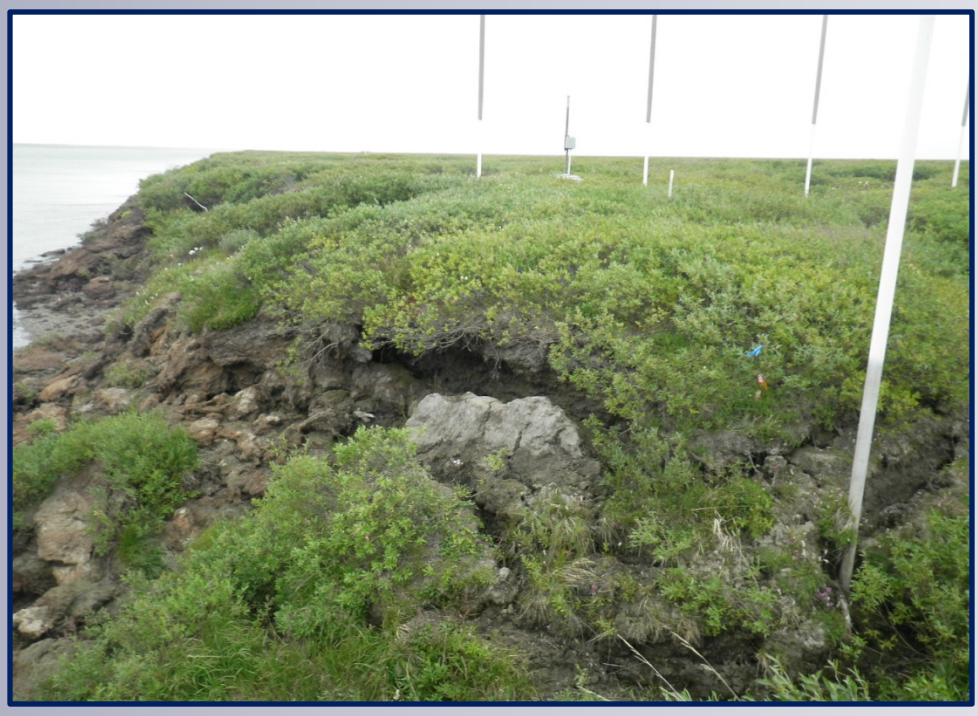
Alpine Pipeline River Crossing Monitoring 2014

ConocoPhillips Alaska



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CONTENTS

FIGURES

TABLES

PHOTOS

ACRONYMS AND ABBREVIATIONS

Baker	Michael Baker Jr., Inc.
BPMSL	British Petroleum Mean Sea Level
CPAI	ConocoPhillips Alaska, Inc.
E	East
ft/ft	feet per vertical foot
ft/yr	feet per year
HDD	Horizontal directional drilled
LCMF	Umiaq, LLC (LCMF)
N	North
NPS	nominal Pipe size
S	South
VSM	Vertical support member
W	West

1.0 INTRODUCTION

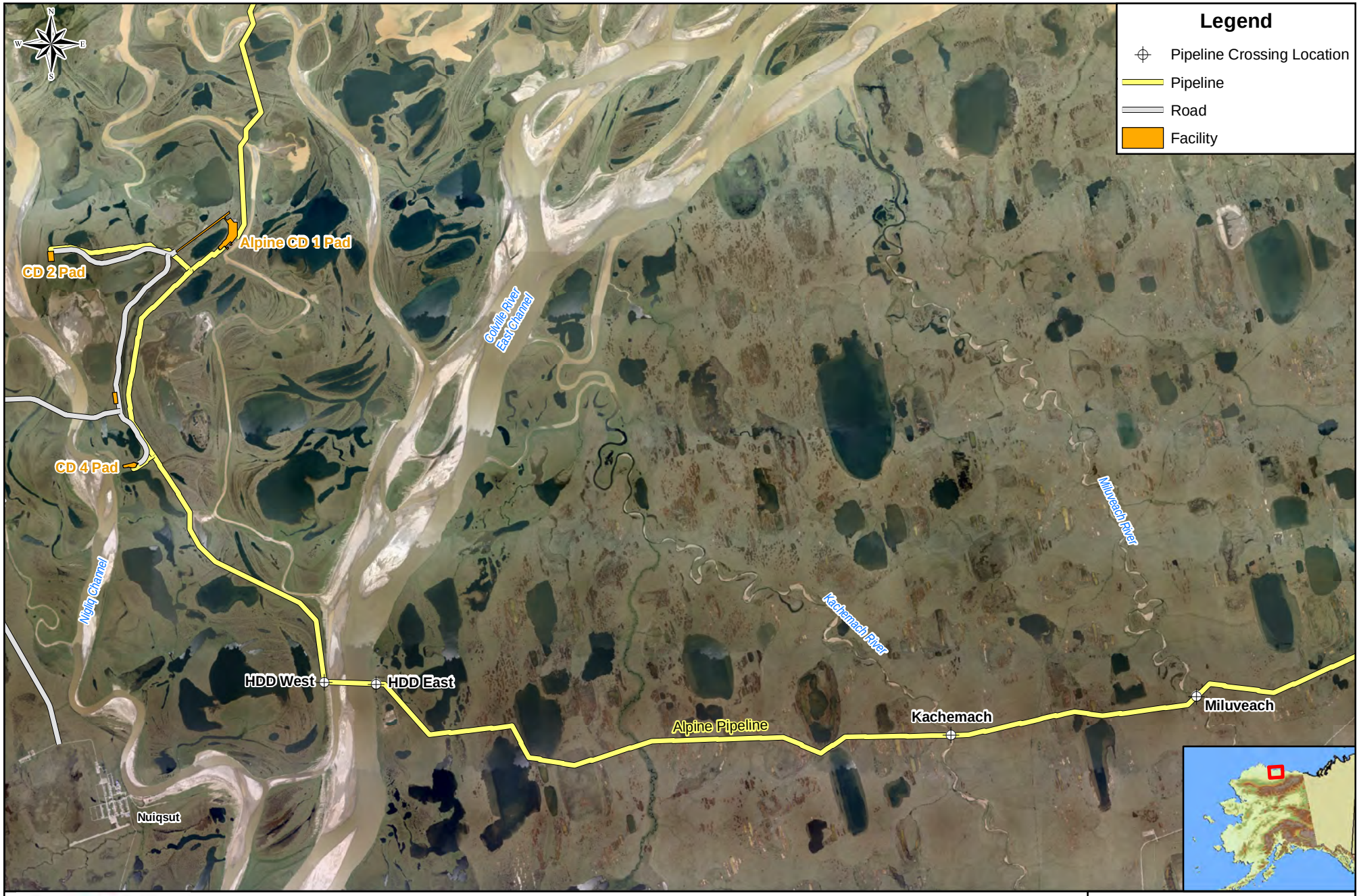
Originally constructed during the winter of 1998/1999, the Alpine Pipeline System crosses three rivers between the Alpine Development CD1 facility and the tie-in to the Kuparuk Pipeline. The three river crossings are the horizontal directionally drilled (HDD) above ground crossing of the Colville River East Channel, and the above ground crossings of the Kachemach River and the Miluveach River.

