	11/15/2011	1774178.98	1647784.85	6394.14	2095.38
GPS	TP	11/15/2011	1774175.98	1647783.78	6394.37	2098.57
GPS	TP	11/15/2011	1774171.40	1647782.16	6394.60	2103.42
GPS	TP	11/15/2011	1774164.86	1647785.30	6394.99	2110.68
GPS	TP	11/15/2011	1774158.79	1647786.36	6395.01	2116.84
GPS	TP	11/15/2011	1774154.88	1647787.74	6395.13	2120.99
GPS	TP	11/15/2011	1774149.52	1647789.60	6394.78	2126.65
GPS	TP	11/15/2011	1774144.40	1647789.82	6394.74	2131.79
GPS	TP	11/15/2011	1774141.51	1647789.54	6394.41	2134.69
GPS	TP	11/15/2011	1774137.42	1647788.53	6395.08	2138.90
GPS	TP	11/15/2011	1774127.09	1647783.15	6394.80	2150.55
GPS	TP	11/15/2011	1774122.59	1647781.08	6394.79	2155.49
GPS	TP	11/15/2011	1774116.28	1647776.51	6394.67	2163.29
GPS	TP	11/15/2011	1774112.17	1647775.20	6394.81	2167.60
GPS	TP	11/15/2011	1774109.43	1647778.48	6394.84	2171.88
GPS	TP	11/15/2011	1774106.19	1647776.30	6394.70	2175.79
GPS	TP	11/15/2011	1774103.79	1647775.39	6394.66	2178.35
GPS	TP	11/15/2011	1774100.92	1647774.64	6394.44	2181.32
GPS	TP	11/15/2011	1774094.42	1647773.50	6394.62	2187.92
GPS	TP	11/15/2011	1774085.58	1647772.23	6394.29	2196.85
GPS	TP	11/15/2011	1774078.65	1647771.37	6394.06	2203.83
GPS	TP	11/15/2011	1774071.17	1647771.63	6393.87	2211.31
GPS	TP	11/15/2011	1774064.00	1647771.22	6394.11	2218.50
GPS	TP	11/15/2011	1774057.73	1647772.90	6393.91	2224.98
GPS	TP	11/15/2011	1774051.31	1647776.89	6393.65	2232.55
GPS	TP	11/15/2011	1774046.20	1647779.95	6393.73	2238.50
GPS	TP	11/15/2011	1774038.92	1647783.09	6393.61	2246.44
GPS	TP	11/15/2011	1774034.30	1647785.90	6393.92	2251.85
GPS	TP	11/15/2011	1774030.14	1647789.07	6394.04	2257.08
GPS	TP	11/15/2011	1774024.74	1647794.42	6393.49	2264.67
GPS	TP	11/15/2011	1774021.05	1647798.60	6392.94	2270.25
GPS	TP	11/15/2011	1774019.15	1647806.04	6393.35	2277.93
GPS	TP	11/15/2011	1774015.36	1647816.47	6393.11	2289.02
GPS	TP	11/15/2011	1774010.44	1647817.43	6393.39	2294.03
GPS	TP	11/15/2011	1774008.77	1647824.12	6393.25	2300.93
GPS	TP	11/15/2011	1774004.26	1647837.46	6393.09	2315.01
GPS	TP	11/15/2011	1774002.00	1647852.23	6393.40	2329.96
GPS	TP	11/15/2011	1774006.52	1647855.78	6392.62	2335.71
GPS	TP	11/15/2011	1774002.90	1647862.95	6392.31	2343.73

GPS	TP	11/15/2011	1774002.27	1647868.00	6392.11	2348.82
GPS	TP	11/15/2011	1774000.86	1647872.63	6392.79	2353.66
GPS	TP	11/15/2011	1774003.85	1647875.81	6392.29	2358.03
GPS	TP	11/15/2011	1774003.32	1647880.25	6392.34	2362.50
GPS	TP	11/15/2011	1774004.96	1647883.82	6392.01	2366.43
GPS	TP	11/15/2011	1773998.53	1647895.19	6391.39	2379.49
GPS	TP	11/15/2011	1773999.37	1647899.80	6392.00	2384.18
GPS	TP	11/15/2011	1773997.75	1647905.03	6391.29	2389.65
GPS	TP	11/15/2011	1773993.11	1647910.91	6391.04	2397.14
GPS	TP	11/15/2011	1773991.73	1647913.77	6390.89	2400.32
GPS	TP	11/15/2011	1773989.63	1647918.76	6391.59	2405.73
GPS	TP	11/15/2011	1773986.91	1647921.35	6391.62	2409.49
GPS	TP	11/15/2011	1773983.43	1647925.12	6391.26	2414.62
GPS	TP	11/15/2011	1773980.61	1647927.78	6390.89	2418.50
GPS	TP	11/15/2011	1773974.38	1647928.91	6391.32	2424.83
GPS	TP	11/15/2011	1773970.13	1647929.50	6391.40	2429.12
GPS	TP	11/15/2011	1773965.78	1647931.68	6391.88	2433.99
GPS	TP	11/15/2011	1773961.53	1647933.71	6391.75	2438.69
GPS	TP	11/15/2011	1773959.99	1647936.21	6391.55	2441.63
GPS	TP	11/15/2011	1773956.64	1647940.46	6391.57	2447.04
GPS	TP	11/15/2011	1773955.92	1647942.79	6391.11	2449.48
GPS	TP	11/15/2011	1773945.20	1647943.98	6391.25	2460.27
GPS	TP	11/15/2011	1773939.29	1647942.82	6391.11	2466.29
GPS	TP	11/15/2011	1773934.80	1647944.90	6391.08	2471.24
GPS	TP	11/15/2011	1773930.25	1647949.48	6391.02	2477.69
GPS	TP	11/15/2011	1773926.14	1647950.23	6391.13	2481.87
GPS	TP	11/15/2011	1773921.98	1647952.23	6391.24	2486.49
GPS	TP	11/15/2011	1773914.85	1647949.16	6390.91	2494.26
GPS	TP	11/15/2011	1773912.77	1647946.20	6390.78	2497.87
GPS	TP	11/15/2011	1773910.67	1647945.48	6389.71	2500.09
GPS	TP	11/15/2011	1773908.41	1647944.65	6389.65	2502.50
GPS	TP	11/15/2011	1773906.96	1647946.00	6389.66	2504.48
GPS	TP	11/15/2011	1773905.93	1647948.69	6390.58	2507.36
GPS	TP	11/15/2011	1773901.50	1647951.15	6390.42	2512.43
GPS	TP	11/15/2011	1773898.16	1647953.65	6390.82	2516.60
GPS	TP	11/15/2011	1773891.66	1647952.13	6390.18	2523.28
GPS	TP	11/15/2011	1773880.45	1647954.73	6390.15	2534.78
GPS	TP	11/15/2011	1773878.58	1647958.64	6389.89	2539.12
GPS	TP	11/15/2011	1773877.23	1647962.67	6390.77	2543.36
GPS	TP	11/15/2011	1773877.60	1647967.18	6390.48	2547.89
GPS	TP	11/15/2011	1773876.30	1647968.69	6390.47	2549.88
GPS	TP	11/15/2011	1773874.99	1647971.79	6389.53	2553.24
GPS	TP	11/15/2011	1773872.76	1647973.06	6389.61	2555.81
GPS	TP	11/15/2011	1773869.61	1647974.89	6390.35	2559.45
GPS	TP	11/15/2011	1773864.61	1647977.73	6390.28	2565.20
GPS	TP	11/15/2011	1773863.37	1647983.77	6389.58	2571.37
GPS	TP	11/15/2011	1773861.10	1647984.32	6389.56	2573.71
GPS	TP	11/15/2011	1773858.17	1647986.54	6390.24	2577.38
GPS	TP	11/15/2011	1773853.99	1647986.49	6390.17	2581.56
GPS	TP	11/15/2011	1773848.50	1647991.12	6389.96	2588.74
GPS	TP	11/15/2011	1773844.57	1647995.50	6389.89	2594.62
GPS	TP	11/15/2011	1773840.08	1647999.73	6389.90	2600.80
GPS	TP	11/15/2011	1773838.01	1648003.80	6389.38	2605.36
GPS	TP	11/15/2011	1773832.71	1648004.82	6390.23	2610.76
GPS	TP	11/15/2011	1773831.26	1648004.91	6390.29	2612.21

GPS	TP	11/15/2011	1773830.92	1648005.89	6389.22	2613.25
GPS	TP	11/15/2011	1773830.44	1648010.29	6388.97	2617.67
GPS	TP	11/15/2011	1773828.53	1648016.34	6389.79	2624.02
GPS	TP	11/15/2011	1773826.87	1648022.57	6389.85	2630.47
GPS	TP	11/15/2011	1773827.06	1648028.13	6390.02	2636.02
GPS	TP	11/15/2011	1773824.54	1648035.84	6389.82	2644.14
GPS	TP	11/15/2011	1773820.30	1648040.38	6389.65	2650.35
GPS	TP	11/15/2011	1773817.19	1648046.11	6389.72	2656.87
GPS	TP	11/15/2011	1773814.20	1648050.00	6389.58	2661.78

[a] Positive numbers (e.g., +100ft) indicate cross-sections downstream of zero line (headcut).
Negative numbers (e.g., -800ft) indicate cross-sections upstream of zero line (headcut).

[b] GPS = Trimble 5700 global positioning system (GPS) survey method

[c] BM = benchmark.

[d] dash = not applicable (benchmark; not a point on section).

[e] XS = cross-section point.

[f] TP = continuous channel thalweg point; TP2 = northwest tributary channel thalweg point; TP3 = southeast tributary channel thalweg point; TP4 = central tributary channel thalweg point.

g = calculated distance along sections, from south to north, are relative to original benchmarks. Refer to report LA-UR-11-0936, "Baseline Geomorphic Conditions at Sediment Transport Mitigation Sites in the Los Alamos and Pueblo Canyon Watersheds, Revision 1," for initial survey.

Pueblo Canyon Grade Control Structure Survey Data

Site	Type of Survey	Purpose	Date Surveyed	Y	X	Z	Calculated Distance in Section or Profile (ft)[h]
Pueblo GCS +100 ft[a]	GPS[b]	XS[e]	4/21/2010	1772102.80	1650686.47	6342.91	0
	TS[f]	XS	10/17/2011	1772140.24	1650672.58	6333.28	39.88
	TS	XS	10/17/2011	1772143.93	1650671.46	6332.33	43.72
	TS	XS	10/17/2011	1772144.79	1650671.27	6330.91	44.60
	TS	XS	10/17/2011	1772147.44	1650669.86	6329.65	47.58
	TS	XS	10/17/2011	1772150.03	1650669.19	6329.36	50.24
	TS	XS	10/17/2011	1772153.28	1650668.13	6329.57	53.65
	TS	XS	10/17/2011	1772154.78	1650667.65	6328.95	55.22
	TS	XS	10/17/2011	1772155.57	1650667.37	6328.86	56.06
	TS	XS	10/17/2011	1772157.74	1650666.39	6329.02	58.44
	TS	XS	10/17/2011	1772160.92	1650665.77	6329.43	61.64
	TS	XS	10/17/2011	1772168.50	1650663.36	6329.59	69.59
	TS	XS	10/17/2011	1772176.88	1650660.35	6330.04	78.49
	TS	XS	10/17/2011	1772186.66	1650657.24	6331.21	88.75
	TS	XS	10/17/2011	1772193.85	1650654.76	6332.12	96.35
	TS	XS	10/17/2011	1772200.28	1650652.34	6332.69	103.22
	TS	XS	10/17/2011	1772206.66	1650650.33	6333.04	109.90
	TS	XS	10/17/2011	1772209.86	1650649.24	6333.37	113.28
	TS	XS	10/17/2011	1772213.84	1650648.13	6335.06	117.41
	TS	XS	10/17/2011	1772220.87	1650645.33	6335.71	124.97
Pueblo GCS +200 ft	GPS	BM[c]	4/21/2010	1772086.10	1650805.19	6337.83	-[d]
	GPS	XS	4/21/2010	1772086.15	1650805.29	6337.01	0
	TS	XS	10/17/2011	1772170.95	1650769.28	6334.37	92.14
	TS	XS	10/17/2011	1772172.11	1650768.87	6334.35	93.37
	TS	XS	10/17/2011	1772177.03	1650766.87	6330.46	98.68
	TS	XS	10/17/2011	1772179.80	1650765.61	6328.58	101.72
	TS	XS	10/17/2011	1772185.40	1650763.36	6327.65	107.75
	TS	XS	10/17/2011	1772188.28	1650762.11	6327.63	110.89
	TS	XS	10/17/2011	1772189.91	1650761.40	6328.49	112.67
	TS	XS	10/17/2011	1772194.57	1650759.25	6328.32	117.80
	TS	XS	10/17/2011	1772200.58	1650756.84	6328.01	124.27
	TS	XS	10/17/2011	1772207.21	1650754.03	6327.79	131.48
	TS	XS	10/17/2011	1772211.60	1650752.04	6327.81	136.29
	TS	XS	10/17/2011	1772213.32	1650751.40	6327.64	138.13
	TS	XS	10/17/2011	1772215.76	1650750.52	6327.77	140.71
	TS	XS	10/17/2011	1772224.92	1650746.13	6328.23	150.87
	TS	XS	10/17/2011	1772233.43	1650743.27	6328.43	159.82
	TS	XS	10/17/2011	1772243.66	1650738.88	6328.87	170.95
	TS	XS	10/17/2011	1772252.52	1650735.30	6329.41	180.50
	TS	XS	10/17/2011	1772259.55	1650732.34	6329.75	188.13
	TS	XS	10/17/2011	1772268.57	1650729.03	6330.48	197.73
	TS	XS	10/17/2011	1772274.35	1650725.95	6330.99	204.25
	TS	XS	10/17/2011	1772279.36	1650723.94	6331.60	209.65
	TS	XS	10/17/2011	1772283.70	1650722.13	6331.73	214.35
	TS	XS	10/17/2011	1772288.05	1650720.13	6334.44	219.14
	TS	XS	10/17/2011	1772289.86	1650719.42	6334.56	221.08
Pueblo GCS +300 ft	TS	BM	10/17/2011	1772239.66	1650848.91	6326.59	-
	GPS	XS	4/21/2010	1772122.90	1650897.66	6335.60	0
	TS	XS	10/17/2011	1772239.73	1650848.95	6325.96	126.57
	TS	XS	10/17/2011	1772249.54	1650844.97	6325.10	137.16

	TS	XS	10/17/2011	1772252.28	1650843.94	6323.70	140.08
	TS	XS	10/17/2011	1772257.62	1650841.52	6323.54	145.94
	TS	XS	10/17/2011	1772260.69	1650840.62	6323.64	149.13
	TS	XS	10/17/2011	1772266.22	1650838.12	6324.31	155.19
	TS	XS	10/17/2011	1772274.48	1650834.99	6325.80	164.02
	TS	XS	10/17/2011	1772308.43	1650820.80	6332.89	200.81
	TS	XS	10/17/2011	1772316.62	1650817.88	6332.84	209.50
Pueblo GCS -100 ft	TS	BM	4/22/2010	1772110.77	1650436.25	6348.07	-
	GPS	XS	4/22/2010	1772110.74	1650436.43	6347.33	0
	TS	XS	10/12/2011	1772144.10	1650448.08	6340.22	35.36
	TS	XS	10/12/2011	1772156.33	1650452.45	6340.20	48.36
	TS	XS	10/12/2011	1772163.83	1650455.10	6336.64	56.31
	TS	XS	10/12/2011	1772166.06	1650456.00	6336.07	58.71
	TS	XS	10/12/2011	1772177.32	1650459.91	6336.41	70.63
	TS	XS	10/12/2011	1772184.13	1650462.18	6336.53	77.80
	TS	XS	10/12/2011	1772185.86	1650462.70	6336.73	79.61
	TS	XS	10/12/2011	1772187.01	1650463.10	6336.30	80.83
	TS	XS	10/12/2011	1772188.71	1650463.72	6336.23	82.63
	TS	XS	10/12/2011	1772191.16	1650464.22	6336.69	85.12
	TS	XS	10/12/2011	1772199.35	1650467.27	6336.83	93.85
	TS	XS	10/12/2011	1772206.02	1650469.83	6336.47	100.99
	TS	XS	10/12/2011	1772210.36	1650471.24	6337.47	105.55
	TS	XS	10/12/2011	1772219.73	1650474.72	6340.12	115.55
	TS	XS	10/12/2011	1772222.78	1650475.75	6340.29	118.77
Pueblo GCS -200 ft	TS	BM	10/12/2011	1772187.34	1650358.95	6343.24	-
	GPS	XS	4/22/2010	1772143.49	1650345.48	6348.18	0
	TS	XS	10/12/2011	1772187.38	1650359.07	6342.22	45.88
	TS	XS	10/12/2011	1772189.57	1650359.73	6341.97	48.17
	TS	XS	10/12/2011	1772193.93	1650360.87	6338.80	52.67
	TS	XS	10/12/2011	1772196.31	1650361.38	6338.08	55.10
	TS	XS	10/12/2011	1772198.69	1650362.12	6338.63	57.59
	TS	XS	10/12/2011	1772201.31	1650363.02	6337.77	60.36
	TS	XS	10/12/2011	1772203.84	1650363.63	6337.57	62.96
	TS	XS	10/12/2011	1772214.29	1650366.57	6337.66	73.81
	TS	XS	10/12/2011	1772216.18	1650367.22	6337.72	75.81
	TS	XS	10/12/2011	1772221.36	1650368.41	6337.38	81.11
	TS	XS	10/12/2011	1772223.22	1650369.15	6337.33	83.11
	TS	XS	10/12/2011	1772224.92	1650369.55	6337.36	84.85
	TS	XS	10/12/2011	1772234.12	1650372.34	6337.65	94.46
	TS	XS	10/12/2011	1772239.99	1650373.94	6342.03	100.55
	TS	XS	10/12/2011	1772248.57	1650376.45	6341.87	109.49
Pueblo GCS -300 ft	TS	BM	10/12/2011	1772226.68	1650259.06	6344.92	-
	GPS	XS	4/22/2010	1772207.67	1650249.49	6349.20	0
	TS	XS	10/12/2011	1772226.67	1650259.14	6344.10	21.31
	TS	XS	10/12/2011	1772227.94	1650259.80	6343.99	22.75
	TS	XS	10/12/2011	1772230.06	1650260.60	6342.06	25.00
	TS	XS	10/12/2011	1772233.35	1650262.62	6342.00	28.85
	TS	XS	10/12/2011	1772234.51	1650263.25	6341.36	30.17
	TS	XS	10/12/2011	1772236.73	1650264.11	6341.42	32.54
	TS	XS	10/12/2011	1772238.01	1650264.74	6340.46	33.96
	TS	XS	10/12/2011	1772239.18	1650265.23	6340.14	35.23
	TS	XS	10/12/2011	1772240.05	1650265.74	6340.17	36.24
	TS	XS	10/12/2011	1772242.18	1650266.87	6341.84	38.65
	TS	XS	10/12/2011	1772248.20	1650269.82	6341.55	45.35
	TS	XS	10/12/2011	1772251.29	1650271.45	6340.99	48.84