Monitoring of the pipeline crossings is required by the Right-of-Way Lease/Grant Stipulations and the ConocoPhillips Alaska, Inc. (CPAI) Alpine Pipelines Surveillance and Monitoring Program (CPAI 2008). The Alpine Pipelines Surveillance and Monitoring Program identifies parameters for collecting data and evaluating the physical condition of the pipelines. Monitoring is conducted to document the condition of the pipeline and the pipeline's effect on channel morphology at each river crossing. The record of monitoring allows for an annual comparison between observed conditions and the design criteria.

Michael Baker Jr., Inc. (Baker) conducted initial monitoring of the HDD crossing of the Colville River East Channel in 2001. Annual monitoring of this crossing has been performed since 2003. Bank migration surveys have been conducted annually by UMIAQ, LLC (LCMF) since 2003 and pile cap elevation surveys since 2004 (Baker 2002, 2003a, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, and 2013).

Initial monitoring of the Kachemach River and Miluveach River pipeline crossings was conducted in 2003. Annual monitoring was performed in 2004, 2005, and 2006; bank migration and pile cap elevation surveys were performed by LCMF. Over these four years of monitoring, deminimis scour, erosion, or vertical support member (VSM) tilt were observed at these locations. In the fall of 2006, a five-year monitoring interval was recommended. Baker did not conduct pipeline crossing monitoring at the Kachemach or Miluveach sites in 2007; monitoring resumed at these locations in 2008. Annual monitoring has continued at the Kachemach and Miluveach Rivers since 2009. LCMF conducted bank migration surveys at the Kachemach and Miluveach River crossing sites in 2002 through 2008 and in 2012. The next surveys are planned for the 2017 monitoring program. (Baker 2003a, 2004, 2005, 2006, 2008, 2009, 2010, 2011, 2012, and 2013). Results of the 2012 survey appear in the *2012 Alpine Pipeline River Crossings Monitoring Report* (Baker 2012).

Baker conducted the 2014 Alpine Pipeline river crossing monitoring. The 2014 monitoring activities included visual observations and pipeline tilt measurements at the three crossings, and LCMF bank erosion and pile cap elevation surveys at the HDD crossing of the Colville River East Channel. The 2014 Alpine Pipeline River Crossing monitoring sites are included in Figure 1.



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2014 Alpine Pipeline

River Crossing

Monitoring Sites

FIGURE: 1

(SHEET 1 of 1)

1.1 2014 Monitoring Criteria

Pipeline monitoring criteria is designed to comply with the Alpine Pipelines Surveillance and Monitoring Program (CPAI 2008).

1.1.1 Data Collection

The following data were collected in 2014:

- Photographs of each crossing location
- Evaluation of the condition of VSM, including measured tilt and observable settling, scouring, or jacking with particular attention paid to the following:
    - Miluveach River – VSM Nos. 2047 A/B and 2048 A/B and other VSM within 15 feet of the channel
    - Kachemach River – VSM Nos. 1714 and 1715 A/B and other VSM within 15 feet of the channel
- Evaluation of bank erosion at the HDD crossing at least 50 feet upstream and downstream from the nominal pipe size (NPS) 14 oil pipeline;
- Survey of the top and bottom bank elevations and identification of locations of bank caving at the HDD crossing (LCMF);
- Topographic survey from the Colville River bank to the HDD east pad to document bank and ground stability (LCMF);
- Measurement of depth and width of scour around VSM in the Kachemach and Miluveach river channels; and
- Observation of localized scour near all river crossings.

1.1.2 Physical Conditions Evaluated

The following physical conditions were evaluated during the site visits:

- Obstructions, ice dams, new river channels, or changes in flow in the channels;
- Signs of flooding threatening a facility or pipeline, or where water could not be diverted and there was:
    - Evidence of water concentrated longitudinally on or along the pipeline centerline
    - Gullying that threatened the buried pipeline at the HDD crossing;
- Soil pressure ridges parallel to the pipe axis exceeding 1 foot in height and 60 feet in length;
- Ponding extending over the pipe axis deeper than 1 foot and more than 100 feet in length;
- Soil disturbances located within 10 feet of the pipeline centerlines at least 10 feet in length with vertical displacement exceeding 6 inches, or wider than 2 inches parallel to the pipe axis and longer than 60 feet;
- Depressions occurring longitudinally over the pipe axis deeper than 1 foot and more than 100 feet in length;
- Evidence of potential pipeline leaks;
- Presence or absence of erosion of the HDD facility gravel pads; and
- Evidence of any settlement and jacking of the HDD building foundation (LCMF).

2.0 METHODS

Observations and photographs were collected at the pipeline crossing locations on the Kachemach River, Miluveach River, and HDD crossing of the Colville River East Channel during the 2014 spring breakup field work. On August 14 and 15, 2014, Baker personnel documented visual observations and VSM tilt measurements at the three river crossings. Channels were clear of ice and snow allowing full access to the channels and pipeline. Visual observations were made at the HDD crossing beginning from where the pipeline casings enter the ground and extended to the riverbanks. Observations at the Kachemach and Miluveach rivers were conducted along the pipeline stream crossings to 15 feet outside the active channel banks on each side. The observations extended upstream and downstream several hundred feet on both banks. In addition to visual observations, aerial and ground photographs were taken and are provided in Appendix A. Observations and measurements were compared to established design criteria. The methodology is designed to comply with the Alpine Pipelines Surveillance and Monitoring Program (CPAI 2008).

2.1 BANK EROSION

LCMF surveyed the local topography at the HDD crossing in August 2014. LCMF incorporated the data into figures and provided a tabulation of historical migration since 2001 for each bank. This is available in Appendix B for HDD West and Appendix C for HDD East. Arbitrary survey control points serve as the origin for the baseline stationing, beginning at 100 feet from the pipeline along each bank, and establish a means of comparing annual measurements. The HDD West top of bank setback allows for 105 feet of bank erosion, and the HDD East top of bank setback allows for 115 feet of bank erosion (Baker 2003b).

2.2 VSM TILT

A plumb bob and pocket rod tape measure were used to measure the tilt of the VSM located in three river crossings (four monitoring locations) and within 15 feet from the river banks. Tilt was measured perpendicular to the pipeline (north [N]/south [S]) and parallel to the pipeline (east [E]/west [W]). The tilt of each VSM was documented by measuring the horizontal distance from the plumb bob in feet per vertical foot (ft/ft). The accuracy of this method is ± 0.001 ft/ft. Approximate conversions between ft/ft and inches per vertical foot are provided in Table 1.

The 2010 CPAI North Slope Foundation Design Specification (CPAI 2010) states that under sustained loads, “VSM pipe supports shall be limited to $\Delta v/l = 0.015$ and Δv =1-inch max.” Where Δv equals the horizontal deflection and l equals the vertical distance.

Taking into consideration the accuracy of the measurement method and the design specifications, the VSM axis was considered plumb and within tolerance if the tilt was measured to be less than or equal to 0.015 ± 0.001 ft/ft. Any calculations that were determined to be less than the survey accuracy are reported as such (<0.001 ft/ft).