	TS	XS	10/12/2011	1772252.77	1650272.13	6341.12	50.47
	TS	XS	10/12/2011	1772254.11	1650272.91	6341.39	52.02
	TS	XS	10/12/2011	1772255.66	1650273.74	6341.35	53.77
	TS	XS	10/12/2011	1772256.40	1650274.20	6341.56	54.65
	TS	XS	10/12/2011	1772258.97	1650275.45	6341.81	57.50
	TS	XS	10/12/2011	1772261.73	1650277.04	6341.30	60.68
	TS	XS	10/12/2011	1772263.24	1650277.71	6341.45	62.33
	TS	XS	10/12/2011	1772264.01	1650278.25	6341.62	63.27
	TS	XS	10/12/2011	1772268.20	1650280.37	6341.89	67.96
	TS	XS	10/12/2011	1772274.27	1650283.71	6343.85	74.88
	TS	XS	10/12/2011	1772286.99	1650290.58	6344.21	89.34
Pueblo GCS -400 ft	GPS	BM	4/22/2010	1772255.57	1650166.11	6353.57	-
	GPS	XS	4/22/2010	1772255.53	1650166.19	6353.01	0
	TS	XS	10/13/2011	1772271.02	1650173.97	6344.96	17.33
	TS	XS	10/13/2011	1772280.96	1650179.23	6343.50	28.58
	TS	XS	10/13/2011	1772281.35	1650179.45	6341.87	29.02
	TS	XS	10/13/2011	1772282.66	1650180.08	6341.39	30.48
	TS	XS	10/13/2011	1772284.93	1650181.32	6343.28	33.06
	TS	XS	10/13/2011	1772287.04	1650182.53	6343.58	35.50
	TS	XS	10/13/2011	1772290.59	1650184.24	6343.02	39.43
	TS	XS	10/13/2011	1772300.19	1650189.37	6343.42	50.31
	TS	XS	10/13/2011	1772305.21	1650192.17	6343.16	56.06
	TS	XS	10/13/2011	1772306.08	1650192.41	6342.85	56.94
	TS	XS	10/13/2011	1772311.75	1650195.48	6343.02	63.39
	TS	XS	10/13/2011	1772317.00	1650198.30	6343.12	69.35
	TS	XS	10/13/2011	1772321.25	1650200.66	6343.03	74.21
	TS	XS	10/13/2011	1772322.85	1650201.77	6344.01	76.14
	TS	XS	10/13/2011	1772324.35	1650202.22	6346.27	77.68
	TS	XS	10/13/2011	1772324.94	1650202.64	6346.36	78.40
Pueblo GCS -500 ft	GPS	BM	4/23/2011	1772266.72	1650053.19	6355.18	-
	GPS	XS	4/23/2011	1772266.69	1650053.12	6354.72	0
	TS	XS	10/13/2011	1772310.54	1650074.31	6348.80	48.64
	TS	XS	10/13/2011	1772314.12	1650076.01	6346.88	52.60
	TS	XS	10/13/2011	1772318.39	1650078.23	6346.24	57.41
	TS	XS	10/13/2011	1772328.00	1650082.74	6345.80	68.03
	TS	XS	10/13/2011	1772335.69	1650086.51	6345.49	76.60
	TS	XS	10/13/2011	1772337.68	1650087.93	6345.06	79.01
	TS	XS	10/13/2011	1772338.27	1650088.21	6343.64	79.66
	TS	XS	10/13/2011	1772338.73	1650088.28	6343.50	80.10
	TS	XS	10/13/2011	1772339.38	1650088.65	6343.50	80.84
	TS	XS	10/13/2011	1772340.08	1650089.02	6344.74	81.64
	TS	XS	10/13/2011	1772345.02	1650091.51	6345.21	87.17
	TS	XS	10/13/2011	1772345.83	1650092.02	6344.76	88.12
	TS	XS	10/13/2011	1772347.76	1650092.75	6345.14	90.18
	TS	XS	10/13/2011	1772348.87	1650093.32	6344.78	91.43
	TS	XS	10/13/2011	1772349.50	1650093.81	6344.13	92.21
	TS	XS	10/13/2011	1772350.38	1650094.13	6344.03	93.14
	TS	XS	10/13/2011	1772351.22	1650094.49	6344.23	94.05
	TS	XS	10/13/2011	1772352.78	1650095.30	6344.86	95.80
	TS	XS	10/13/2011	1772357.22	1650097.35	6345.01	100.70
	TS	XS	10/13/2011	1772362.66	1650100.31	6346.71	106.88
	TS	XS	10/13/2011	1772372.89	1650104.93	6347.45	118.11
Pueblo GCS -600 ft	GPS	BM	4/23/2010	1772292.51	1649949.83	6356.36	-
	GPS	XS	4/23/2010	1772292.46	1649949.73	6355.94	0
	TS	XS	10/13/2011	1772336.17	1649975.80	6351.44	50.79

	TS	XS	10/13/2011	1772345.42	1649981.45	6350.48	61.64
	TS	XS	10/13/2011	1772350.64	1649984.44	6347.87	67.65
	TS	XS	10/13/2011	1772355.64	1649987.04	6347.23	73.28
	TS	XS	10/13/2011	1772356.86	1649987.79	6346.71	74.71
	TS	XS	10/13/2011	1772359.06	1649989.28	6347.45	77.36
	TS	XS	10/13/2011	1772365.37	1649992.98	6347.09	84.67
	TS	XS	10/13/2011	1772373.38	1649997.81	6346.88	94.03
	TS	XS	10/13/2011	1772380.70	1650002.53	6347.33	102.73
	TS	XS	10/13/2011	1772387.81	1650006.92	6347.66	111.08
	TS	XS	10/13/2011	1772399.87	1650014.04	6347.85	125.10
	TS	XS	10/13/2011	1772401.60	1650015.28	6347.62	127.21
	TS	XS	10/13/2011	1772406.30	1650018.20	6347.68	132.75
	TS	XS	10/13/2011	1772410.91	1650020.98	6347.91	138.13
	TS	XS	10/13/2011	1772411.65	1650021.43	6347.73	139.00
	TS	XS	10/13/2011	1772413.40	1650022.69	6348.04	141.15
	TS	XS	10/13/2011	1772417.12	1650024.77	6348.12	145.40
	TS	XS	10/13/2011	1772420.22	1650026.82	6349.42	149.12
	TS	XS	10/13/2011	1772425.42	1650029.79	6349.71	155.10
Pueblo GCS -700 ft	GPS	BM	4/23/2010	1772403.17	1649898.56	6352.90	-
	GPS	XS	4/23/2010	1772403.13	1649898.62	6352.30	0
	TS	XS	10/13/2011	1772403.13	1649898.76	6352.28	0.20
	TS	XS	10/13/2011	1772417.85	1649908.30	6352.06	17.62
	TS	XS	10/13/2011	1772421.70	1649910.95	6350.43	22.29
	TS	XS	10/13/2011	1772429.56	1649915.95	6350.05	31.61
	TS	XS	10/13/2011	1772436.42	1649920.42	6350.11	39.79
	TS	XS	10/13/2011	1772440.61	1649923.15	6349.79	44.79
	TS	XS	10/13/2011	1772442.61	1649924.16	6349.82	47.02
	TS	XS	10/13/2011	1772449.52	1649928.41	6349.69	55.13
	TS	XS	10/13/2011	1772454.52	1649931.87	6349.37	61.21
	TS	XS	10/13/2011	1772460.94	1649935.76	6349.50	68.71
	TS	XS	10/13/2011	1772462.59	1649936.94	6348.78	70.74
	TS	XS	10/13/2011	1772463.33	1649937.63	6348.01	71.73
	TS	XS	10/13/2011	1772464.13	1649938.07	6348.71	72.65
	TS	XS	10/13/2011	1772467.71	1649940.07	6349.06	76.73
	TS	XS	10/13/2011	1772473.57	1649943.84	6349.14	83.71
	TS	XS	10/13/2011	1772474.53	1649944.50	6348.55	84.87
	TS	XS	10/13/2011	1772477.94	1649946.58	6348.66	88.87
	TS	XS	10/13/2011	1772478.89	1649947.33	6348.53	90.07
	TS	XS	10/13/2011	1772481.45	1649948.94	6348.83	93.09
	TS	XS	10/13/2011	1772487.29	1649952.69	6348.73	100.04
	TS	XS	10/13/2011	1772488.28	1649953.35	6348.21	101.22
	TS	XS	10/13/2011	1772489.35	1649954.03	6348.11	102.49
	TS	XS	10/13/2011	1772492.54	1649955.91	6348.30	106.19
	TS	XS	10/13/2011	1772496.01	1649958.22	6348.34	110.36
	TS	XS	10/13/2011	1772498.92	1649959.88	6349.94	113.71
	TS	XS	10/13/2011	1772501.41	1649961.53	6351.28	116.69
	TS	XS	10/13/2011	1772502.69	1649962.28	6351.34	118.17
Pueblo GCS -800 ft	TS	BM	10/13/2011	1772484.30	1649829.43	6353.95	-
	GPS	XS	4/23/2011	1772448.82	1649803.39	6359.82	0
	TS	XS	10/13/2011	1772484.22	1649829.36	6353.16	43.852362
	TS	XS	10/13/2011	1772487.89	1649832.32	6351.70	48.5624634
	TS	XS	10/13/2011	1772501.25	1649841.77	6351.61	64.9173575
	TS	XS	10/13/2011	1772502.26	1649842.46	6351.37	66.1469474
	TS	XS	10/13/2011	1772506.27	1649845.28	6351.54	71.0445249
	TS	XS	10/13/2011	1772508.80	1649847.19	6351.11	74.2140649

	TS	XS	10/13/2011	1772509.56	1649848.11	6349.94	75.3747017
	TS	XS	10/13/2011	1772512.98	1649850.34	6350.26	79.4514836
	TS	XS	10/13/2011	1772514.57	1649851.39	6351.39	81.3548342
	TS	XS	10/13/2011	1772519.99	1649855.40	6351.28	88.0938632
	TS	XS	10/13/2011	1772525.82	1649859.34	6350.96	95.1261926
	TS	XS	10/13/2011	1772526.15	1649859.52	6349.75	95.4979064
	TS	XS	10/13/2011	1772529.27	1649861.70	6349.58	99.3005871
	TS	XS	10/13/2011	1772529.70	1649862.06	6348.79	99.8640482
	TS	XS	10/13/2011	1772531.76	1649863.70	6349.17	102.494474
	TS	XS	10/13/2011	1772532.30	1649864.22	6349.65	103.239941
	TS	XS	10/13/2011	1772537.77	1649868.12	6349.47	109.954668
	TS	XS	10/13/2011	1772539.24	1649869.13	6348.77	111.733549
	TS	XS	10/13/2011	1772540.63	1649869.78	6348.38	113.24761
	TS	XS	10/13/2011	1772541.54	1649870.60	6348.61	114.45851
	TS	XS	10/13/2011	1772542.16	1649870.96	6349.38	115.175909
	TS	XS	10/13/2011	1772544.66	1649872.58	6349.62	118.151141
	TS	XS	10/13/2011	1772545.81	1649873.78	6350.84	119.785004
	TS	XS	10/13/2011	1772548.71	1649875.82	6353.21	123.330306
	TS	XS	10/13/2011	1772555.51	1649880.40	6352.92	131.521497
	TS	BM	10/13/2011	1772555.52	1649880.57	6353.49	-
Pueblo GCS -900 ft	TS	BM	10/13/2011	1772532.10	1649742.99	6354.81	-
	GPS	XS	4/23/2010	1772510.43	1649727.36	6359.77	0
	TS	XS	10/13/2011	1772531.98	1649743.02	6354.18	26.53
	TS	XS	10/13/2011	1772534.03	1649744.30	6353.47	28.94
	TS	XS	10/13/2011	1772534.33	1649744.31	6352.62	29.18
	TS	XS	10/13/2011	1772536.55	1649745.70	6352.65	31.80
	TS	XS	10/13/2011	1772537.84	1649746.48	6353.14	33.30
	TS	XS	10/13/2011	1772540.12	1649748.28	6352.86	36.21
	TS	XS	10/13/2011	1772540.84	1649748.69	6352.58	37.03
	TS	XS	10/13/2011	1772543.07	1649750.45	6352.72	39.86
	TS	XS	10/13/2011	1772545.32	1649751.98	6353.09	42.59
	TS	XS	10/13/2011	1772546.17	1649752.45	6352.72	43.55
	TS	XS	10/13/2011	1772547.65	1649753.69	6353.25	45.48
	TS	XS	10/13/2011	1772548.78	1649754.44	6352.73	46.83
	TS	XS	10/13/2011	1772551.80	1649756.87	6353.35	50.70
	TS	XS	10/13/2011	1772552.43	1649757.46	6352.93	51.55
	TS	XS	10/13/2011	1772554.90	1649759.20	6353.04	54.58
	TS	XS	10/13/2011	1772558.18	1649761.51	6353.65	58.59
	TS	XS	10/13/2011	1772559.16	1649762.40	6353.20	59.91
	TS	XS	10/13/2011	1772565.65	1649766.44	6353.20	67.54
	TS	XS	10/13/2011	1772567.49	1649767.75	6353.67	69.79
	TS	XS	10/13/2011	1772568.67	1649768.36	6353.15	71.11
	TS	XS	10/13/2011	1772573.15	1649771.30	6353.08	76.46
	TS	XS	10/13/2011	1772573.50	1649771.81	6351.79	77.04
	TS	XS	10/13/2011	1772575.00	1649772.72	6351.49	78.80
	TS	XS	10/13/2011	1772578.68	1649775.55	6351.38	83.43
	TS	XS	10/13/2011	1772582.08	1649777.73	6351.33	87.47
	TS	XS	10/13/2011	1772584.47	1649779.20	6351.40	90.27
	TS	XS	10/13/2011	1772587.68	1649781.87	6351.24	94.44
	TS	XS	10/13/2011	1772589.19	1649782.66	6350.80	96.12
	TS	XS	10/13/2011	1772592.53	1649785.22	6350.96	100.33
	TS	XS	10/13/2011	1772594.19	1649786.57	6351.65	102.46
	TS	XS	10/13/2011	1772595.81	1649787.47	6354.94	104.31
	TS	XS	10/13/2011	1772596.68	1649788.22	6355.01	105.44
Pueblo GCS -1000 ft	GPS	BM	4/23/2010	1772489.58	1649576.68	6368.96	-

	GPS	XS	4/23/2010	1772489.53	1649576.62	6368.35	0
	TS	XS	10/13/2011	1772567.51	1649638.74	6356.93	99.63
	TS	XS	10/13/2011	1772570.23	1649640.52	6355.31	102.87
	TS	XS	10/13/2011	1772574.14	1649643.75	6354.73	107.93
	TS	XS	10/13/2011	1772575.11	1649644.78	6354.52	109.34
	TS	XS	10/13/2011	1772578.85	1649647.61	6355.53	114.03
	TS	XS	10/13/2011	1772585.64	1649653.07	6355.63	122.74
	TS	XS	10/13/2011	1772589.58	1649656.34	6355.52	127.85
	TS	XS	10/13/2011	1772592.06	1649658.19	6355.79	130.95
	TS	XS	10/13/2011	1772595.49	1649660.76	6355.50	135.23
	TS	XS	10/13/2011	1772597.67	1649662.44	6355.98	137.99
	TS	XS	10/13/2011	1772600.53	1649664.74	6355.81	141.66
	TS	XS	10/13/2011	1772601.48	1649665.62	6355.16	142.95
	TS	XS	10/13/2011	1772602.53	1649666.36	6355.09	144.23
	TS	XS	10/13/2011	1772604.10	1649667.33	6355.27	146.06
	TS	XS	10/13/2011	1772605.36	1649668.53	6355.11	147.79
	TS	XS	10/13/2011	1772609.74	1649672.16	6355.21	153.48
	TS	XS	10/13/2011	1772610.43	1649672.53	6355.59	154.25
	TS	XS	10/13/2011	1772613.56	1649675.19	6355.72	158.36
	TS	XS	10/13/2011	1772617.98	1649678.73	6355.17	164.02
	TS	XS	10/13/2011	1772621.72	1649681.59	6355.11	168.73
	TS	XS	10/13/2011	1772625.71	1649684.70	6354.98	173.79
	TS	XS	10/13/2011	1772629.65	1649688.01	6354.74	178.93
	TS	XS	10/13/2011	1772632.83	1649690.54	6354.81	182.99
	TS	XS	10/13/2011	1772635.37	1649692.23	6353.39	186.03
	TS	XS	10/13/2011	1772638.08	1649694.76	6353.11	189.73
	TS	XS	10/13/2011	1772638.52	1649695.19	6352.06	190.34
	TS	XS	10/13/2011	1772639.20	1649695.56	6351.98	191.10
	TS	XS	10/13/2011	1772639.47	1649695.78	6351.99	191.45
	TS	XS	10/13/2011	1772640.56	1649696.83	6353.26	192.96
	TS	XS	10/13/2011	1772641.45	1649697.35	6353.55	193.97
	TS	XS	10/13/2011	1772642.19	1649697.89	6352.99	194.89
	TS	XS	10/13/2011	1772643.07	1649698.77	6352.76	196.13
	TS	XS	10/13/2011	1772644.86	1649700.17	6352.90	198.40
	TS	XS	10/13/2011	1772645.46	1649700.65	6354.66	199.17
	TS	XS	10/13/2011	1772647.95	1649702.65	6355.03	202.36
	TS	XS	10/13/2011	1772650.90	1649704.90	6354.82	206.07
	TS	XS	10/13/2011	1772656.75	1649709.51	6355.22	213.52
	TS	XS	10/13/2011	1772662.13	1649714.04	6354.99	220.55
	TS	XS	10/13/2011	1772665.49	1649716.69	6355.06	224.83
	TS	XS	10/13/2011	1772668.94	1649719.14	6356.60	229.05
	TS	XS	10/13/2011	1772672.77	1649722.24	6356.93	233.98
	TS	BM	10/13/2011	1772672.72	1649722.35	6357.58	-
	TS	BM	10/13/2011	1772705.97	1649748.57	6358.72	-
Pueblo GCS -1100 ft	TS	BM	10/13/2011	1772646.96	1649572.05	6360.42	-
	TS	XS	4/27/2010	1772587.07	1649512.62	6364.91	0
	TS	XS	10/13/2011	1772647.02	1649571.99	6359.60	84.32
	TS	XS	10/13/2011	1772652.21	1649577.20	6358.26	91.67
	TS	XS	10/13/2011	1772654.39	1649579.55	6357.88	94.87
	TS	XS	10/13/2011	1772660.25	1649585.29	6357.67	103.08
	TS	XS	10/13/2011	1772665.91	1649590.80	6357.40	110.97
	TS	XS	10/13/2011	1772670.34	1649595.37	6357.17	117.34
	TS	XS	10/13/2011	1772674.18	1649599.14	6356.97	122.72
	TS	XS	10/13/2011	1772675.27	1649600.06	6357.34	124.14
	TS	XS	10/13/2011	1772682.96	1649607.69	6357.69	134.97

	TS	XS	10/13/2011	1772685.41	1649610.27	6357.65	138.53
	TS	XS	10/13/2011	1772686.03	1649610.73	6357.42	139.29
	TS	XS	10/13/2011	1772687.02	1649611.70	6357.45	140.68
	TS	XS	10/13/2011	1772688.85	1649613.54	6357.65	143.28
	TS	XS	10/13/2011	1772691.13	1649615.79	6357.20	146.48
	TS	XS	10/13/2011	1772692.33	1649616.98	6357.19	148.17
	TS	XS	10/13/2011	1772693.21	1649617.69	6357.30	149.30
	TS	XS	10/13/2011	1772697.66	1649621.93	6357.01	155.44
	TS	XS	10/13/2011	1772698.07	1649622.44	6356.79	156.09
	TS	XS	10/13/2011	1772698.76	1649623.25	6356.72	157.15
	TS	XS	10/13/2011	1772700.85	1649625.39	6356.89	160.14
	TS	XS	10/13/2011	1772702.59	1649627.32	6356.81	162.73
	TS	XS	10/13/2011	1772703.04	1649627.56	6355.60	163.22
	TS	XS	10/13/2011	1772705.72	1649630.05	6355.37	166.88
	TS	XS	10/13/2011	1772709.08	1649633.40	6355.14	171.62
	TS	XS	10/13/2011	1772710.05	1649634.52	6355.46	173.10
	TS	XS	10/13/2011	1772710.33	1649635.00	6356.94	173.64
	TS	XS	10/13/2011	1772712.79	1649637.37	6356.61	177.05
	TS	XS	10/13/2011	1772713.57	1649638.22	6356.05	178.21
	TS	XS	10/13/2011	1772714.97	1649639.73	6355.85	180.26
	TS	XS	10/13/2011	1772716.39	1649641.08	6356.76	182.22
	TS	XS	10/13/2011	1772718.67	1649643.43	6358.26	185.50
	TS	XS	10/13/2011	1772721.42	1649646.22	6358.66	189.41
Pueblo GCS -1200 ft	TS	BM	10/13/2011	1772726.93	1649488.29	6361.70	-
	TS	XS	4/27/2011	1772691.14	1649435.61	6365.76	0
	TS	XS	10/13/2011	1772726.80	1649488.31	6361.06	63.64
	TS	XS	10/13/2011	1772729.12	1649491.91	6359.68	67.93
	TS	XS	10/13/2011	1772731.08	1649494.73	6359.24	71.37
	TS	XS	10/13/2011	1772732.96	1649497.29	6359.11	74.54
	TS	XS	10/13/2011	1772735.84	1649501.52	6359.43	79.66
	TS	XS	10/13/2011	1772739.49	1649506.75	6359.15	86.03
	TS	XS	10/13/2011	1772742.40	1649511.67	6358.54	91.73
	TS	XS	10/13/2011	1772744.98	1649515.09	6358.85	96.02
	TS	XS	10/13/2011	1772746.80	1649517.71	6359.45	99.21
	TS	XS	10/13/2011	1772748.08	1649519.73	6359.14	101.60
	TS	XS	10/13/2011	1772752.66	1649526.49	6359.24	109.76
	TS	XS	10/13/2011	1772755.97	1649531.00	6359.34	115.36
	TS	XS	10/13/2011	1772759.27	1649535.92	6359.13	121.28
	TS	XS	10/13/2011	1772759.81	1649536.59	6359.33	122.13
	TS	XS	10/13/2011	1772763.63	1649541.88	6359.47	128.66
	TS	XS	10/13/2011	1772765.11	1649544.19	6359.20	131.40
	TS	XS	10/13/2011	1772769.09	1649550.04	6359.20	138.47
	TS	XS	10/13/2011	1772773.47	1649556.48	6359.29	146.26
	TS	XS	10/13/2011	1772774.95	1649558.54	6359.12	148.80
	TS	XS	10/13/2011	1772775.72	1649559.81	6358.95	150.28
	TS	XS	10/13/2011	1772778.57	1649563.97	6359.14	155.33
	TS	XS	10/13/2011	1772782.47	1649570.00	6359.13	162.50
	TS	XS	10/13/2011	1772786.80	1649575.99	6359.44	169.89
	TS	XS	10/13/2011	1772788.58	1649579.42	6358.94	173.73
	TS	XS	10/13/2011	1772791.38	1649583.18	6359.79	178.41
	TS	XS	10/13/2011	1772799.13	1649594.81	6361.01	192.39
Pueblo GCS -1300 ft	TS	BM	4/27/2011	1772776.21	1649387.44	6366.65	-
	TS	XS	4/27/2011	1772776.18	1649387.64	6366.11	0
	TS	XS	10/13/2011	1772815.79	1649456.41	6362.47	79.52
	TS	XS	10/13/2011	1772820.96	1649465.57	6362.16	90.03

	TS	XS	10/13/2011	1772823.15	1649469.06	6361.04	94.16
	TS	XS	10/13/2011	1772824.61	1649471.89	6360.62	97.34
	TS	XS	10/13/2011	1772828.68	1649478.69	6360.81	105.26
	TS	XS	10/13/2011	1772831.94	1649484.72	6360.96	112.11
	TS	XS	10/13/2011	1772835.10	1649490.50	6360.96	118.70
	TS	XS	10/13/2011	1772836.68	1649493.06	6360.74	121.70
	TS	XS	10/13/2011	1772838.68	1649496.70	6360.46	125.85
	TS	XS	10/13/2011	1772839.60	1649498.81	6360.98	128.15
	TS	XS	10/13/2011	1772842.33	1649503.17	6360.79	133.29
	TS	XS	10/13/2011	1772845.44	1649508.64	6360.88	139.58
	TS	XS	10/13/2011	1772849.65	1649516.06	6360.67	148.11
	TS	XS	10/13/2011	1772852.04	1649520.20	6360.19	152.89
	TS	XS	10/13/2011	1772854.64	1649524.40	6359.96	157.82
	TS	XS	10/13/2011	1772857.79	1649530.32	6360.30	164.53
	TS	XS	10/13/2011	1772862.57	1649538.54	6360.80	174.04
	TS	XS	10/13/2011	1772867.85	1649547.67	6362.04	184.59
	TS	XS	10/13/2011	1772871.24	1649553.63	6362.57	191.44
	TS	XS	10/13/2011	1772871.32	1649553.54	6363.17	-
Pueblo GCS -1400 ft	TS	BM	10/13/2011	1772913.92	1649424.92	6365.13	-
	TS	XS	4/27/2011	1772873.03	1649373.74	6364.89	0
	TS	XS	10/13/2011	1772914.09	1649424.91	6364.56	65.59
	TS	XS	10/13/2011	1772916.46	1649427.90	6364.56	69.40
	TS	XS	10/13/2011	1772919.62	1649431.78	6361.94	74.41
	TS	XS	10/13/2011	1772922.55	1649435.27	6361.56	78.96
	TS	XS	10/13/2011	1772924.08	1649437.21	6361.44	81.43
	TS	XS	10/13/2011	1772926.05	1649439.31	6361.16	84.30
	TS	XS	10/13/2011	1772929.38	1649443.70	6361.57	89.81
	TS	XS	10/13/2011	1772931.63	1649446.74	6361.61	93.59
	TS	XS	10/13/2011	1772933.60	1649449.04	6362.70	96.62
	TS	XS	10/13/2011	1772939.01	1649455.99	6362.58	105.42
	TS	XS	10/13/2011	1772942.93	1649460.79	6362.77	111.62
	TS	XS	10/13/2011	1772944.21	1649462.36	6362.25	113.64
	TS	XS	10/13/2011	1772949.55	1649469.17	6362.82	122.30
	TS	XS	10/13/2011	1772951.92	1649472.42	6362.70	126.32
	TS	XS	10/13/2011	1772952.44	1649472.81	6362.02	126.95
	TS	XS	10/13/2011	1772953.43	1649474.16	6362.03	128.62
	TS	XS	10/13/2011	1772954.20	1649474.91	6362.52	129.68
	TS	XS	10/13/2011	1772954.88	1649475.59	6362.19	130.64
	TS	XS	10/13/2011	1772955.56	1649476.88	6362.62	132.07
	TS	XS	10/13/2011	1772961.13	1649484.01	6362.85	141.12
	TS	XS	10/13/2011	1772967.18	1649491.66	6363.05	150.88
	TS	XS	10/13/2011	1772973.48	1649499.38	6363.12	160.84
	TS	XS	10/13/2011	1772975.84	1649502.22	6362.87	164.53
	TS	XS	10/13/2011	1772979.40	1649507.32	6362.97	170.74
	TS	XS	10/13/2011	1772982.40	1649511.15	6364.84	175.60
	TS	XS	10/13/2011	1772984.96	1649514.23	6364.89	179.61
Pueblo GCS -1500 ft	TS	BM	4/28/2010	1772938.25	1649306.21	6368.63	-
	TS	XS	4/28/2010	1772938.29	1649306.04	6367.59	0
	TS	XS	10/13/2011	1772938.40	1649306.15	6367.60	0.16
	TS	XS	10/13/2011	1772953.47	1649323.34	6367.39	22.91
	TS	XS	10/13/2011	1772956.28	1649326.65	6366.39	27.25
	TS	XS	10/13/2011	1772960.87	1649332.22	6365.93	34.47
	TS	XS	10/13/2011	1772961.58	1649332.67	6363.23	35.28
	TS	XS	10/13/2011	1772962.62	1649333.67	6362.55	36.71
	TS	XS	10/13/2011	1772966.10	1649337.68	6362.06	42.02

	TS	XS	10/13/2011	1772968.72	1649340.60	6362.04	45.94
	TS	XS	10/13/2011	1772969.39	1649341.42	6362.55	47.00
	TS	XS	10/13/2011	1772972.22	1649344.79	6362.42	51.40
	TS	XS	10/13/2011	1772977.71	1649350.98	6363.32	59.67
	TS	XS	10/13/2011	1772979.96	1649353.46	6364.41	63.02
	TS	XS	10/13/2011	1772980.27	1649353.78	6365.15	63.46
	TS	XS	10/13/2011	1772980.92	1649354.60	6365.09	64.52
	TS	XS	10/13/2011	1772981.57	1649355.28	6364.22	65.45
	TS	XS	10/13/2011	1772982.65	1649356.45	6364.31	67.04
	TS	XS	10/13/2011	1772983.92	1649357.99	6365.26	69.04
	TS	XS	10/13/2011	1772985.29	1649359.49	6365.12	71.07
	TS	XS	10/13/2011	1772986.48	1649361.06	6365.68	73.03
	TS	XS	10/13/2011	1772988.58	1649363.24	6365.89	76.06
	TS	XS	10/13/2011	1772989.72	1649364.80	6365.70	77.98
	TS	XS	10/13/2011	1772991.22	1649366.47	6365.62	80.23
	TS	XS	10/13/2011	1772992.40	1649367.91	6365.96	82.09
	TS	XS	10/13/2011	1772996.60	1649372.34	6365.50	88.19
	TS	XS	10/13/2011	1772997.62	1649373.55	6365.85	89.77
	TS	XS	10/13/2011	1772998.47	1649374.45	6365.46	91.00
	TS	XS	10/13/2011	1773006.62	1649384.05	6365.48	103.60
	TS	XS	10/13/2011	1773012.77	1649391.00	6365.40	112.88
	TS	XS	10/13/2011	1773021.36	1649400.78	6365.58	125.90
	TS	XS	10/13/2011	1773029.58	1649410.26	6365.63	138.45
	TS	XS	10/13/2011	1773034.41	1649416.02	6365.78	145.96
	TS	XS	10/13/2011	1773037.59	1649419.48	6365.69	150.65
	TS	XS	10/13/2011	1773040.06	1649422.47	6365.22	154.53
	TS	XS	10/13/2011	1773041.13	1649423.73	6365.42	156.19
	TS	XS	10/13/2011	1773042.48	1649425.10	6365.74	158.10
	TS	XS	10/13/2011	1773045.79	1649429.00	6366.77	163.22
	TS	XS	10/13/2011	1773052.84	1649437.28	6366.67	174.09
	TS	XS	10/13/2011	1773059.65	1649444.97	6366.17	184.37
Pueblo GCS Thalweg Profile	TS	TP[g]	10/13/2011	1772968.60	1649340.65	6361.92	0
	TS	TP	10/13/2011	1772965.68	1649346.44	6361.85	6.49
	TS	TP	10/13/2011	1772962.86	1649353.34	6361.68	13.94
	TS	TP	10/13/2011	1772966.22	1649364.23	6361.62	25.34
	TS	TP	10/13/2011	1772961.49	1649372.79	6361.77	35.12
	TS	TP	10/13/2011	1772953.69	1649387.09	6361.45	51.40
	TS	TP	10/13/2011	1772947.94	1649397.93	6361.60	63.67
	TS	TP	10/13/2011	1772940.92	1649414.37	6361.44	81.55
	TS	TP	10/13/2011	1772935.22	1649430.20	6361.33	98.37
	TS	TP	10/13/2011	1772925.85	1649439.34	6361.21	111.46
	TS	TP	10/13/2011	1772920.57	1649447.03	6361.31	120.80
	TS	TP	10/13/2011	1772918.76	1649456.48	6361.04	130.42
	TS	TP	10/13/2011	1772912.89	1649457.39	6360.83	136.36
	TS	TP	10/13/2011	1772909.64	1649460.95	6360.81	141.18
	TS	TP	10/13/2011	1772895.13	1649463.76	6360.91	155.96
	TS	TP	10/13/2011	1772881.84	1649463.80	6360.81	169.25
	TS	TP	10/13/2011	1772902.69	1649465.12	6360.72	190.14
	TS	TP	10/13/2011	1772870.03	1649467.42	6360.68	222.89
	TS	TP	10/13/2011	1772860.12	1649478.20	6360.82	237.53
	TS	TP	10/13/2011	1772849.76	1649486.25	6360.57	250.65
	TS	TP	10/13/2011	1772838.72	1649496.92	6360.41	266.01
	TS	TP	10/13/2011	1772837.96	1649528.99	6360.17	298.09
	TS	TP	10/13/2011	1772836.23	1649536.66	6359.86	305.95
	TS	TP	10/13/2011	1772828.46	1649541.36	6359.69	315.02