Table 1: VSM Tilt Unit Conversion (rounded to nearest thousandth)

Inches of deflection per 10 feet	ft/ft	Slope
1/8	***0.001****	***1:1000***
1/4	0.002	1:500
1/2	0.004	1:250
3/4	0.006	1:160
1	0.008	1:125
1-1/4	0.010	1:100
1-1/2	0.013	1:77
1-3/4	***0.015****	***1:66.6***
2	0.017	1:58

Notes: * *Survey Tolerance*
** *Project Tolerance*

2.3 VSM SCOUR

Streambed scour in the Miluveach and Kachemach rivers was evaluated using visual methods at each in-stream VSM. Scour is measured either at the VSM, or if a casing is present, at the inside and outside of the casing. As presented in the *Mechanical Analysis of Aboveground Pipeline and Aboveground River Crossings* (Baker 2003c), the VSM within the floodplain of the Kachemach and Miluveach river crossings were designed to withstand both local pier scour and channel scour during a 200-year flood. Scour limits for VSM located in the floodplain and in the active channel are shown in Table 2. These values include both local pier scour and anticipated channel scour.

Table 2: VSM Design Scour Limits

River Crossing	Minimum Scour Hole Elevations (feet – BPMSL)	
	Floodplain	Main Channel
Kachemach	9.5	6.9
Miluveach	36.7	35.1

2.4 FOUNDATION SETTLEMENT AND JACKING (HDD WEST)

LCMF surveyed the elevation of the HDD building foundation piles (bottom of pile cap) and developed tabulations of historical elevations for each pile. Data presented in the 2008 monitoring report (Baker 2008) reflected an adjustment to the vertical datum at HDD West of -0.35 feet, which was made to reflect actual elevations based on differential levels carried by LCMF from CD1 (Alpine) in August 2007. According to LCMF, this adjustment was eliminated to avoid confusion about elevation values. Therefore, the values for each pile cap as presented in Appendix B reflect the original datum.

2.5 Polygon Trough Subsidence (HDD East)

As in past years, a polygon trough located between the Colville River and the HDD East gravel pad was also monitored for subsidence. Historical profiles and tabulated elevations of selected cross sections over the length of the trough are presented in Appendix B.

3.0 2014 RESULTS

3.1 HDD WEST BANK

The west bank of the Colville River HDD crossing was evaluated by visual observation using ground and aerial photography (Photo A.1 through Photo A.13 in Appendix A) and field and topographic surveys. The 2014 Colville River spring breakup floodwaters reached, but did not overtop the west bank of the channel; no erosion was observed.

3.1.1 BANK AND PAD EROSION

The greatest amount of bank erosion observed between the 2013 and 2014 pipeline monitoring events along the HDD West bank was 0.6 feet, occurring at Station (STA) 0+85 approximately 165 feet upstream (south) of the oil pipeline centerline as identified on the LCMF topographic survey. The oil pipeline centerline is located at STA 2+50 on the topographic survey (Appendix B).

A maximum cumulative erosion of 18.7 feet, between April 2002 and August 2014, was measured along the top of the bank at Station 3+70 located 120 feet downstream (north) of the oil pipeline centerline (STA 2+50). There was no change in the erosion values at this station between 2013 and 2014. The 2014 erosion value yields a maximum average rate of 1.6 feet per year (ft/yr) at this location over the monitoring period. This is a decrease in the average erosion rate of 1.7 ft/yr in 2013 (Baker 2013).

The average rate of erosion for the 2013-2014 monitoring period along the 440-foot top of bank was measured to be 0.01 ft/yr. This value averages both erosion and deposition. The 2013-2014 average rate of erosion is less than the observed long-term historic average rate of 0.36 ft/yr, and less than the estimated maximum erosion rate used for design of 2.3 ft/yr (Baker 2003b). A graphic and tabular summary of the LCMF survey results for the HDD West crossing is presented in Appendix B.

In 1997, Baker established a survey control point at the centerline of the NPS 14 oil pipeline, as shown on HDD Bank Monitoring HDD Site-West and provided in Appendix B. Based on a comparison of the 1997 survey control point to the 2014 LCMF survey data, approximately 9.0 feet of bank erosion has occurred over the 17-year period (0.53 ft/yr). This bank erosion comprises approximately 9% of the total 105-foot design setback. The west bank erosion has not reached the 50% design setback. If in the future, the bank “migrates 50% of the design setback, erosion rates or possible mitigation measures will be evaluated” (Baker 2003c).

Based on visual observations, bank erosion between 2013 and 2014 appears deminimis. Channel morphology and flow direction within the channel remains largely unchanged. The pipelines appeared to be in stable condition with no visual indication of leaks.

3.1.2 VSM TILT

The VSMs investigated near HDD West are adequately supporting the pipeline. All six VSMs adjacent to the HDD West pad and crossing were plumb and within project tolerance based on tilt measurements and project method accuracy. A summary of the 2014 HDD West Bank VSM tilt survey results are presented in Table 3.

Table 3: HDD West VSM Tilt Measurement 2014 Results

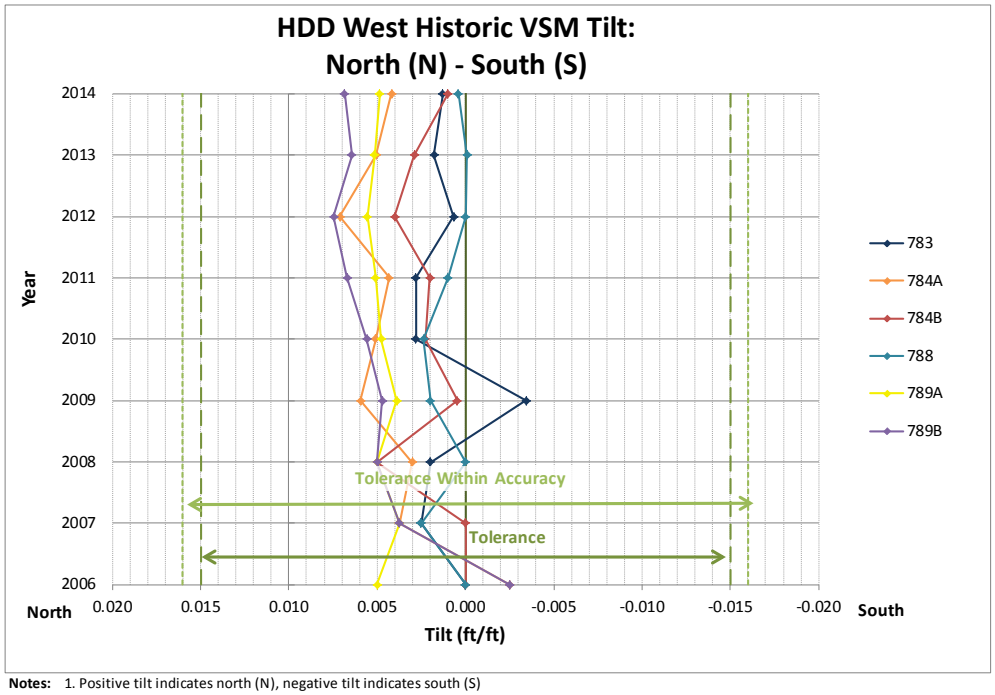
HDD West VSM Number	Tilt Measurement Orientation (ft/ft)		Comment
	North/South	East/West	
783	0.0013 N	0.0047 W	Plumb
784A	0.0042 N	0.0013 W	Plumb
784B	<0.0010	0.0047 W	Plumb
788	<0.0010	0.0013 E	Plumb
789A	0.0049 N	0.0031 W	Plumb
789B	0.0069 N	0.0060 W	Plumb

Table 4 presents the change in tilt measurements collected between the 2013 (Baker 2013) and 2014 monitoring events.