TS	TP	10/13/2011	1772814.75	1649548.61	6359.34	330.54
TS	TP	10/13/2011	1772802.98	1649551.10	6359.20	342.57
TS	TP	10/13/2011	1772790.21	1649555.90	6359.16	356.21
TS	TP	10/13/2011	1772775.63	1649559.79	6358.94	371.29
TS	TP	10/13/2011	1772767.48	1649564.80	6358.98	380.86
TS	TP	10/13/2011	1772760.99	1649572.70	6358.70	391.08
TS	TP	10/13/2011	1772754.23	1649581.96	6357.76	402.55
TS	TP	10/13/2011	1772749.42	1649584.93	6357.66	408.21
TS	TP	10/13/2011	1772748.45	1649588.64	6357.44	412.04
TS	TP	10/13/2011	1772747.61	1649592.87	6356.04	416.36
TS	TP	10/13/2011	1772743.79	1649600.75	6355.95	425.11
TS	TP	10/13/2011	1772729.75	1649608.51	6355.49	441.15
TS	TP	10/13/2011	1772718.92	1649609.88	6355.49	452.07
TS	TP	10/13/2011	1772713.21	1649619.73	6355.39	463.46
TS	TP	10/13/2011	1772708.84	1649633.46	6355.02	477.86
TS	TP	10/13/2011	1772692.18	1649644.32	6354.83	497.75
TS	TP	10/13/2011	1772698.85	1649644.44	6355.04	504.42
TS	TP	10/13/2011	1772685.93	1649653.23	6354.69	520.05
TS	TP	10/13/2011	1772676.52	1649656.88	6354.22	530.14
TS	TP	10/13/2011	1772659.56	1649668.69	6353.29	550.80
TS	TP	10/13/2011	1772667.39	1649669.37	6353.36	558.66
TS	TP	10/13/2011	1772653.74	1649673.86	6353.14	573.03
TS	TP	10/13/2011	1772646.41	1649685.08	6352.62	586.43
TS	TP	10/13/2011	1772645.13	1649690.48	6352.57	591.98
TS	TP	10/13/2011	1772638.76	1649695.45	6352.08	600.06
TS	TP	10/13/2011	1772631.53	1649709.98	6352.15	616.29
TS	TP	10/13/2011	1772623.53	1649713.29	6352.10	624.95
TS	TP	10/13/2011	1772615.60	1649718.33	6351.68	634.34
TS	TP	10/13/2011	1772606.51	1649729.03	6351.60	648.38
TS	TP	10/13/2011	1772606.86	1649735.90	6351.33	655.26
TS	TP	10/13/2011	1772594.53	1649746.14	6351.42	671.28
TS	TP	10/13/2011	1772583.69	1649755.70	6351.51	685.74
TS	TP	10/13/2011	1772577.64	1649769.22	6351.39	700.55
TS	TP	10/13/2011	1772578.45	1649775.81	6351.35	707.19
TS	TP	10/13/2011	1772583.11	1649784.49	6350.80	717.04
TS	TP	10/13/2011	1772581.77	1649793.72	6350.12	726.37
TS	TP	10/13/2011	1772576.04	1649803.02	6349.69	737.29
TS	TP	10/13/2011	1772569.24	1649815.85	6349.63	751.81
TS	TP	10/13/2011	1772561.46	1649828.77	6349.58	766.89
TS	TP	10/13/2011	1772554.13	1649837.73	6349.18	778.47
TS	TP	10/13/2011	1772545.62	1649850.16	6349.06	793.53
TS	TP	10/13/2011	1772548.14	1649856.55	6348.67	800.40
TS	TP	10/13/2011	1772540.43	1649869.81	6348.47	815.74
TS	TP	10/13/2011	1772538.06	1649875.68	6348.48	822.08
TS	TP	10/13/2011	1772531.76	1649882.48	6348.25	831.35
TS	TP	10/13/2011	1772526.99	1649893.91	6348.45	843.73
TS	TP	10/13/2011	1772515.47	1649903.14	6348.39	858.49
TS	TP	10/13/2011	1772508.00	1649913.76	6348.05	871.47
TS	TP	10/13/2011	1772510.53	1649925.54	6348.27	883.52
TS	TP	10/13/2011	1772504.91	1649933.69	6348.24	893.42
TS	TP	10/13/2011	1772496.19	1649943.07	6348.11	906.22
TS	TP	10/13/2011	1772489.68	1649954.51	6348.14	919.39
TS	TP	10/13/2011	1772484.93	1649969.60	6348.12	935.21
TS	TP	10/13/2011	1772474.53	1649982.69	6348.06	951.93
TS	TP	10/13/2011	1772462.40	1649995.63	6348.03	969.67

TS	TP	10/13/2011	1772450.68	1650003.28	6347.80	983.66
TS	TP	10/13/2011	1772436.73	1650009.84	6347.75	999.07
TS	TP	10/13/2011	1772428.72	1650012.24	6347.74	1007.44
TS	TP	10/13/2011	1772405.09	1650017.08	6347.56	1031.55
TS	TP	10/13/2011	1772416.19	1650018.67	6347.73	1042.76
TS	TP	10/13/2011	1772397.75	1650020.53	6347.38	1061.29
TS	TP	10/13/2011	1772387.76	1650027.91	6347.28	1073.71
TS	TP	10/13/2011	1772384.87	1650034.89	6347.27	1081.27
TS	TP	10/13/2011	1772381.30	1650044.54	6347.06	1091.56
TS	TP	10/13/2011	1772376.93	1650045.04	6346.92	1095.96
TS	TP	10/13/2011	1772371.30	1650051.64	6346.79	1104.63
TS	TP	10/13/2011	1772364.70	1650055.98	6346.65	1112.53
TS	TP	10/13/2011	1772356.82	1650058.18	6346.43	1120.71
TS	TP	10/13/2011	1772346.07	1650068.21	6345.64	1135.41
TS	TP	10/13/2011	1772340.89	1650079.07	6343.95	1147.45
TS	TP	10/13/2011	1772339.15	1650088.68	6343.48	1157.22
TS	TP	10/13/2011	1772338.88	1650091.73	6342.98	1160.28
TS	TP	10/13/2011	1772335.16	1650097.92	6342.03	1167.49
TS	TP	10/13/2011	1772335.44	1650107.73	6343.17	1177.31
TS	TP	10/13/2011	1772330.54	1650114.76	6343.80	1185.88
TS	TP	10/13/2011	1772323.47	1650122.19	6344.22	1196.14
TS	TP	10/13/2011	1772313.01	1650125.26	6343.75	1207.04
TS	TP	10/13/2011	1772308.31	1650138.53	6343.33	1221.11
TS	TP	10/13/2011	1772302.59	1650145.35	6343.25	1230.02
TS	TP	10/13/2011	1772294.29	1650156.46	6342.69	1243.88
TS	TP	10/13/2011	1772286.38	1650165.38	6342.32	1255.81
TS	TP	10/13/2011	1772282.57	1650179.81	6341.40	1270.73
TS	TP	10/13/2011	1772281.95	1650184.23	6341.71	1275.20
TS	TP	10/13/2011	1772278.74	1650193.89	6341.72	1285.38
TS	TP	10/13/2011	1772270.33	1650195.99	6341.79	1294.04
TS	TP	10/13/2011	1772267.22	1650204.32	6341.73	1302.93
TS	TP	10/13/2011	1772268.48	1650216.39	6341.32	1315.07
TS	TP	10/13/2011	1772263.67	1650224.92	6341.07	1324.87
TS	TP	10/13/2011	1772259.57	1650237.28	6340.89	1337.88
TS	TP	10/13/2011	1772253.69	1650245.17	6340.81	1347.72
TS	TP	10/13/2011	1772245.55	1650255.65	6340.49	1361.00
TS	TP	10/13/2011	1772239.05	1650265.38	6340.14	1372.69
TS	TP	10/13/2011	1772233.00	1650274.33	6339.64	1383.50
TS	TP	10/13/2011	1772228.31	1650281.27	6339.33	1391.87
TS	TP	10/13/2011	1772226.59	1650290.52	6339.37	1401.28
TS	TP	10/13/2011	1772228.46	1650297.94	6339.11	1408.94
TS	TP	10/13/2011	1772232.52	1650306.83	6338.58	1418.71
TS	TP	10/13/2011	1772237.40	1650317.18	6338.18	1430.15
TS	TP	10/13/2011	1772235.14	1650323.92	6338.11	1437.26
TS	TP	10/13/2011	1772230.66	1650332.17	6337.86	1446.65
TS	TP	10/13/2011	1772225.60	1650344.12	6337.49	1459.62
TS	TP	10/13/2011	1772225.10	1650358.17	6337.39	1473.69
TS	TP	10/13/2011	1772223.18	1650369.41	6337.30	1485.09
TS	TP	10/13/2011	1772221.06	1650381.47	6337.29	1497.34
TS	TP	10/13/2011	1772223.63	1650389.44	6337.18	1505.71
TS	TP	10/13/2011	1772222.21	1650394.89	6337.12	1511.34
TS	TP	10/13/2011	1772214.77	1650399.44	6336.97	1520.06
TS	TP	10/13/2011	1772207.95	1650423.88	6336.89	1545.44
TS	TP	10/13/2011	1772199.28	1650449.87	6336.62	1572.84
TS	TP	10/13/2011	1772197.24	1650453.05	6336.59	1576.61

	TS	TP	10/13/2011	1772191.36	1650455.25	6336.42	1582.89
	TS	TP	10/13/2011	1772188.12	1650458.73	6336.28	1587.65
	TS	TP	10/13/2011	1772188.49	1650463.88	6336.24	1592.81
	TS	TP	10/13/2011	1772182.95	1650471.83	6335.95	1602.49
	TS	TP	10/13/2011	1772177.84	1650485.40	6335.88	1617.00
	TS	TP	10/13/2011	1772169.79	1650494.18	6335.71	1628.90
	TS	TP	10/13/2011	1772167.50	1650503.75	6335.43	1638.75
	TS	TP	10/13/2011	1772159.71	1650510.83	6335.60	1649.27
	TS	TP	10/13/2011	1772150.67	1650519.89	6335.26	1662.07
	TS	TP	10/13/2011	1772142.36	1650526.02	6335.46	1672.40
	TS	TP	10/13/2011	1772139.03	1650538.74	6335.22	1685.55
	TS	TP	10/13/2011	1772132.33	1650544.27	6335.14	1694.24
	TS	TP	10/13/2011	1772126.97	1650547.05	6334.83	1700.27
	TS	TP	10/13/2011	1772151.12	1650607.46	6330.45	1765.33
	TS	TP	10/13/2011	1772154.26	1650616.73	6330.31	1775.13
	TS	TP	10/13/2011	1772155.95	1650628.33	6329.90	1786.84
	TS	TP	10/13/2011	1772155.47	1650636.74	6329.53	1795.27
	TS	TP	10/13/2011	1772151.16	1650645.72	6329.01	1805.23
	TS	TP	10/13/2011	1772151.37	1650657.75	6328.90	1817.26
	TS	TP	10/13/2011	1772154.94	1650666.95	6328.85	1827.13
	TS	TP	10/13/2011	1772162.17	1650672.66	6328.77	1836.34
	TS	TP	10/13/2011	1772164.45	1650682.76	6328.73	1846.69
	TS	TP	10/13/2011	1772170.87	1650690.51	6328.60	1856.76
	TS	TP	10/13/2011	1772173.05	1650698.86	6328.51	1865.39
	TS	TP	10/13/2011	1772178.18	1650702.65	6328.46	1871.77
	TS	TP	10/13/2011	1772189.52	1650716.29	6328.28	1889.50
	TS	TP	10/13/2011	1772201.59	1650729.71	6328.14	1907.55
	TS	TP	10/13/2011	1772207.44	1650739.13	6327.85	1918.65
	TS	TP	10/13/2011	1772209.90	1650747.71	6327.70	1927.57
	TS	TP	10/13/2011	1772213.86	1650751.81	6327.57	1933.27
	TS	TP	10/13/2011	1772219.90	1650760.72	6327.18	1944.04
	TS	TP	10/13/2011	1772225.42	1650772.43	6326.78	1956.98
	TS	TP	10/13/2011	1772227.22	1650787.63	6326.18	1972.29
	TS	TP	10/13/2011	1772228.89	1650799.55	6326.18	1984.32
	TS	TP	10/13/2011	1772236.13	1650812.36	6326.06	1999.04
	TS	TP	10/13/2011	1772241.17	1650825.53	6325.69	2013.13
	TS	TP	10/13/2011	1772245.07	1650833.91	6324.76	2022.38
	TS	TP	10/13/2011	1772254.80	1650843.53	6323.27	2036.06
	TS	TP	10/13/2011	1772266.29	1650855.89	6322.83	2052.94
	TS	TP	10/13/2011	1772271.71	1650862.46	6322.34	2061.46
	TS	TP	10/13/2011	1772279.68	1650875.15	6322.24	2076.44
	TS	TP	10/13/2011	1772285.62	1650889.11	6321.81	2091.62
Note: portion of thalweg was	TS	TP	1/26/2012	1772828.678	1649510.481	6360.052	213.26
resurveyed on 1/26/12	TS	TP	1/26/2012	1772819.887	1649515.46	6360.151	222.96
	TS	TP	1/26/2012	1772809.837	1649516.12	6359.832	232.63
	TS	TP	1/26/2012	1772801.6	1649519.627	6359.733	241.19
	TS	TP	1/26/2012	1772794.222	1649523.711	6359.715	249.22
	TS	TP	1/26/2012	1772785.832	1649528.604	6359.55	258.53
	TS	TP	1/26/2012	1772773.215	1649527.915	6359.395	270.77
	TS	TP	1/26/2012	1772763.8	1649534.682	6359.243	281.96
	TS	TP	1/26/2012	1772756.878	1649535.442	6359.075	288.53
	TS	TP	1/26/2012	1772754.667	1649532.805	6359.013	291.57
	TS	TP	1/26/2012	1772747.223	1649535.564	6358.451	299.11
	TS	TP	1/26/2012	1772746.056	1649539.298	6358.56	302.62
	TS	TP	1/26/2012	1772733.08	1649545.647	6358.183	316.67

TS	TP	1/26/2012	1772726.145	1649554.613	6358.114	327.61
TS	TP	1/26/2012	1772724.86	1649561.652	6357.902	334.36
TS	TP	1/26/2012	1772716.461	1649565.049	6357.615	343.02
TS	TP	1/26/2012	1772707.25	1649570.682	6357.64	353.42
TS	TP	1/26/2012	1772703.61	1649577.282	6357.665	360.56
TS	TP	1/26/2012	1772701.063	1649583.163	6357.685	366.57
TS	TP	1/26/2012	1772698.315	1649590.121	6357.563	373.65
TS	TP	1/26/2012	1772693.733	1649598.591	6357.368	382.88
TS	TP	1/26/2012	1772690.246	1649603.033	6357.423	388.13
TS	TP	1/26/2012	1772685.587	1649613.504	6356.893	399.19
TS	TP	1/26/2012	1772683.764	1649617.684	6356.598	403.35
TS	TP	1/26/2012	1772684.21	1649623.163	6355.783	408.45
TS	TP	1/26/2012	1772679.8	1649632.097	6355.514	418.01
TS	TP	1/26/2012	1772677.145	1649638.828	6355.029	424.85
TS	TP	1/26/2012	1772682.935	1649644.499	6354.763	432.55
TS	TP	1/26/2012	1772687.357	1649648.304	6354.487	437.99

[a] GCS = grade control structure. Positive numbers (e.g., +100ft) indicate cross-sections downstream of GCS; distance below GCS. Negative numbers (e.g., -800ft) indicate cross-sections upstream of GCS; distance above GCS.

[b] GPS = Trimble 5700 global positioning system (GPS) survey method.

[c] BM = benchmark

[d] dash = not applicable (benchmark; not a point on section)

[e] XS = cross-section point

[f] TS = Geodimeter 620 total station survey method.

[g] TP = thalweg point

[h] = calculated distance along sections, from south to north, are relative to original benchmarks. Refer to report LA-UR-11-0936, "Baseline Geomorphic Conditions at Sediment Transport Mitigation Sites in the Los Alamos and Pueblo Canyon Watersheds, Revision 1," for initial survey.

DP Canyon Grade Control Structure Survey Data

Site	Type of Survey	Purpose	Date Surveyed	Y	X	Z	Calculated Distance in Section or Profile (ft)[g]
DP GCS -1100ft[a]	TS[b]	BM[c]	10/18/2011	1774965.60	1633030.88	7041.82	-
	TS	XS[e]	4/29/2010	1774956.19	1633018.85	7043.12	0
	TS	XS	10/18/2011	1774965.66	1633030.95	7041.07	15.33
	TS	XS	10/18/2011	1774967.89	1633033.53	7040.20	18.74
	TS	XS	10/18/2011	1774968.47	1633034.33	7040.07	19.73
	TS	XS	10/18/2011	1774973.58	1633041.12	7039.85	28.22
	TS	XS	10/18/2011	1774976.64	1633045.13	7040.11	33.26
	TS	XS	10/18/2011	1774978.05	1633047.04	7040.23	35.64
	TS	XS	10/18/2011	1774980.20	1633049.71	7040.13	39.07
	TS	XS	10/18/2011	1774983.63	1633053.30	7040.12	44.00
	TS	XS	10/18/2011	1774984.77	1633054.93	7039.16	45.99
	TS	XS	10/18/2011	1774991.61	1633052.98	7038.84	49.15
	TS	XS	10/18/2011	1774988.06	1633060.88	7038.97	52.71
	TS	XS	10/18/2011	1774988.72	1633061.08	7039.77	53.28
	TS	XS	10/18/2011	1774990.65	1633063.35	7040.07	56.25
	TS	XS	10/18/2011	1774993.60	1633067.15	7043.18	61.06
	TS	XS	10/18/2011	1774998.98	1633073.84	7043.89	69.65
DP GCS -1000ft	TS	BM	4/29/2010	1774886.91	1633103.18	7043.22	-
	TS	XS	4/29/2010	1774887.09	1633103.06	7042.62	0
	TS	XS	10/18/2011	1774887.11	1633103.32	7042.67	0.26
	TS	XS	10/18/2011	1774890.51	1633105.52	7041.99	4.21
	TS	XS	10/18/2011	1774893.73	1633108.12	7039.43	8.35
	TS	XS	10/18/2011	1774898.51	1633111.03	7039.35	13.93
	TS	XS	10/18/2011	1774899.11	1633111.71	7038.28	14.81
	TS	XS	10/18/2011	1774902.20	1633113.77	7038.29	18.51
	TS	XS	10/18/2011	1774904.09	1633115.42	7038.22	21.01
	TS	XS	10/18/2011	1774904.99	1633115.91	7039.09	22.03
	TS	XS	10/18/2011	1774908.99	1633118.95	7039.40	27.06
	TS	XS	10/18/2011	1774919.73	1633128.08	7039.69	41.13
	TS	XS	10/18/2011	1774928.04	1633132.91	7040.20	50.67
	TS	XS	10/18/2011	1774932.83	1633135.95	7040.85	56.34
DP GCS -900ft	TS	BM	10/18/2011	1774844.44	1633205.79	7040.17	-
	TS	XS	4/29/2010	1774833.67	1633203.48	7041.35	0
	TS	XS	10/18/2011	1774844.54	1633205.79	7039.56	11.11
	TS	XS	10/18/2011	1774847.66	1633206.04	7039.41	14.22
	TS	XS	10/18/2011	1774849.94	1633206.51	7038.80	16.54
	TS	XS	10/18/2011	1774850.99	1633206.76	7038.31	17.62
	TS	XS	10/18/2011	1774853.24	1633207.32	7038.03	19.94
	TS	XS	10/18/2011	1774860.11	1633208.67	7037.92	26.94
	TS	XS	10/18/2011	1774866.67	1633210.16	7038.25	33.67
	TS	XS	10/18/2011	1774871.14	1633210.87	7038.37	38.19
	TS	XS	10/18/2011	1774872.18	1633211.02	7035.87	39.24
	TS	XS	10/18/2011	1774875.70	1633211.94	7036.04	42.87
	TS	XS	10/18/2011	1774876.33	1633211.81	7037.27	43.46
	TS	XS	10/18/2011	1774877.98	1633211.98	7037.92	45.11
	TS	XS	10/18/2011	1774885.83	1633213.77	7038.07	53.17
	TS	XS	10/18/2011	1774892.15	1633214.88	7038.00	59.57
	TS	XS	10/18/2011	1774897.00	1633215.89	7038.02	64.53
	TS	XS	10/18/2011	1774900.23	1633216.52	7038.64	67.83
	TS	XS	10/18/2011	1774904.79	1633217.59	7039.19	72.51

	TS	XS	10/18/2011	1774913.14	1633219.51	7039.99	81.06
DP GCS -800ft	TS	BM	10/18/2011	1774824.96	1633301.52	7038.21	-
	TS	XS	4/29/2010	1774810.02	1633297.09	7038.35	0
	TS	XS	10/18/2011	1774825.15	1633301.57	7037.50	15.78
	TS	XS	10/18/2011	1774832.45	1633303.32	7036.32	23.28
	TS	XS	10/18/2011	1774835.92	1633304.35	7035.97	26.90
	TS	XS	10/18/2011	1774840.22	1633305.59	7035.61	31.37
	TS	XS	10/18/2011	1774843.28	1633306.29	7035.68	34.51
	TS	XS	10/18/2011	1774845.08	1633307.16	7036.15	36.48
	TS	XS	10/18/2011	1774851.88	1633308.71	7035.95	43.44
	TS	XS	10/18/2011	1774853.28	1633308.88	7034.25	44.84
	TS	XS	10/18/2011	1774855.07	1633309.56	7034.44	46.74
	TS	XS	10/18/2011	1774855.50	1633309.59	7035.40	47.17
	TS	XS	10/18/2011	1774857.47	1633310.18	7036.07	49.22
	TS	XS	10/18/2011	1774865.43	1633312.50	7035.95	57.52
	TS	XS	10/18/2011	1774875.70	1633315.13	7035.81	68.11
DP GCS -700ft	TS	BM	10/18/2011	1774802.11	1633399.80	7035.68	-
	TS	XS	4/29/2010	1774787.83	1633396.38	7035.74	0
	TS	XS	10/18/2011	1774802.18	1633399.86	7034.69	14.77
	TS	XS	10/18/2011	1774803.98	1633400.16	7034.43	16.59
	TS	XS	10/18/2011	1774805.39	1633400.73	7034.12	18.10
	TS	XS	10/18/2011	1774813.30	1633402.58	7033.99	26.22
	TS	XS	10/18/2011	1774823.67	1633405.32	7034.69	36.94
	TS	XS	10/18/2011	1774831.37	1633407.39	7034.46	44.91
	TS	XS	10/18/2011	1774833.29	1633407.69	7033.30	46.85
	TS	XS	10/18/2011	1774836.29	1633408.47	7033.02	49.95
	TS	XS	10/18/2011	1774838.05	1633409.01	7034.49	51.79
	TS	XS	10/18/2011	1774841.28	1633409.20	7034.47	54.97
	TS	XS	10/18/2011	1774843.66	1633409.60	7035.04	57.38
	TS	XS	10/18/2011	1774851.74	1633411.81	7036.94	65.75
	TS	XS	10/18/2011	1774872.27	1633416.33	7038.56	86.77
DP GCS -600ft	TS	BM	4/29/2010	1774743.60	1633495.55	7036.65	-
	TS	XS	4/29/2010	1774743.57	1633495.68	7035.79	0
	TS	XS	10/18/2011	1774743.66	1633495.44	7035.71	0.26
	TS	XS	10/18/2011	1774754.10	1633496.91	7034.02	10.60
	TS	XS	10/18/2011	1774761.29	1633498.30	7033.66	17.91
	TS	XS	10/18/2011	1774769.75	1633498.91	7033.42	26.38
	TS	XS	10/18/2011	1774780.17	1633500.67	7032.86	36.94
	TS	XS	10/18/2011	1774787.20	1633501.43	7032.92	44.01
	TS	XS	10/18/2011	1774789.04	1633501.82	7031.95	45.88
	TS	XS	10/18/2011	1774789.66	1633502.01	7031.81	46.52
	TS	XS	10/18/2011	1774790.57	1633501.87	7031.98	47.41
	TS	XS	10/18/2011	1774795.27	1633502.25	7033.09	52.12
	TS	XS	10/18/2011	1774802.26	1633503.60	7032.90	59.23
	TS	XS	10/18/2011	1774809.92	1633504.45	7032.30	66.93
	TS	XS	10/18/2011	1774811.57	1633504.61	7032.48	68.58
	TS	XS	10/18/2011	1774813.04	1633504.32	7033.14	70.01
	TS	XS	10/18/2011	1774818.46	1633505.37	7033.38	75.51
	TS	XS	10/18/2011	1774824.51	1633506.43	7034.12	81.65
DP GCS -500ft	TS	BM	10/19/2011	1774752.83	1633597.15	7033.25	-
	TS	XS	4/29/2010	1774712.37	1633591.92	7035.53	0
	TS	XS	10/19/2011	1774752.92	1633597.21	7032.75	40.89
	TS	XS	10/19/2011	1774756.69	1633597.47	7032.17	44.67
	TS	XS	10/19/2011	1774760.20	1633598.13	7031.87	48.23
	TS	XS	10/19/2011	1774762.28	1633598.47	7031.40	50.34

	TS	XS	10/19/2011	1774766.30	1633598.55	7031.36	54.34
	TS	XS	10/19/2011	1774772.37	1633599.47	7031.51	60.48
	TS	XS	10/19/2011	1774776.57	1633600.08	7031.80	64.72
	TS	XS	10/19/2011	1774778.36	1633600.38	7031.10	66.53
	TS	XS	10/19/2011	1774779.46	1633600.51	7031.02	67.64
	TS	XS	10/19/2011	1774780.71	1633600.68	7031.09	68.90
	TS	XS	10/19/2011	1774781.82	1633601.03	7031.82	70.04
	TS	XS	10/19/2011	1774784.69	1633601.06	7031.04	72.90
	TS	XS	10/19/2011	1774791.63	1633601.90	7031.79	79.89
	TS	XS	10/19/2011	1774800.87	1633603.27	7031.87	89.23
	TS	XS	10/19/2011	1774804.63	1633604.02	7031.92	93.06
	TS	XS	10/19/2011	1774813.50	1633604.82	7032.07	101.95
	TS	XS	10/19/2011	1774820.29	1633605.54	7032.38	108.78
	TS	XS	10/19/2011	1774820.45	1633605.61	7033.21	-
DP GCS -400ft	TS	BM	10/19/2011	1774732.39	1633695.53	7032.32	-
	TS	XS	5/3/2011	1774699.28	1633692.245	7034.81	0
	TS	XS	10/19/2011	1774732.5	1633695.54	7031.61	33.38
	TS	XS	10/19/2011	1774734.25	1633695.54	7031.47	35.12
	TS	XS	10/19/2011	1774737.91	1633695.85	7031.11	38.80
	TS	XS	10/19/2011	1774740.685	1633696.27	7030.70	41.60
	TS	XS	10/19/2011	1774743.63	1633696.53	7030.46	44.56
	TS	XS	10/19/2011	1774746.745	1633696.80	7030.56	47.68
	TS	XS	10/19/2011	1774748.965	1633697.31	7030.59	49.94
	TS	XS	10/19/2011	1774752.275	1633697.42	7030.77	53.25
	TS	XS	10/19/2011	1774760.515	1633698.67	7029.92	61.57
	TS	XS	10/19/2011	1774767.725	1633699.44	7029.98	68.82
	TS	XS	10/19/2011	1774771.735	1633699.72	7030.23	72.84
	TS	XS	10/19/2011	1774782.15	1633701.16	7030.62	83.35
	TS	XS	10/19/2011	1774789.415	1633701.82	7030.86	90.64
	TS	XS	10/19/2011	1774799.285	1633703.08	7031.53	100.59
	TS	XS	10/19/2011	1774799.43	1633703.17	7032.18	-
DP GCS -300ft	TS	BM	5/3/2010	1774693.48	1633793.13	7032.31	-
	TS	XS	5/3/2010	1774693.52	1633793.27	7033.03	0
	TS	XS	10/19/2011	1774723.33	1633796.12	7029.83	29.95
	TS	XS	10/19/2011	1774724.38	1633796.28	7029.78	31.01
	TS	XS	10/19/2011	1774728.54	1633796.63	7029.38	35.18
	TS	XS	10/19/2011	1774738.67	1633797.65	7029.31	45.36
	TS	XS	10/19/2011	1774744.66	1633798.10	7029.38	51.37
	TS	XS	10/19/2011	1774746.08	1633798.26	7029.40	52.80
	TS	XS	10/19/2011	1774747.68	1633798.26	7029.42	54.39
	TS	XS	10/19/2011	1774754.17	1633799.11	7029.04	60.93
	TS	XS	10/19/2011	1774757.90	1633799.47	7029.02	64.68
	TS	XS	10/19/2011	1774764.86	1633799.99	7028.98	71.66
	TS	XS	10/19/2011	1774772.92	1633801.03	7028.80	79.78
	TS	XS	10/19/2011	1774773.71	1633801.05	7028.59	80.57
	TS	XS	10/19/2011	1774779.56	1633801.56	7029.06	86.44
	TS	XS	10/19/2011	1774782.90	1633802.20	7029.30	89.82
	TS	XS	10/19/2011	1774787.43	1633802.50	7029.34	94.37
	TS	XS	10/19/2011	1774789.64	1633802.87	7029.45	96.60
	TS	XS	10/19/2011	1774796.01	1633803.47	7030.00	103.00
	TS	BM	10/19/2011	1774796.15	1633803.45	7030.39	-
DP GCS -200ft	TS	BM	5/3/2010	1774663.54	1633882.62	7031.00	-
	TS	XS	5/3/2010	1774663.56	1633882.67	7030.13	0
	TS	XS	10/19/2011	1774720.83	1633893.47	7028.03	58.28
	TS	XS	10/19/2011	1774728.13	1633894.75	7027.80	65.68