Table 4: HDD West VSM Change in Tilt, 2013-2014

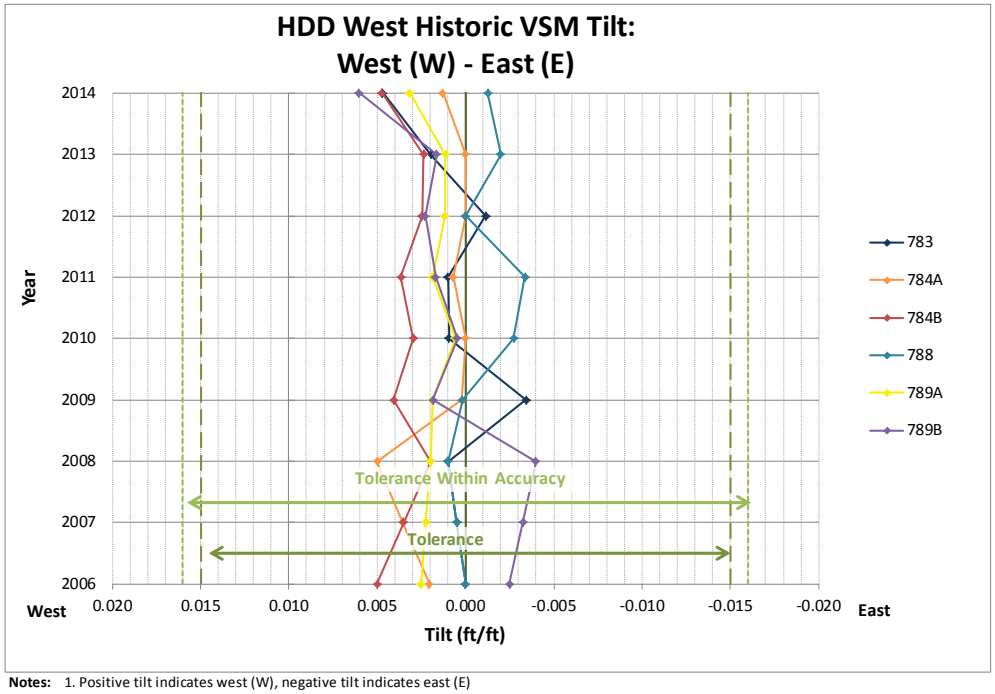
HDD West VSM Number	Change in Tilt Measurement Orientation (ft/ft)	
	North/South	East/West
783	<0.0010	0.0027 W
784A	<0.0010	0.0013 W
784B	0.0019 S	0.0024 W
788	<0.0010	<0.0010
789A	<0.0010	0.0020 W
789B	<0.0010	0.0044 W

Graph 1 and Graph 2 present the historical VSM change in tilt by orientation between 2006 and 2014 (Baker 2006, 2007, 2008, 2009, 2010, 2011, 2012 and 2013).



Notes: 1. Positive tilt indicates north (N), negative tilt indicates south (S)
2. Project tilt tolerance for VSM is +/- 0.015 ft/ft.
3. Survey accuracy of this project is +/-0.001 ft/ft.
4. Historical tilt directions were corrected based on review of all past measurements; the magnitude remains unchanged.

Graph 1 HDD West VSM Historical Change in Tilt, North/South



Notes: 1. Positive tilt indicates west (W), negative tilt indicates east (E)
2. Project tilt tolerance for VSM is +/- 0.015 ft/ft.
3. Survey accuracy of this project is +/-0.001 ft/ft.
4. Historical tilt directions were corrected based on review of all past measurements; the magnitude remains unchanged.

Graph 2 HDD West VSM Historical Change in Tilt, East/West

3.1.3 Foundation Pile Cap Survey

LCMF has conducted pile cap elevation surveys annually since 2004. Based on the surveys, no single pile cap has experienced a cumulative change of more than 0.040 feet of movement vertically over the 10-year span. The average cumulative change is 0.025 feet vertically over the 10-year span. The maximum incremental change from the 2013 to the 2014 survey is 0.007 feet vertically. A summary of the LCMF survey results for the HDD West Bank crossing is presented in Appendix B.

3.2 HDD East Bank

The east bank of the Colville River HDD crossing was evaluated by visual observation using ground and aerial photography (Photo A.14 through Photo A.27, in Appendix A) and field and topographic surveys. The 2014 Colville River spring breakup floodwaters reached, but did not overtop the east bank of the channel.

3.2.1 Bank and Pad Erosion

The greatest bank erosion observed between the 2013 and 2014 monitoring events was 15.4 feet occurring at Station 2+90, approximately 10 feet north of the NPS 14 oil pipeline centerline (STA 2+80). Appendix C includes a drawing of the bank migration survey in addition to tabular data.

Between August 2001 and August 2014, a maximum cumulative erosion of 39.3 feet along the top of bank was measured at Station 2+90. The 2014 erosion value of 15.4 feet yields a maximum average rate of 3.02 ft/yr at this location over the monitoring period. This is an increase in the average erosion rate of 1.99 ft/yr in 2013.

The average rate of erosion for the 2013-2014 monitoring period, as measured along the entire 450-foot top of bank, is approximately 0.69 ft/yr. This value averages both erosion and deposition. The 2013-2014 average rate of erosion is less than the observed long-term historical average rate of 1.10 ft/yr, and less than the estimated maximum design erosion rate of 2.5 ft/yr (Baker 2003b). A graphic and tabular summary of the LCMF surveying results for the HDD East Bank crossing is presented in Appendix C**.**

In 1997, Baker established a survey control point at the centerline of the NPS 14 oil pipeline, as shown on HDD Bank Monitoring HDD Site-East and provided in Appendix C. Based on a comparison of the 1997 survey control point to the 2014 LCMF survey data, approximately 14 feet of bank erosion has occurred over the 17 year period (0.82 ft/yr). As of 2014, the observed bank erosion at this location comprises 11.5% of the 115-foot design setback. The east bank erosion has not reached the 50% design setback. If in the future, the bank “migrates 50% of the design setback, erosion rates or possible mitigation measures will be evaluated” (Baker 2003c).

Additional erosion and sloughing continues along the east bank north of the NPS 14 oil pipeline and at the polygon trough near the NPS 12 seawater pipeline. Exposed sandbags and Styrofoam were evident at the toe of the polygon trough, similar to site conditions encountered during the 2013 field visit. While the date of placement is not known, it is understood by Baker that the sandbags and Styrofoam were installed in the bank to combat further erosion.

The HDD East gravel pad did not sustain any visible erosion or sloughing from floodwater during the 2014 spring breakup. Based on visual observations, bank erosion between 2013 and 2014 is deminimis. Channel morphology and flow direction within the channel remains largely unchanged. The pipelines appeared to be in stable condition with no visual indication of leaks.

3.2.2 Polygon Trough Subsidence

In addition to bank erosion surveys, subsidence monitoring has been conducted since 2001 by LCMF at eight cross sections of the polygon trough west of the HDD East gravel pad (cross section A through cross section H). The cumulative subsidence measured at any of the cross sections was less than 3.7 feet. Maximum cumulative subsidence at cross section B was 3.6 feet. The maximum incremental change since 2013 was at cross section A with an increase of 1.8 feet. A graphic and tabular summary of these cross sections is provided in Appendix C, a photograph of the troughs (Photo A.20) is in Appendix A.

3.2.3 VSM Tilt

The VSM investigated near HDD East are adequately supporting the pipeline. All five VSMs directly adjacent to the HDD East pad and crossing were plumb and within project tolerance based on tilt measurements and project method accuracy. A summary of the 2014 HDD East Bank VSM tilt survey results are presented in Table 5.

Table 5: HDD East VSM Tilt Measurement 2014 Results

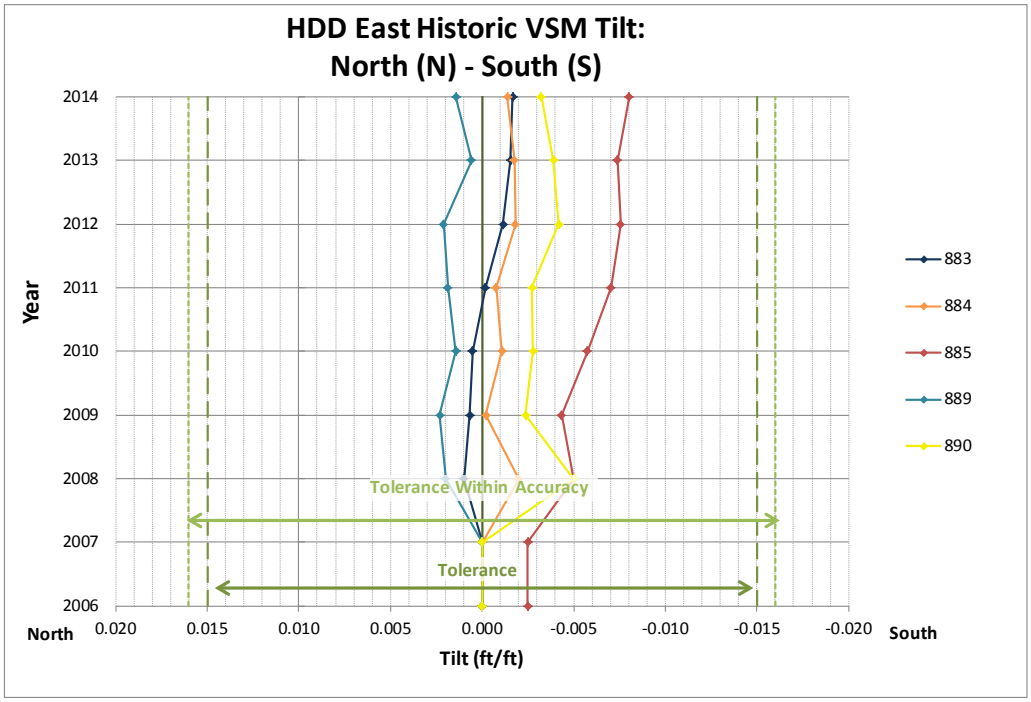
HDD East VSM Number	Tilt Measurement Orientation (ft/ft)		Comment
	North/South	East/West	
883	0.0017 S	0.0022 E	Plumb
884	0.0014 S	<0.0010	Plumb
885	0.0080 S	0.0048 W	Plumb
889	0.0014 N	<0.0010	Plumb
890	0.0032 S	<0.0010	Plumb

Table 6 presents the difference in tilt measurements collected during the 2013 (Baker 2013) and 2014 monitoring events.

Table 6: HDD East VSM Change in Tilt, 2013 to 2014

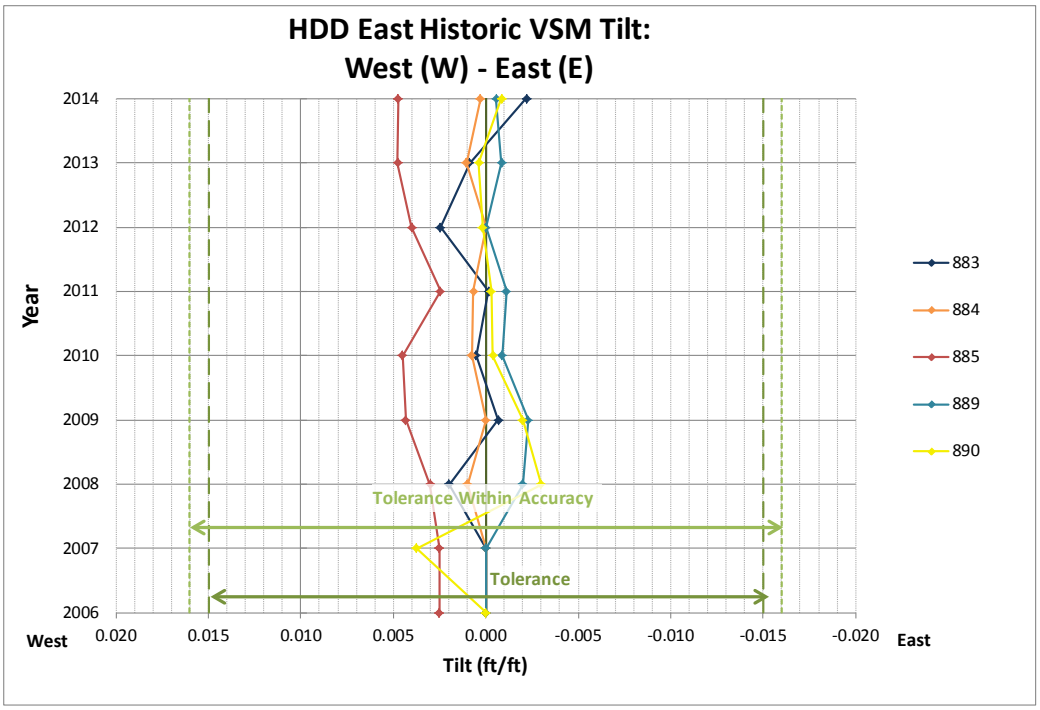
HDD East VSM Number	Change in Tilt Measurement Orientation (ft/ft)	
	North/South	East/West
883	<0.0010	0.0031 E
884	<0.0010	<0.0010
885	<0.0010	<0.0010
889	<0.0010	<0.0010
890	<0.0010	<0.0010

Graph 3 and Graph 4 present the historical VSM change in tilt by orientation between 2006 and 2014 (Baker 2006, 2007, 2008, 2009, 2010, 2011, 2012 and 2013).