	TS	XS	10/19/2011	1774732.91	1633895.76	7027.61	70.57
	TS	XS	10/19/2011	1774734.91	1633896.16	7027.40	72.61
	TS	XS	10/19/2011	1774736.38	1633896.37	7026.61	74.09
	TS	XS	10/19/2011	1774737.40	1633896.62	7026.74	75.14
	TS	XS	10/19/2011	1774739.37	1633896.98	7026.90	77.15
	TS	XS	10/19/2011	1774741.08	1633897.31	7026.93	78.89
	TS	XS	10/19/2011	1774742.81	1633898.16	7026.53	80.75
	TS	XS	10/19/2011	1774746.03	1633898.39	7026.00	83.96
	TS	XS	10/19/2011	1774746.56	1633898.58	7024.06	84.51
	TS	XS	10/19/2011	1774747.09	1633898.53	7023.81	85.02
	TS	XS	10/19/2011	1774747.41	1633898.68	7023.80	85.36
	TS	XS	10/19/2011	1774749.42	1633899.31	7027.14	87.45
	TS	XS	10/19/2011	1774757.18	1633900.67	7026.81	95.33
	TS	XS	10/19/2011	1774761.93	1633901.55	7026.74	100.16
	TS	XS	10/19/2011	1774765.97	1633902.33	7027.63	104.28
	TS	XS	10/19/2011	1774770.81	1633903.22	7028.16	109.20
DP GCS -100ft	TS	BM	10/19/2011	1774686.74	1633985.86	7026.97	-
	TS	XS	5/3/2011	1774647.89	1633975.69	7029.80	0
	TS	XS	5/3/2010	1774686.85	1633985.83	7026.50	40.25
	TS	XS	5/3/2010	1774689.77	1633986.64	7026.46	43.28
	TS	XS	5/3/2010	1774706.04	1633991.40	7025.53	60.23
	TS	XS	5/3/2010	1774711.33	1633992.95	7025.39	65.74
	TS	XS	5/3/2010	1774714.13	1633993.58	7025.36	68.61
	TS	XS	5/3/2010	1774721.11	1633995.37	7025.24	75.81
	TS	XS	5/3/2010	1774725.41	1633996.40	7025.19	80.24
	TS	XS	5/3/2010	1774728.52	1633997.31	7024.98	83.47
	TS	XS	5/3/2010	1774732.50	1633998.17	7025.16	87.54
	TS	XS	5/3/2010	1774735.72	1633999.02	7025.03	90.87
	TS	XS	5/3/2010	1774737.65	1633999.02	7022.06	92.73
	TS	XS	5/3/2010	1774740.26	1634000.03	7022.10	95.52
	TS	XS	5/3/2010	1774742.03	1634000.57	7022.66	97.37
	TS	XS	5/3/2010	1774742.91	1634000.66	7023.60	98.24
	TS	XS	5/3/2010	1774746.81	1634001.76	7023.95	102.29
	TS	XS	5/3/2010	1774748.77	1634002.26	7024.43	104.31
	TS	XS	5/3/2010	1774754.30	1634003.54	7024.29	109.99
	TS	XS	5/3/2010	1774762.08	1634005.62	7024.49	118.04
	TS	XS	5/3/2010	1774768.85	1634007.41	7025.09	125.05
DP GCS +125ft	TS	BM	5/5/2010	1774617.145	1634218.97	7030.925	-
	TS	XS	5/5/2010	1774617.03	1634218.76	7030.11	0
	TS	XS	10/19/2011	1774687.705	1634214.17	7021.31	70.82
	TS	XS	10/19/2011	1774696.03	1634214.295	7019.555	79.13
	TS	XS	10/19/2011	1774705.565	1634213.77	7017.825	88.68
	TS	XS	10/19/2011	1774708.295	1634212.655	7018.27	91.47
	TS	XS	10/19/2011	1774712.05	1634212.015	7018.255	95.26
	TS	XS	10/19/2011	1774714.43	1634212.05	7015.57	97.63
	TS	XS	10/19/2011	1774721.225	1634211.235	7015.105	104.47
	TS	XS	10/19/2011	1774722.415	1634211.405	7015.46	105.64
	TS	XS	10/19/2011	1774726.795	1634210.835	7019.555	110.05
	TS	XS	10/19/2011	1774732.84	1634209.55	7020.685	116.18
	TS	XS	10/19/2011	1774735.325	1634209.44	7020.69	118.66
	TS	XS	10/19/2011	1774751.555	1634207.56	7024.45	134.99
DP GCS +225ft	TS	BM	5/5/2010	1774651.06	1634308.21	7024.07	-
	TS	XS	5/5/2010	1774650.90	1634308.38	7023.12	0.00
	TS	XS	10/19/2011	1774679.13	1634309.98	7019.97	28.28
	TS	XS	10/19/2011	1774682.75	1634310.21	7018.95	31.90

	TS	XS	10/19/2011	1774695.28	1634311.59	7017.12	44.50
	TS	XS	10/19/2011	1774701.32	1634312.02	7016.89	50.56
	TS	XS	10/19/2011	1774706.26	1634312.58	7016.67	55.52
	TS	XS	10/19/2011	1774710.88	1634312.46	7016.40	60.12
	TS	XS	10/19/2011	1774711.90	1634312.82	7013.80	61.16
	TS	XS	10/19/2011	1774714.26	1634312.66	7014.07	63.51
	TS	XS	10/19/2011	1774716.01	1634312.68	7014.15	65.26
	TS	XS	10/19/2011	1774717.90	1634313.02	7016.18	67.17
	TS	XS	10/19/2011	1774722.89	1634312.96	7016.35	72.14
	TS	XS	10/19/2011	1774725.94	1634312.63	7016.71	75.16
	TS	XS	10/19/2011	1774731.53	1634313.39	7017.18	80.79
	TS	XS	10/19/2011	1774742.34	1634314.21	7020.29	91.63
	TS	XS	10/19/2011	1774749.46	1634314.47	7022.46	98.75
DP GCS Thalweg Profile	TS	TP[f]	10/19/2011	1774980.325	1633065.28	7038.61	0
	TS	TP	10/19/2011	1774971.35	1633070.40	7038.59	10.98
	TS	TP	10/19/2011	1774962.3	1633075.81	7038.57	22.18
	TS	TP	10/19/2011	1774952.83	1633081.88	7038.51	34.08
	TS	TP	10/19/2011	1774939.785	1633087.39	7038.46	48.89
	TS	TP	10/19/2011	1774930.745	1633089.29	7038.34	58.78
	TS	TP	10/19/2011	1774922.77	1633094.58	7038.32	69.00
	TS	TP	10/19/2011	1774913.675	1633101.58	7038.22	81.13
	TS	TP	10/19/2011	1774904.095	1633109.35	7038.18	94.12
	TS	TP	10/19/2011	1774902.06	1633113.71	7038.24	99.58
	TS	TP	10/19/2011	1774893.325	1633119.59	7038.18	110.76
	TS	TP	10/19/2011	1774885.45	1633126.57	7038.12	121.94
	TS	TP	10/19/2011	1774874.06	1633131.71	7037.66	135.08
	TS	TP	10/19/2011	1774867.18	1633140.13	7037.71	146.61
	TS	TP	10/19/2011	1774857.89	1633152.13	7037.49	162.43
	TS	TP	10/19/2011	1774856.195	1633162.09	7037.02	173.19
	TS	TP	10/19/2011	1774862.55	1633166.73	7036.85	181.71
	TS	TP	10/19/2011	1774859.42	1633180.63	7036.17	196.61
	TS	TP	10/19/2011	1774856.71	1633183.32	7036.91	201.08
	TS	TP	10/19/2011	1774849.75	1633188.19	7036.47	210.23
	TS	TP	10/19/2011	1774854.015	1633193.69	7036.27	217.84
	TS	TP	10/19/2011	1774859.73	1633195.77	7036.54	224.57
	TS	TP	10/19/2011	1774873.17	1633204.27	7036.00	241.12
	TS	TP	10/19/2011	1774873.58	1633211.99	7035.66	249.51
	TS	TP	10/19/2011	1774880.105	1633221.46	7035.86	261.66
	TS	TP	10/19/2011	1774881.65	1633228.22	7035.28	269.24
	TS	TP	10/19/2011	1774878.19	1633229.57	7035.79	273.61
	TS	TP	10/19/2011	1774874.28	1633238.08	7035.14	283.62
	TS	TP	10/19/2011	1774879.07	1633239.09	7035.23	289.17
	TS	TP	10/19/2011	1774881.975	1633248.40	7035.13	299.57
	TS	TP	10/19/2011	1774877.55	1633253.71	7035.19	307.14
	TS	TP	10/19/2011	1774884.745	1633266.54	7034.85	322.50
	TS	TP	10/19/2011	1774878.005	1633274.81	7035.01	333.82
	TS	TP	10/19/2011	1774874.685	1633278.83	7034.72	339.68
	TS	TP	10/19/2011	1774869.885	1633278.83	7034.87	345.13
	TS	TP	10/19/2011	1774870.615	1633283.56	7034.78	350.57
	TS	TP	10/19/2011	1774872.425	1633288.70	7034.54	356.66
	TS	TP	10/19/2011	1774869.855	1633287.15	7034.77	360.32
	TS	TP	10/19/2011	1774861.545	1633288.08	7034.50	369.33
	TS	TP	10/19/2011	1774856.255	1633297.38	7034.72	380.68
	TS	TP	10/19/2011	1774853.34	1633308.98	7034.23	393.29
	TS	TP	10/19/2011	1774855.525	1633319.12	7034.07	404.32

TS	TP	10/19/2011	1774860.275	1633330.91	7033.81	417.68
TS	TP	10/19/2011	1774853.425	1633337.12	7033.84	427.57
TS	TP	10/19/2011	1774857.23	1633352.55	7033.85	444.12
TS	TP	10/19/2011	1774853.99	1633358.45	7033.51	451.51
TS	TP	10/19/2011	1774841.035	1633363.82	7033.53	466.18
TS	TP	10/19/2011	1774834.185	1633375.00	7033.41	479.94
TS	TP	10/19/2011	1774834.52	1633381.67	7033.35	487.27
TS	TP	10/19/2011	1774836.09	1633392.30	7033.24	498.67
TS	TP	10/19/2011	1774835.06	1633403.52	7032.98	510.58
TS	TP	10/19/2011	1774835.955	1633407.89	7033.05	515.70
TS	TP	10/19/2011	1774831.18	1633420.21	7033.01	529.56
TS	TP	10/19/2011	1774824.97	1633431.16	7032.85	542.80
TS	TP	10/19/2011	1774818.975	1633441.96	7032.69	555.81
TS	TP	10/19/2011	1774813.045	1633451.46	7032.69	567.65
TS	TP	10/19/2011	1774805.24	1633460.46	7032.59	580.22
TS	TP	10/19/2011	1774794.53	1633467.51	7032.50	593.69
TS	TP	10/19/2011	1774787.155	1633475.35	7032.32	605.11
TS	TP	10/19/2011	1774785.66	1633480.75	7032.17	611.37
TS	TP	10/19/2011	1774793.09	1633481.10	7031.81	619.45
TS	TP	10/19/2011	1774789.985	1633491.02	7031.92	630.50
TS	TP	10/19/2011	1774791.75	1633496.36	7031.86	636.78
TS	TP	10/19/2011	1774789.075	1633501.83	7031.90	643.51
TS	TP	10/19/2011	1774787.71	1633505.90	7031.69	648.46
TS	TP	10/19/2011	1774794.82	1633512.44	7031.81	658.77
TS	TP	10/19/2011	1774793.085	1633526.96	7031.71	674.05
TS	TP	10/19/2011	1774788.93	1633537.20	7031.54	685.74
TS	TP	10/19/2011	1774782.31	1633544.76	7031.38	696.44
TS	TP	10/19/2011	1774777.695	1633552.16	7030.74	705.82
TS	TP	10/19/2011	1774783.735	1633556.55	7031.43	713.94
TS	TP	10/19/2011	1774783.545	1633568.36	7031.32	726.40
TS	TP	10/19/2011	1774782.825	1633583.72	7031.19	742.43
TS	TP	10/19/2011	1774779.27	1633600.58	7031.01	760.31
TS	TP	10/19/2011	1774773.46	1633618.23	7030.86	779.55
TS	TP	10/19/2011	1774765.805	1633634.09	7030.80	797.81
TS	TP	10/19/2011	1774761.23	1633640.60	7030.63	806.42
TS	TP	10/19/2011	1774757.085	1633644.81	7030.62	812.98
TS	TP	10/19/2011	1774752.16	1633656.73	7030.62	826.52
TS	TP	10/19/2011	1774748.205	1633668.67	7030.65	839.75
TS	TP	10/19/2011	1774747.375	1633683.31	7030.63	855.07
TS	TP	10/19/2011	1774748.96	1633697.36	7030.55	869.86
TS	TP	10/19/2011	1774753.185	1633710.96	7030.47	884.75
TS	TP	10/19/2011	1774751.05	1633741.10	7030.43	915.62
TS	TP	10/19/2011	1774749.48	1633753.19	7030.39	928.46
TS	TP	10/19/2011	1774744.285	1633761.70	7030.32	939.08
TS	TP	10/19/2011	1774739.735	1633771.81	7030.35	950.82
TS	TP	10/19/2011	1774742.735	1633782.29	7029.75	962.38
TS	TP	10/19/2011	1774742.355	1633791.01	7029.55	971.75
TS	TP	10/19/2011	1774745.83	1633798.02	7029.20	980.23
TS	TP	10/19/2011	1774748.48	1633804.24	7029.32	987.64
TS	TP	10/19/2011	1774749.67	1633815.65	7029.21	999.76
TS	TP	10/19/2011	1774754.455	1633821.85	7027.74	1008.24
TS	TP	10/19/2011	1774756.505	1633823.59	7027.10	1011.59
TS	TP	10/19/2011	1774756.39	1633832.26	7027.48	1020.90
TS	TP	10/19/2011	1774756.37	1633840.44	7027.02	1029.74
TS	TP	10/19/2011	1774751.83	1633850.44	7025.91	1041.37

TS	TP	10/19/2011	1774753.14	1633858.96	7025.01	1050.65
TS	TP	10/19/2011	1774753.32	1633860.55	7025.97	1052.90
TS	TP	10/19/2011	1774753.825	1633866.50	7025.88	1059.51
TS	TP	10/19/2011	1774752.165	1633872.08	7025.84	1065.99
TS	TP	10/19/2011	1774748.885	1633876.57	7024.83	1072.20
TS	TP	10/19/2011	1774746.36	1633883.46	7025.21	1080.19
TS	TP	10/19/2011	1774743.855	1633886.05	7024.62	1084.45
TS	TP	10/19/2011	1774742.63	1633887.96	7024.68	1087.37
TS	TP	10/19/2011	1774742.245	1633895.29	7024.70	1095.35
TS	TP	10/19/2011	1774745.515	1633896.39	7025.88	1099.46
TS	TP	10/19/2011	1774747.34	1633897.26	7024.32	1102.13
TS	TP	10/19/2011	1774747.12	1633898.46	7023.76	1104.00
TS	TP	10/19/2011	1774745.01	1633903.67	7024.50	1110.28
TS	TP	10/19/2011	1774742.16	1633907.29	7024.78	1115.53
TS	TP	10/19/2011	1774745.175	1633910.13	7024.55	1120.33
TS	TP	10/19/2011	1774748.91	1633909.67	7024.78	1124.74
TS	TP	10/19/2011	1774749.12	1633913.89	7024.92	1129.61
TS	TP	10/19/2011	1774751.015	1633916.40	7024.39	1133.41
TS	TP	10/19/2011	1774752.955	1633918.80	7022.62	1137.15
TS	TP	10/19/2011	1774753.6	1633924.36	7022.94	1143.39
TS	TP	10/19/2011	1774754.595	1633928.38	7023.41	1148.19
TS	TP	10/19/2011	1774753.27	1633930.28	7024.21	1151.16
TS	TP	10/19/2011	1774752.025	1633936.62	7024.01	1158.27
TS	TP	10/19/2011	1774752.99	1633941.38	7024.14	1163.78
TS	TP	10/19/2011	1774750.6	1633945.82	7022.33	1169.47
TS	TP	10/19/2011	1774746.58	1633944.79	7022.90	1174.27
TS	TP	10/19/2011	1774742.715	1633945.91	7023.35	1178.95
TS	TP	10/19/2011	1774738.76	1633952.11	7023.65	1186.95
TS	TP	10/19/2011	1774738.6	1633954.00	7023.00	1189.49
TS	TP	10/19/2011	1774738.785	1633961.71	7022.23	1197.86
TS	TP	10/19/2011	1774741.665	1633966.90	7024.33	1204.44
TS	TP	10/19/2011	1774740.29	1633974.30	7023.15	1212.62
TS	TP	10/19/2011	1774739.745	1633981.67	7022.02	1220.66
TS	TP	10/19/2011	1774739.045	1633986.21	7022.39	1225.91
TS	TP	10/19/2011	1774738.695	1633988.96	7023.14	1229.33
TS	TP	10/19/2011	1774738.08	1633993.50	7022.68	1234.57
TS	TP	10/19/2011	1774739.625	1633997.23	7022.02	1239.25
TS	TP	10/19/2011	1774740.195	1634000.02	7022.09	1242.76
TS	TP	10/19/2011	1774742.44	1634001.05	7022.76	1245.88
TS	TP	10/19/2011	1774745.84	1634006.89	7020.56	1253.29
TS	TP	10/19/2011	1774747.58	1634009.67	7021.93	1257.22
TS	TP	10/19/2011	1774747.89	1634014.60	7021.24	1262.81
TS	TP	10/19/2011	1774750.645	1634018.48	7021.64	1268.22
TS	TP	10/19/2011	1774753.65	1634021.71	7020.91	1273.28
TS	TP	10/19/2011	1774754.97	1634026.21	7021.85	1278.62
TS	TP	10/19/2011	1774751.745	1634035.87	7021.65	1289.46
TS	TP	10/19/2011	1774747.52	1634039.27	7021.60	1295.53
TS	TP	10/19/2011	1774742.515	1634040.07	7021.99	1301.25
TS	TP	10/19/2011	1774740.125	1634041.30	7021.86	1304.59
TS	TP	10/19/2011	1774734.86	1634039.58	7021.52	1310.78
TS	TP	10/19/2011	1774730.56	1634031.74	7021.11	1320.37
TS	TP	10/19/2011	1774715.695	1634033.65	7021.16	1336.01
TS	TP	10/19/2011	1774709.205	1634034.23	7021.35	1343.18
TS	TP	10/19/2011	1774711.55	1634040.84	7021.34	1350.84
TS	TP	10/19/2011	1774701.31	1634047.58	7021.49	1363.75