Notes: 1. Positive tilt indicates north (N), negative tilt indicates south (S)
2. Project tilt tolerance for VSM is +/- 0.015 ft/ft.
3. Survey accuracy of this project is +/-0.001 ft/ft.
4. Historical tilt directions were corrected based on review of all past measurements; the magnitude remains unchanged.

Graph 3 HDD East VSM Historical Change in Tilt, North/South



Notes: 1. Positive tilt indicates west (W), negative tilt indicates east (E)
2. Project tilt tolerance for VSM is +/- 0.015 ft/ft.
3. Survey accuracy of this project is +/-0.001 ft/ft.
4. Historical tilt directions were corrected based on review of all past measurements; the magnitude remains unchanged.

Graph 4 HDD East VSM Historical Change in Tilt, East/West

3.3 KACHEMACH RIVER

The Kachemach River pipeline crossing was evaluated by visual observation, ground and aerial photography (Photo A.28 through Photo A.37; Appendix A), and field surveys**.** At the time of the field visit, flow was observed across the entire gravel channel at the pipeline crossing location. The channel is approximately 75 feet wide with a maximum depth of approximately 2.5 feet. Spring breakup observations in 2014 suggest flow was confined to the active gravel bed channel and did not reach the overbank regions adjacent to the river crossing.

3.3.1 BANK EROSION

Based on visual observations, bank erosion at the crossing and immediately upstream and downstream of the pipeline was deminimis. Channel morphology and flow direction within the channel remains largely unchanged. The pipelines appeared to be in stable condition with no visual indication of leaks.

3.3.2 VSM TILT

The VSMs investigated near the Kachemach River crossing are adequately supporting the pipeline. Five of the six VSMs located within the vicinity of the Kachemach River were plumb and within project tolerance based on tilt measurements and project method accuracy. A summary of the 2014 Kachemach River VSM tilt survey results are presented in Table 7.

VSM 1714, 1714A (abandoned), 1715A, 1715B, and 1716 were plumb. The tilt of VSM 1715C (abandoned) was measured to be east 0.0155 ft/ft, exceeding the project tolerance, but not by more than the survey method accuracy.

Table 7: Kachemach River VSM Tilt Measurement 2014 Results

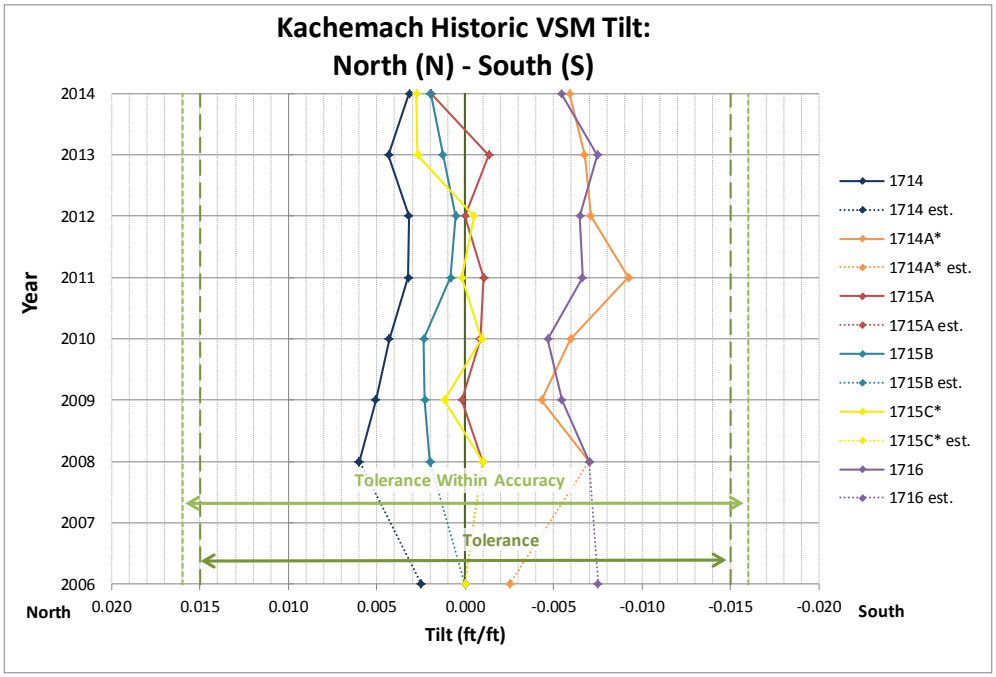
Kachemach VSM Number	Tilt Measurement Orientation (ft/ft)		Comments
	North/South	East/West	
1714	0.0032 N	0.0035 E	Plumb
1714A (Abandoned)	0.0059 S	0.0131 E	Plumb
1715A	0.0019 N	<0.0010	Plumb
1715B	0.0020 N	0.0027 W	Plumb
1715C (Abandoned)	0.0028 N	0.0155 E	E/W: exceeded project tolerance but not by more than survey method accuracy
1716	0.0054 S	0.0071 E	Plumb

Table 8 presents the difference in tilt measurements collected during the 2013 (Baker 2013) and 2014 monitoring events.

Table 8: Kachemach River VSM Change in Tilt, 2013 to 2014

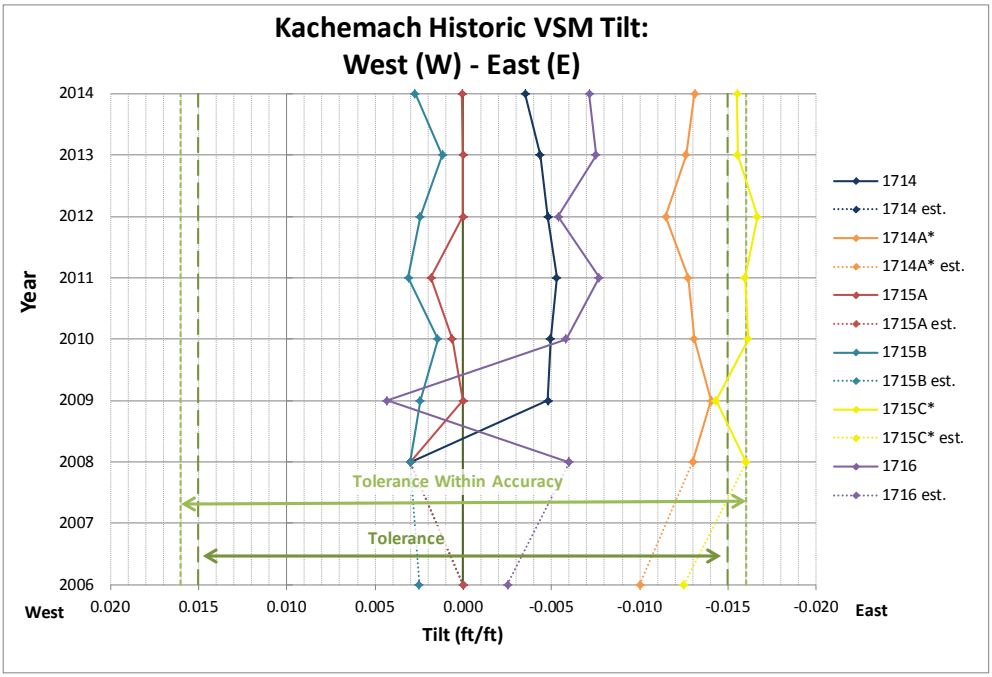
Kachemach VSM Number	Change in Tilt Measurement Orientation (ft/ft)	
	North/South	East/West
1714	<0.0010	<0.0010
1714A (Abandoned)	<0.0010	<0.0010
1715A	0.0033 N	<0.0010
1715B	<0.0010	0.0016 W
1715C (Abandoned)	<0.0010	<0.0010
1716	0.0020 N	<0.0010