TS	TP	10/19/2011	1774692.235	1634057.43	7020.87	1377.80
TS	TP	10/19/2011	1774685.115	1634071.15	7020.89	1393.91
TS	TP	10/19/2011	1774684.44	1634081.45	7020.86	1404.88
TS	TP	10/19/2011	1774686.465	1634090.06	7020.69	1414.38
TS	TP	10/19/2011	1774690.855	1634093.73	7017.55	1418.69
TS	TP	10/19/2011	1774693.27	1634103.72	7017.30	1428.97
TS	TP	10/19/2011	1774697.02	1634113.74	7017.91	1439.66
TS	TP	10/19/2011	1774703.92	1634120.97	7017.66	1449.66
TS	TP	10/19/2011	1774706.095	1634132.25	7017.19	1461.15
TS	TP	10/19/2011	1774712.71	1634148.65	7016.44	1478.83
TS	TP	10/19/2011	1774714.07	1634156.97	7016.34	1487.26
TS	TP	10/19/2011	1774715.205	1634169.78	7016.80	1500.12
TS	TP	10/19/2011	1774716.475	1634184.91	7015.87	1515.31
TS	TP	10/19/2011	1774717.32	1634194.93	7015.71	1525.36
TS	TP	10/19/2011	1774720.135	1634204.36	7015.15	1535.20
TS	TP	10/19/2011	1774721.06	1634211.90	7015.04	1542.79
TS	TP	10/19/2011	1774719.18	1634216.31	7015.21	1547.59
TS	TP	10/19/2011	1774715.745	1634218.21	7014.58	1551.52
TS	TP	10/19/2011	1774713.535	1634220.49	7014.49	1554.69
TS	TP	10/19/2011	1774708.855	1634223.68	7014.99	1560.35
TS	TP	10/19/2011	1774702.22	1634225.62	7015.49	1567.27
TS	TP	10/19/2011	1774703.185	1634231.25	7014.97	1572.98
TS	TP	10/19/2011	1774707.255	1634237.68	7015.25	1580.59
TS	TP	10/19/2011	1774706.33	1634243.77	7015.04	1586.75
TS	TP	10/19/2011	1774706.5	1634251.22	7014.94	1594.20
TS	TP	10/19/2011	1774708.465	1634256.90	7014.36	1600.21
TS	TP	10/19/2011	1774710.32	1634262.90	7014.07	1606.49
TS	TP	10/19/2011	1774714.725	1634268.76	7013.84	1613.82
TS	TP	10/19/2011	1774717.57	1634267.01	7013.88	1617.16
TS	TP	10/19/2011	1774719.96	1634274.29	7014.70	1624.82
TS	TP	10/19/2011	1774720.075	1634277.82	7014.37	1628.36
TS	TP	10/19/2011	1774719.915	1634279.18	7012.99	1629.72
TS	TP	10/19/2011	1774716.78	1634289.83	7012.50	1640.83
TS	TP	10/19/2011	1774716.495	1634293.39	7014.20	1644.40
TS	TP	10/19/2011	1774716.005	1634298.54	7013.62	1649.57
TS	TP	10/19/2011	1774716.28	1634301.16	7012.49	1652.21
TS	TP	10/19/2011	1774715.625	1634305.83	7013.20	1656.92
TS	TP	10/19/2011	1774715.16	1634307.66	7014.37	1658.81
TS	TP	10/19/2011	1774714.615	1634313.13	7013.98	1664.31

[a] GCS = grade control structure. Positive numbers (e.g., +100ft) indicate cross-sections downstream of GCS; distance below GCS. Negative numbers (e.g., -800ft) indicate cross-sections upstream of GCS; distance above GCS.

[b] TS = Geodimeter 620 total station survey method.

[c] BM = benchmark

[d] dash = not applicable (benchmark; not a point on section)

[e] XS = cross-section point

[f] TP = thalweg point

[g] = calculated distance along sections, from south to north, are relative to original benchmarks. Refer to report LA-UR-11-0936, "Baseline Geomorphic Conditions at Sediment Transport Mitigation Sites in the Los Alamos and Pueblo Canyon Watersheds, Revision 1," for initial survey.

Survey Data from Cross-sections Originally Surveyed in 1990s or early 2000s; Re-surveyed Following 2011 Monsoon Season

Site	Type of Survey	Purpose	Date Surveyed	Y	X	Z	Distance in Section or Profile (ft)[c]
P2W-X1 (2012 Survey)	TS[a]	BM[b]	3/23/2012	1777383.71	1634121.06	6644.96	-[d]
	TS	XS	3/23/2012	1777383.68	1634121.04	6644.31	0
	TS	XS	3/23/2012	1777390.45	1634120.165	6642.97	6.8
	TS	XS	3/23/2012	1777397.205	1634118.995	6642.20	13.7
	TS	XS	3/23/2012	1777403.305	1634118.215	6641.30	19.8
	TS	XS	3/23/2012	1777405.655	1634117.775	6640.52	22.2
	TS	XS	3/23/2012	1777407.22	1634117.675	6640.32	23.8
	TS	XS	3/23/2012	1777411.075	1634116.89	6640.29	27.7
	TS	XS	3/23/2012	1777416.52	1634116.13	6640.29	33.2
	TS	XS	3/23/2012	1777421.78	1634115.285	6640.30	38.5
	TS	XS	3/23/2012	1777423.37	1634115.11	6640.79	40.1
	TS	XS	3/23/2012	1777424.2	1634114.91	6640.84	41.0
	TS	XS	3/23/2012	1777426.69	1634114.59	6641.05	43.5
	TS	XS	3/23/2012	1777428.555	1634114.19	6641.20	45.4
	TS	XS	3/23/2012	1777432.1	1634113.765	6640.93	49.0
	TS	XS	3/23/2012	1777434.925	1634113.43	6641.01	51.8
	TS	XS	3/23/2012	1777439.845	1634112.7	6641.24	56.8
	TS	XS	3/23/2012	1777441.04	1634112.205	6641.42	58.0
	TS	XS	3/23/2012	1777442.875	1634111.985	6641.94	59.9
	TS	XS	3/23/2012	1777445.495	1634111.58	6643.03	62.5
	TS	XS	3/23/2012	1777447.21	1634111.255	6644.22	64.3
	TS	BM	3/23/2012	1777446.97	1634111.365	6644.90	-
P2W-X1 (1998 Survey)	HL	XS	9/8/1998	NA	NA	6644.30	0.0
	HL	XS	9/8/1998	NA	NA	6642.33	6.9
	HL	XS	9/8/1998	NA	NA	6642.05	14.8
	HL	XS	9/8/1998	NA	NA	6641.27	15.7
	HL	XS	9/8/1998	NA	NA	6640.10	18.9
	HL	XS	9/8/1998	NA	NA	6639.40	24.1
	HL	XS	9/8/1998	NA	NA	6637.26	25.1
	HL	XS	9/8/1998	NA	NA	6637.91	31.2
	HL	XS	9/8/1998	NA	NA	6639.35	34.1
	HL	XS	9/8/1998	NA	NA	6639.77	41.0
	HL	XS	9/8/1998	NA	NA	6641.00	58.1
	HL	XS	9/8/1998	NA	NA	6644.85	64.8
P2W-X1 (2001 Survey)	HL	XS	10/9/2001	NA	NA	6644.30	0.0
	HL	XS	10/9/2001	NA	NA	6643.17	4.1
	HL	XS	10/9/2001	NA	NA	6642.57	6.9
	HL	XS	10/9/2001	NA	NA	6642.18	12.5
	HL	XS	10/9/2001	NA	NA	6641.72	15.7
	HL	XS	10/9/2001	NA	NA	6640.77	18.9
	HL	XS	10/9/2001	NA	NA	6639.75	20.8
	HL	XS	10/9/2001	NA	NA	6639.26	23.5
	HL	XS	10/9/2001	NA	NA	6637.85	24.4
	HL	XS	10/9/2001	NA	NA	6638.18	25.1
	HL	XS	10/9/2001	NA	NA	6638.21	30.5

	HL	XS	10/9/2001	NA	NA	6638.41	31.2
	HL	XS	10/9/2001	NA	NA	6638.51	32.2
	HL	XS	10/9/2001	NA	NA	6639.33	34.1
	HL	XS	10/9/2001	NA	NA	6639.79	41.0
	HL	XS	10/9/2001	NA	NA	6640.74	51.8
	HL	XS	10/9/2001	NA	NA	6641.29	58.1
	HL	XS	10/9/2001	NA	NA	6643.10	63.7
	HL	XS	10/9/2001	NA	NA	6644.58	64.5
P2W-X2 (2011 Survey)	TS	BM	10/5/2011	1777356.195	1634219.545	6647.375	-
	TS	XS	10/5/2011	1777356.135	1634219.6	6646.115	0
	TS	XS	10/5/2011	1777365.85	1634225.18	6645.64	11.20
	TS	XS	10/5/2011	1777374.335	1634229.885	6639.31	20.91
	TS	XS	10/5/2011	1777375.92	1634230.905	6638.89	22.79
	TS	XS	10/5/2011	1777383.75	1634235.32	6638.945	31.78
	TS	XS	10/5/2011	1777386.005	1634236.665	6638.95	34.40
	TS	XS	10/5/2011	1777390.355	1634239.015	6639.67	39.34
	TS	XS	10/5/2011	1777394.76	1634241.455	6639.12	44.38
	TS	XS	10/5/2011	1777397.76	1634243.135	6638.77	47.82
	TS	XS	10/5/2011	1777398.295	1634243.57	6638.145	48.50
	TS	XS	10/5/2011	1777406.41	1634248.15	6638.07	57.82
	TS	XS	10/5/2011	1777414.365	1634252.44	6638.075	66.85
	TS	XS	10/5/2011	1777416.545	1634253.73	6638.39	69.38
	TS	XS	10/5/2011	1777419.565	1634255.505	6638.605	72.89
	TS	XS	10/5/2011	1777421.47	1634256.43	6639.07	75.00
	TS	XS	10/5/2011	1777422.89	1634257.305	6639.015	76.67
	TS	XS	10/5/2011	1777426.415	1634259.5	6640.345	80.82
	TS	XS	10/5/2011	1777428.44	1634260.37	6639.915	83.01
	TS	XS	10/5/2011	1777431.885	1634262.325	6640.03	86.97
	TS	XS	10/5/2011	1777435.685	1634264.63	6641.95	91.41
	TS	BM	10/5/2011	1777435.67	1634264.685	6642.87	-
P2W-X2 (1998 Survey)	HL	XS	9/8/1998	NA	NA	6646.115	0
	HL	XS	9/8/1998	NA	NA	6645.48	11.48
	HL	XS	9/8/1998	NA	NA	6637.92	22.15
	HL	XS	9/8/1998	NA	NA	6635.62	23.62
	HL	XS	9/8/1998	NA	NA	6636.01	24.44
	HL	XS	9/8/1998	NA	NA	6635.93	30.35
	HL	XS	9/8/1998	NA	NA	6636.34	36.91
	HL	XS	9/8/1998	NA	NA	6638.26	38.22
	HL	XS	9/8/1998	NA	NA	6638.50	42.98
	HL	XS	9/8/1998	NA	NA	6637.95	58.07
	HL	XS	9/8/1998	NA	NA	6638.57	64.64
	HL	XS	9/8/1998	NA	NA	6640.13	77.27
	HL	XS	9/8/1998	NA	NA	6641.26	82.19
	HL	XS	9/8/1998	NA	NA	6641.51	89.74
	HL	XS	9/8/1998	NA	NA	6642.77	94.98
P2W-X2 (2001 Survey)	HL	XS	10/9/2001	NA	NA	6646.15	0
	HL	XS	10/9/2001	NA	NA	6645.52	11.48
	HL	XS	10/9/2001	NA	NA	6641.52	22.15
	HL	XS	10/9/2001	NA	NA	6635.81	22.80
	HL	XS	10/9/2001	NA	NA	6635.58	26.08

	HL	XS	10/9/2001	NA	NA	6635.75	30.02
	HL	XS	10/9/2001	NA	NA	6636.34	30.68
	HL	XS	10/9/2001	NA	NA	6636.70	31.66
	HL	XS	10/9/2001	NA	NA	6637.95	33.63
	HL	XS	10/9/2001	NA	NA	6636.99	34.29
	HL	XS	10/9/2001	NA	NA	6638.17	34.45
	HL	XS	10/9/2001	NA	NA	6638.11	36.26
	HL	XS	10/9/2001	NA	NA	6637.13	36.91
	HL	XS	10/9/2001	NA	NA	6636.96	38.22
	HL	XS	10/9/2001	NA	NA	6637.85	41.18
	HL	XS	10/9/2001	NA	NA	6639.00	41.83
	HL	XS	10/9/2001	NA	NA	6639.16	43.80
	HL	XS	10/9/2001	NA	NA	6638.63	44.29
	HL	XS	10/9/2001	NA	NA	6638.73	49.54
	HL	XS	10/9/2001	NA	NA	6638.47	58.07
	HL	XS	10/9/2001	NA	NA	6638.44	61.03
	HL	XS	10/9/2001	NA	NA	6639.03	62.01
	HL	XS	10/9/2001	NA	NA	6639.32	64.64
	HL	XS	10/9/2001	NA	NA	6639.88	72.18
	HL	XS	10/9/2001	NA	NA	6640.54	77.27
	HL	XS	10/9/2001	NA	NA	6641.32	82.19
	HL	XS	10/9/2001	NA	NA	6641.39	89.74
	HL	XS	10/9/2001	NA	NA	6641.69	91.54
	HL	XS	10/9/2001	NA	NA	6642.67	94.98
P3W-X1 (2012 Survey)	TS	BM	3/28/2012	1775750.735	1642526.41	6527.86	-
	TS	XS	3/28/2012	1775750.885	1642526.425	6526.81	0
	TS	XS	3/28/2012	1775756.83	1642518.96	6525.385	9.5
	TS	XS	3/28/2012	1775762.515	1642512.305	6522.795	18.3
	TS	XS	3/28/2012	1775767.175	1642506.41	6518.625	25.8
	TS	XS	3/28/2012	1775772.825	1642500.415	6514.86	34.0
	TS	XS	3/28/2012	1775771.185	1642492.805	6506.075	39.3
	TS	XS	3/28/2012	1775771.485	1642492.13	6505.445	40.0
	TS	XS	3/28/2012	1775777.48	1642494.295	6502.15	41.7
	TS	XS	3/28/2012	1775778.41	1642492.625	6501.975	43.6
	TS	XS	3/28/2012	1775778.915	1642491.895	6502.815	44.5
	TS	XS	3/28/2012	1775779.52	1642490.845	6502.63	45.7
	TS	XS	3/28/2012	1775779.88	1642490.605	6501.28	46.1
	TS	XS	3/28/2012	1775782.225	1642488.47	6499.845	49.2
	TS	XS	3/28/2012	1775783.37	1642487.43	6498.48	50.8
	TS	XS	3/28/2012	1775784.225	1642485.59	6498.605	52.7
	TS	XS	3/28/2012	1775785.095	1642485.175	6498.525	53.6
	TS	XS	3/28/2012	1775786.76	1642480.915	6498.755	57.9
	TS	XS	3/28/2012	1775789.33	1642479.41	6499.09	60.7
	TS	XS	3/28/2012	1775791.79	1642477.75	6499.855	63.6
	TS	XS	3/28/2012	1775793.7	1642474.18	6500.74	67.5
	TS	XS	3/28/2012	1775795.345	1642472.53	6500.855	69.9
	TS	XS	3/28/2012	1775797.745	1642470.12	6501.035	73.3
	TS	XS	3/28/2012	1775798.58	1642468.965	6500.79	74.7
	TS	XS	3/28/2012	1775799.495	1642467.755	6500.885	76.2
	TS	XS	3/28/2012	1775802.32	1642464.73	6501.345	80.3