Graph 5 and Graph 6 present the historical VSM change in tilt by orientation between 2006 and 2014 (Baker 2006, 2007, 2008, 2009, 2010, 2011, 2012 and 2013).



Notes: 1. Positive tilt indicates north (N), negative tilt indicates south (S)
2. Tilt measurementes were not taken at this location in 2007; tilt is estimated between 2006 and 2008.
3. Project tilt tolerance for VSM is +/- 0.015 ft/ft.
4. Survey accuracy of this project is +/-0.001 ft/ft.
5. Historical tilt directions were corrected based on review of all past measurements; the magnitude remains unchanged.
* VSM 1714A and 1715C are abandoned.

Graph 5 Kachemach River VSM Historical Change in Tilt, North/South



Notes: 1. Positive tilt indicates west (W), negative tilt indicates east (E)
2. Tilt measurementes were not taken at this location in 2007; tilt is estimated between 2006 and 2008.
3. Project tilt tolerance for VSM is +/- 0.015 ft/ft.
4. Survey accuracy of this project is +/-0.001 ft/ft.
5. Historical tilt directions were corrected based on review of all past measurements; the magnitude remains unchanged.
* VSM 1714A and 1715C are abandoned.

Graph 6 Kachemach River VSM Historical Change in Tilt, East/West

3.3.3 VSM SCOUR

Visual observations and measurements were collected to evaluate scour for the VSMs located within the active Kachemach River channel. VSM 1715A and 1715B have permanent steel casings installed as a countermeasure to control local scour. The observed depth of scour on the inside of the casing was less than on the outside at both VSMs. No excessive scour was observed at the base of any VSM located within the channel or nearby floodplain. The design scour limit for the main channel of the Kachemach River is 6.9 feet BP mean sea level (BPMSL) (Baker 2003c). No quantitative scour survey was conducted during this monitoring cycle. The last topographic scour survey was conducted by LCMF in 2004 (Baker 2004). Table 9 contains observed scour conditions during the 2014 field visit. Ground depressions observed at the base of VSM 1714, 1715C and 1716 are likely the result of consolidated backfill material and are not attributed to hydraulic events.

Table 9: Kachemach River 2014 VSM Scour

VSM	Location Description	Depth of Scour	Notes
1714	Grassy floodplain	1.5 feet below adjacent ground	A ground depression at the base of the VSM is approximately 3.0 feet in diameter
1714A	Channel	2.5 feet below water surface	Abandoned VSM
1715A	Channel	2.1 feet below water surface in casing; 3.4 feet below water surface out of casing	Scour hole measured on downstream side
1715B	Channel	2.5 feet below water surface in casing; 3.0 feet below water surface out of casing	Scour hole measured on downstream side
1715C	Grassy floodplain	0.5 feet below adjacent ground	Abandoned VSM. Ground depression at the base of the VSM is approximately 1.5 feet in diameter
1716	Grassy floodplain	0.7 feet below adjacent ground	A ground depression at the base of the VSM is approximately 2 feet in diameter.

3.4 MILUVEACH RIVER

The Miluveach River crossing was evaluated by visual observation, review of ground and aerial photography (Photo A.38 through Photo A.46; Appendix A), and field surveys. At the time of the field visit, flow with a maximum depth of 1.5 feet was observed across the majority of the channel south of the pipeline crossing location. North of the crossing, flow was confined to a single channel between the eastern bank and an exposed gravel bar. Spring breakup observations in 2014 suggest flow was confined to the active gravel bed channel and did not reach the overbank regions adjacent to the river crossing.

3.4.1 BANK EROSION

Based on visual observations, no bank erosion was evident at the crossing nor immediately upstream or downstream from the pipelines. Channel morphology and flow direction within the channel remains largely unchanged. The pipelines appeared to be in stable condition with no visual indication of leaks.

3.4.2 VSM TILT

The VSM investigated near the Miluveach River crossing are adequately supporting the pipeline. All four of the VSM within the vicinity of the Miluveach River were plumb and within project tolerance based on tilt measurements and project method accuracy. A summary of the 2014 Miluveach River VSM tilt survey results are presented in Table 10.

Table 10: Miluveach River VSM Tilt Measurement 2014 Results

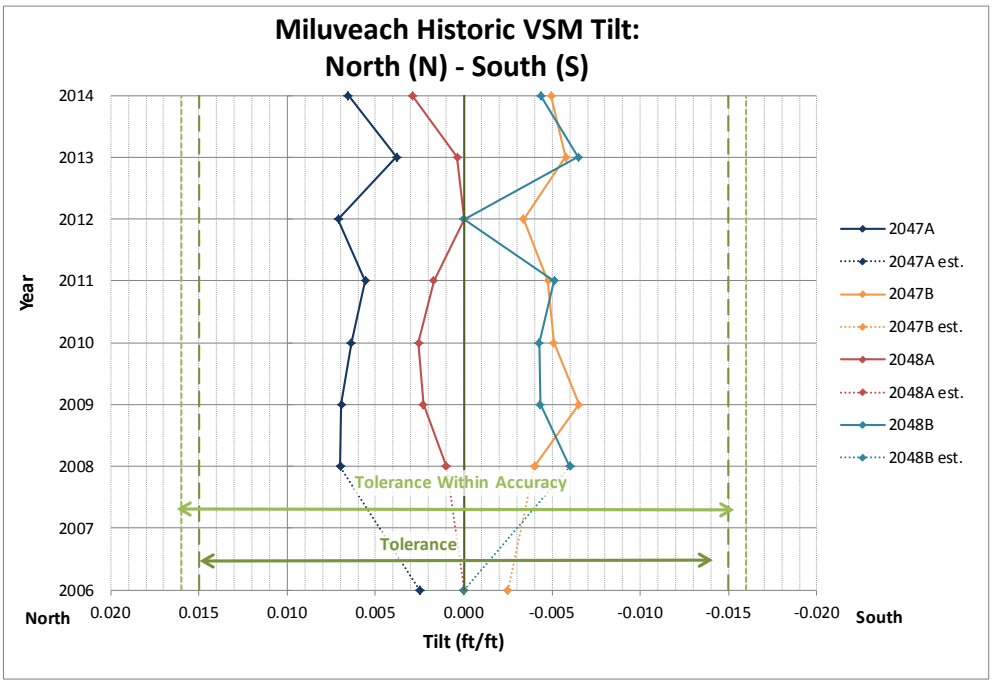
Miluveach VSM Number	Tilt Measurement Orientation (ft/ft)		Comment
	North/South	East/West	
2047A	0.0066 N	0.0048 E	Plumb
2047B	0.0049 S	0.0040 E	Plumb
2048A	0.0029 N	0.0029 W	Plumb
2048B	0.0044 S	0.0105 E	Plumb

Table 11 presents the difference in tilt measurements collected during the 2013 (Baker 2013) and 2014 monitoring events.