	TS	XS	3/28/2012	1775804.925	1642461.6	6501.915	84.4
	TS	XS	3/28/2012	1775808.515	1642457.845	6502.05	89.6
	TS	XS	3/28/2012	1775811.88	1642453.63	6502.275	95.0
	TS	XS	3/28/2012	1775820.02	1642444.18	6502.615	107.4
	TS	XS	3/28/2012	1775824.61	1642438.275	6503.21	114.9
	TS	XS	3/28/2012	1775830.09	1642431.94	6503.265	123.3
	TS	XS	3/28/2012	1775834.34	1642426.84	6503.215	129.9
	TS	XS	3/28/2012	1775836.41	1642424.615	6502.95	133.0
	TS	XS	3/28/2012	1775840.835	1642419.44	6503.42	139.8
	TS	XS	3/28/2012	1775843.575	1642416.055	6503.625	144.1
	TS	XS	3/28/2012	1775848.885	1642409.865	6503.655	152.3
	TS	XS	3/28/2012	1775854.74	1642402.485	6503.105	161.7
	TS	XS	3/28/2012	1775860.17	1642396.5	6502.93	169.8
	TS	XS	3/28/2012	1775863.44	1642392.605	6502.02	174.9
	TS	XS	3/28/2012	1775870.955	1642383.74	6502.13	186.5
	TS	XS	3/28/2012	1775874.685	1642379.34	6503.82	192.3
	TS	XS	3/28/2012	1775879.605	1642373.39	6504.51	200.0
	TS	XS	3/28/2012	1775882.35	1642370.28	6505.01	204.1
	TS	BM	3/28/2012	1775882.275	1642370.24	6505.66	-
P3W-X1 (1998 Survey)	HL	XS	9/9/1998	NA	NA	6524.92	0
	HL	XS	9/9/1998	NA	NA	6522.64	13.3
	HL	XS	9/9/1998	NA	NA	6505.01	203.6
	HL	XS	9/9/1998	NA	NA	6503.19	105.6
	HL	XS	9/9/1998	NA	NA	6503.02	143.1
	HL	XS	9/9/1998	NA	NA	6502.74	184.2
	HL	XS	9/9/1998	NA	NA	6502.01	96.6
	HL	XS	9/9/1998	NA	NA	6502.01	172.1
	HL	XS	9/9/1998	NA	NA	6500.53	40.5
	HL	XS	9/9/1998	NA	NA	6500.20	87.4
	HL	XS	9/9/1998	NA	NA	6499.35	68.6
	HL	XS	9/9/1998	NA	NA	6498.99	61.8
	HL	XS	9/9/1998	NA	NA	6498.57	40.8
P3W-X1 (2001 Survey)	HL	XS	10/24/2001	NA	NA	6505.01	0
	HL	XS	10/24/2001	NA	NA	6502.45	16.4
	HL	XS	10/24/2001	NA	NA	6501.89	20.0
	HL	XS	10/24/2001	NA	NA	6501.07	32.5
	HL	XS	10/24/2001	NA	NA	6502.61	37.1
	HL	XS	10/24/2001	NA	NA	6503.53	60.4
	HL	XS	10/24/2001	NA	NA	6502.98	73.8
	HL	XS	10/24/2001	NA	NA	6502.98	73.8
	HL	XS	10/24/2001	NA	NA	6503.34	90.9
	HL	XS	10/24/2001	NA	NA	6501.79	109.3
	HL	XS	10/24/2001	NA	NA	6500.25	120.4
	HL	XS	10/24/2001	NA	NA	6499.96	123.4
	HL	XS	10/24/2001	NA	NA	6500.12	128.3
	HL	XS	10/24/2001	NA	NA	6500.32	129.6
	HL	XS	10/24/2001	NA	NA	6500.45	134.8
	HL	XS	10/24/2001	NA	NA	6500.38	144.7
	HL	XS	10/24/2001	NA	NA	6499.99	149.0
	HL	XS	10/24/2001	NA	NA	6499.69	156.8

	HL	XS	10/24/2001	NA	NA	6499.69	156.8
	HL	XS	10/24/2001	NA	NA	6499.79	163.1
P3W-PUX8 (2012 Survey)	TS	BM	4/27/2012	1775699.05	1642058.725	6521.58	-
	TS	XS	4/27/2012	1775699.07	1642058.715	6520.835	0
	TS	XS	4/27/2012	1775704.265	1642064.275	6520.475	7.6
	TS	XS	4/27/2012	1775707.96	1642068.42	6517.355	13.2
	TS	XS	4/27/2012	1775716.81	1642078.295	6516.95	26.4
	TS	XS	4/27/2012	1775725.58	1642088.015	6516.99	39.5
	TS	XS	4/27/2012	1775730.99	1642094.01	6516.43	47.6
	TS	XS	4/27/2012	1775736.035	1642099.5	6517.365	55.0
	TS	XS	4/27/2012	1775740.225	1642104.425	6517.035	61.5
	TS	XS	4/27/2012	1775745.465	1642110.09	6516.645	69.2
	TS	XS	4/27/2012	1775747.555	1642112.11	6511.83	72.1
	TS	XS	4/27/2012	1775754.705	1642119.91	6505.18	82.7
	TS	XS	4/27/2012	1775755.305	1642120.975	6504.665	83.9
	TS	XS	4/27/2012	1775755.705	1642121.495	6503.71	84.6
	TS	XS	4/27/2012	1775756.135	1642121.935	6503.54	85.2
	TS	XS	4/27/2012	1775758.19	1642123.805	6504.22	87.9
	TS	XS	4/27/2012	1775758.475	1642124.405	6504.71	88.6
	TS	XS	4/27/2012	1775764.71	1642131.035	6504.875	97.7
	TS	XS	4/27/2012	1775768.18	1642135.23	6505.54	103.1
	TS	XS	4/27/2012	1775772.285	1642139.695	6506.135	109.2
	TS	XS	4/27/2012	1775776.76	1642144.36	6506.325	115.6
	TS	XS	4/27/2012	1775780.295	1642148.695	6506.185	121.2
	TS	XS	4/27/2012	1775786.33	1642156.005	6506.09	130.7
	TS	XS	4/27/2012	1775793.18	1642163.035	6505.975	140.5
	TS	XS	4/27/2012	1775794.23	1642164.41	6506.34	142.2
	TS	XS	4/27/2012	1775796.53	1642167.305	6505.81	145.9
	TS	XS	4/27/2012	1775799.095	1642170.15	6506.205	149.7
	TS	XS	4/27/2012	1775800.725	1642172.03	6506.195	152.2
	TS	XS	4/27/2012	1775802.83	1642174.535	6505.905	155.5
	TS	XS	4/27/2012	1775803.94	1642175.835	6505.72	157.2
	TS	XS	4/27/2012	1775805.95	1642178.265	6505.565	160.4
	TS	XS	4/27/2012	1775807.42	1642179.77	6504.61	162.5
	TS	XS	4/27/2012	1775809.56	1642181.64	6504.615	165.3
	TS	XS	4/27/2012	1775810.46	1642182.71	6505.155	166.7
	TS	XS	4/27/2012	1775813.185	1642185.965	6504.98	170.9
	TS	XS	4/27/2012	1775815.32	1642188.215	6505.05	174.0
	TS	XS	4/27/2012	1775815.98	1642189	6504.635	175.0
	TS	XS	4/27/2012	1775816.33	1642189.405	6504.78	175.6
	TS	XS	4/27/2012	1775819.46	1642192.98	6505.345	180.3
	TS	XS	4/27/2012	1775822.22	1642195.855	6506.555	184.3
	TS	XS	4/27/2012	1775825.975	1642200.175	6505.955	190.0
	TS	XS	4/27/2012	1775830.065	1642204.845	6506.885	196.2
	TS	XS	4/27/2012	1775833.515	1642208.22	6506.565	201.1
	TS	XS	4/27/2012	1775836.58	1642211.895	6506.435	205.8
	TS	XS	4/27/2012	1775844.05	1642220.025	6506.09	216.9
	TS	XS	4/27/2012	1775847.695	1642223.785	6503.775	222.1
	TS	XS	4/27/2012	1775848.715	1642225.725	6503.49	224.2
	TS	XS	4/27/2012	1775851.51	1642228.025	6504.105	227.8

	TS	XS	4/27/2012	1775851.83	1642228.32	6505.63	228.3
	TS	XS	4/27/2012	1775856.195	1642233.24	6505.885	234.8
	TS	XS	4/27/2012	1775857	1642234	6506.205	235.9
	TS	XS	4/27/2012	1775857.665	1642234.765	6505.865	237.0
	TS	XS	4/27/2012	1775859.735	1642237.51	6505.825	240.4
	TS	XS	4/27/2012	1775862.735	1642240.545	6506.21	244.6
	TS	XS	4/27/2012	1775863.445	1642241.505	6506.57	245.8
	TS	XS	4/27/2012	1775871.73	1642250.265	6506.89	257.9
	TS	XS	4/27/2012	1775880.95	1642260.87	6510.605	271.9
	TS	XS	4/27/2012	1775887.14	1642267.76	6511.43	281.2
	TS	BM	4/27/2012	1775887.26	1642267.75	6512.68	-
P3W-PUX8 (2001 Survey)	TS	XS	8/14/2001	1775891.19	1642265.227	6512.55	0.0
	TS	XS	8/14/2001	1775885.593	1642256.002	6510.96	10.2
	TS	XS	8/14/2001	1775881.58	1642246.842	6507.62	19.2
	TS	XS	8/14/2001	1775874.581	1642234.286	6507.1	32.6
	TS	XS	8/14/2001	1775872.219	1642228.924	6505.47	37.9
	TS	XS	8/14/2001	1775859.617	1642215.15	6504.63	56.4
	TS	XS	8/14/2001	1775850.39	1642204.216	6505.54	70.5
	TS	XS	8/14/2001	1775842.55	1642193.538	6504.16	83.4
	TS	XS	8/14/2001	1775822.657	1642180.957	6504.44	106.7
	TS	XS	8/14/2001	1775819.433	1642179.222	6502.52	110.3
	TS	XS	8/14/2001	1775818.617	1642178.697	6501.95	111.2
	TS	XS	8/14/2001	1775813.008	1642176.896	6502.22	116.7
	TS	XS	8/14/2001	1775812.579	1642176.42	6502.49	117.3
	TS	XS	8/14/2001	1775807.058	1642172.678	6503.78	124.0
	TS	XS	8/14/2001	1775796.58	1642163.567	6504.11	137.8
	TS	XS	8/14/2001	1775781.398	1642149.026	6504.97	158.8
	TS	XS	8/14/2001	1775771.266	1642132.846	6504.37	177.0
	TS	XS	8/14/2001	1775765.213	1642124.563	6504.39	186.9
	TS	XS	8/14/2001	1775761.944	1642120.685	6504.26	191.9
	TS	XS	8/14/2001	1775754.457	1642116.65	6508.92	200.3
	TS	XS	8/14/2001	1775747.017	1642109.353	6516.63	210.7
	TS	XS	8/14/2001	1775715.997	1642068.99	6517.58	260.4
	TS	XS	8/14/2001	1775712.342	1642057.624	6520.78	270.5
	TS	XS	8/14/2001	1775706.509	1642052.951	6521.06	278.0
P4E-X1 (2012 Survey)	TS	BM	4/27/2012	1772230.49	1650240.4	6345.995	-
	TS	XS	4/27/2012	1772230.495	1650240.23	6345.505	0.00
	TS	XS	4/27/2012	1772232.075	1650240.84	6345.025	1.69
	TS	XS	4/27/2012	1772232.44	1650241.25	6344.945	2.20
	TS	XS	4/27/2012	1772235.01	1650241.945	6345.055	4.83
	TS	XS	4/27/2012	1772235.92	1650242.845	6344.51	6.02
	TS	XS	4/27/2012	1772237.195	1650242.805	6344.275	7.18
	TS	XS	4/27/2012	1772238.43	1650243.135	6343.755	8.45
	TS	XS	4/27/2012	1772240.235	1650244.435	6342.78	10.61
	TS	XS	4/27/2012	1772240.815	1650244.18	6342.72	11.05
	TS	XS	4/27/2012	1772241.975	1650244.915	6342.505	12.40
	TS	XS	4/27/2012	1772244.97	1650246.12	6342.2	15.63
	TS	XS	4/27/2012	1772245.765	1650246.61	6341.865	16.55
	TS	XS	4/27/2012	1772247.745	1650247.24	6341.455	18.62
	TS	XS	4/27/2012	1772248.59	1650247.81	6340.86	19.62

	TS	XS	4/27/2012	1772249.79	1650248.38	6340.635	20.95
	TS	XS	4/27/2012	1772251.05	1650248.82	6340.62	22.28
	TS	XS	4/27/2012	1772252.5	1650249.22	6340.88	23.77
	TS	XS	4/27/2012	1772253.295	1650249.755	6341.785	24.71
	TS	XS	4/27/2012	1772254.74	1650250.25	6342.09	26.23
	TS	XS	4/27/2012	1772256.735	1650251.01	6341.54	28.37
	TS	XS	4/27/2012	1772260.2	1650252.515	6341.56	32.15
	TS	XS	4/27/2012	1772261.88	1650253.13	6341.84	33.93
	TS	XS	4/27/2012	1772265.405	1650254.47	6342.065	37.70
	TS	XS	4/27/2012	1772267.15	1650255.09	6341.875	39.55
	TS	XS	4/27/2012	1772270.805	1650256.66	6342.065	43.53
	TS	XS	4/27/2012	1772271.965	1650257.11	6342.245	44.77
	TS	XS	4/27/2012	1772275.765	1650258.635	6342.09	48.87
	TS	XS	4/27/2012	1772278.79	1650259.875	6342.56	52.14
	TS	XS	4/27/2012	1772281.14	1650260.735	6343.49	54.64
	TS	XS	4/27/2012	1772283.85	1650261.895	6344.245	57.59
	TS	XS	4/27/2012	1772288.6	1650263.965	6344.545	62.77
	TS	XS	4/27/2012	1772291.73	1650265.315	6344.48	66.17
	TS	XS	4/27/2012	1772299.33	1650268.245	6344.415	74.32
	TS	XS	4/27/2012	1772306.095	1650271.06	6344.355	81.64
	TS	BM	4/27/2012	1772306.105	1650271.21	6345.51	-
P4E-X1 (1996 Survey)	HL	XS	11/25/1996	NA	NA	6345.505	0.0
	HL	XS	11/25/1996	NA	NA	6344.324	2.8
	HL	XS	11/25/1996	NA	NA	6344.193	9.4
	HL	XS	11/25/1996	NA	NA	6342.519	10.3
	HL	XS	11/25/1996	NA	NA	6340.912	12.6
	HL	XS	11/25/1996	NA	NA	6339.271	20.2
	HL	XS	11/25/1996	NA	NA	6338.287	24.1
	HL	XS	11/25/1996	NA	NA	6339.041	27.7
	HL	XS	11/25/1996	NA	NA	6339.173	38.6
	HL	XS	11/25/1996	NA	NA	6339.665	44.8
	HL	XS	11/25/1996	NA	NA	6339.96	46.1
	HL	XS	11/25/1996	NA	NA	6340.354	50.0
	HL	XS	11/25/1996	NA	NA	6342.093	53.3
	HL	XS	11/25/1996	NA	NA	6344.324	60.9
	HL	XS	11/25/1996	NA	NA	6344.193	69.1
	HL	XS	11/25/1996	NA	NA	6343.799	82.0
P4E-X1 (2001 Survey)	HL	XS	10/4/2001	NA	NA	6345.505	0.0
	HL	XS	10/4/2001	NA	NA	6344.422	2.8
	HL	XS	10/4/2001	NA	NA	6343.996	8.2
	HL	XS	10/4/2001	NA	NA	6343.34	10.3
	HL	XS	10/4/2001	NA	NA	6341.732	11.3
	HL	XS	10/4/2001	NA	NA	6341.043	12.8
	HL	XS	10/4/2001	NA	NA	6340.485	15.3
	HL	XS	10/4/2001	NA	NA	6339.862	16.7
	HL	XS	10/4/2001	NA	NA	6339.862	20.2
	HL	XS	10/4/2001	NA	NA	6339.796	22.5
	HL	XS	10/4/2001	NA	NA	6339.173	22.8
	HL	XS	10/4/2001	NA	NA	6339.238	24.0
	HL	XS	10/4/2001	NA	NA	6339.665	24.1

HL	XS	10/4/2001	NA	NA	6340.026	27.7
HL	XS	10/4/2001	NA	NA	6339.763	34.0
HL	XS	10/4/2001	NA	NA	6339.402	34.8
HL	XS	10/4/2001	NA	NA	6339.763	35.9
HL	XS	10/4/2001	NA	NA	6340.026	38.6
HL	XS	10/4/2001	NA	NA	6340.288	40.7
HL	XS	10/4/2001	NA	NA	6340.223	44.8
HL	XS	10/4/2001	NA	NA	6340.321	46.1
HL	XS	10/4/2001	NA	NA	6340.748	49.2
HL	XS	10/4/2001	NA	NA	6341.043	49.7
HL	XS	10/4/2001	NA	NA	6342.651	53.8
HL	XS	10/4/2001	NA	NA	6344.357	55.3
HL	XS	10/4/2001	NA	NA	6344.455	62.3
HL	XS	10/4/2001	NA	NA	6344.488	68.6
HL	XS	10/4/2001	NA	NA	6344.16	82.2

[a]TS = Geodimeter 620 total station survey method.

[b]BM = Benchmark

[c]= calculated distance along sections surveyed with the Total Station, from south to north, are relative to benchmarks. Distances for Hand Level surveys are distances measured off of tape measure stretched between end point benchmarks.

[d] dash = not applicable (benchmark; not a point on section)

[e] XS = Cross section point

[f]HL = Hand Level survey