Table 11: Miluveach River VSM Change in Tilt from 2013 to 2014

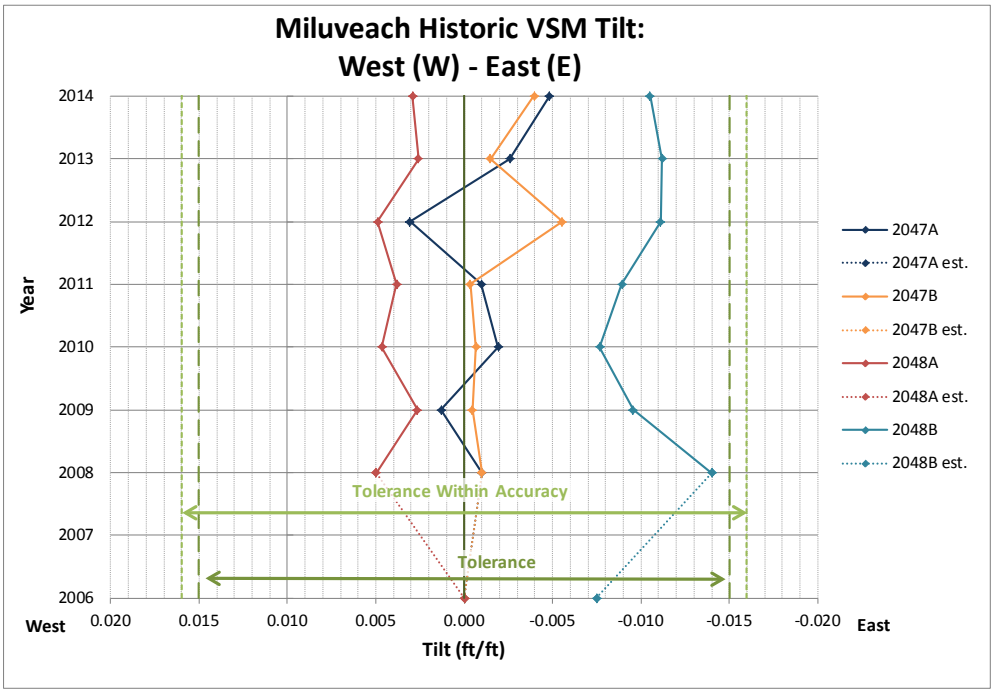
Miluveach VSM Number	Change in Tilt Measurement Orientation (ft/ft)	
	North/South	East/West
2047A	0.0028 N	0.0023 E
2047B	<0.0010	0.0025 E
2048A	0.0025 N	<0.0010
2048B	0.0021 N	<0.0010

Graph 7 and Graph 8 present the historical VSM change in tilt by orientation between 2006 and 2014 (Baker 2006, 2007, 2008, 2009, 2010, 2011, 2012, and 2013).



Notes:
1. Positive tilt indicates north (N), negative tilt indicates south (S)
2. Tilt measurementes were not taken at this location in 2007; tilt is estimated between 2006 and 2008.
3. Project tilt tolerance for VSM is +/- 0.015 ft/ft.
4. Survey accuracy of this project is +/-0.001 ft/ft.
5. Historical tilt directions were corrected based on review of all past measurements; the magnitude remains unchanged.

Graph 7 Miluveach River VSM Historical Change in Tilt, North/South



Notes:
1. Positive tilt indicates west (W), negative tilt indicates east (E)
2. Tilt measurementes were not taken at this location in 2007; tilt is estimated between 2006 and 2008.
3. Project tilt tolerance for VSM is +/- 0.015 ft/ft.
4. Survey accuracy of this project is +/-0.001 ft/ft.
5. Historical tilt directions were corrected based on review of all past measurements; the magnitude remains unchanged.

Graph 8 Miluveach River VSM Historical Change in Tilt, East/West

3.4.3 VSM SCOUR

Visual observations and measurements were collected to evaluate scour for the VSM located within the active Miluveach River channel. No excessive scour was observed at the base of any VSM located within the channel or nearby floodplain. The design scour limit for the main channel of the Miluveach River is 35.1 feet BPMSL (Baker 2003c). No quantitative survey was conducted during this monitoring cycle. The last topographic scour survey was conducted by LCMF in 2004 (Baker 2004). Table 12 contains observed scour conditions during the 2014 field visit.

Table 12: Miluveach River 2014 VSM Scour

VSM	Location Description	Depth of Scour Hole	Notes
2047N (A)	Gravel Bed	No scour hole	
2047S (B)	Grassy Mud – Bank/Channel Interface	No scour hole	
2048N (A)	Gravel Bed	0.7 feet below water surface	Scour hole approximately 1.5 feet in diameter. Maximum scour occurring on south side of VSM.
2048S (B)	Gravel Bed	1.5 feet below water surface	Scour hole approximately 3.0 feet in diameter.

4.0 CONCLUSIONS

No excessive erosion or scour occurred at any of the Alpine Pipeline System river crossing sites based on visual observations. The pipelines appeared to be in stable condition with no visual indication of leaks. No ponding, cracks, or pressure ridges were evident over the pipeline axis as defined by the monitoring criteria. A depression was observed at HDD East on the gravel pad near the centerline of the NPS 14 oil pipeline (Photo A.22 and Photo A.23). The depression measured approximately 10 feet in diameter and 1.5 feet in depth. The presence of gravel fill at the same position over the adjacent 18" seawater pipe was observed (Photo A.24). Based on visual observations, measurements, and field survey results, settling or jacking of the VSM was not apparent.

All but one VSM, Kachemach 1715C (abandoned), are within project tolerances and are considered plumb. For all monitored VSM, tilt has fluctuated annually, generally with consistency of direction. Annual fluctuation of VSM tilt measurements are presented in Graph 1 through Graph 8.

At the HDD East and HDD West crossing sites, natural erosion continues along the banks and was noted to be within design estimates and not negatively impacting the integrity of the pipeline.

4.1 HDD WEST BANK

The HDD West bank gravel pad is largely free from erosion. Since the 2013 monitoring event, the HDD West bank crossing eroded at an average rate of 0.01 ft/yr. This rate is less than both the long-term historic (0.36 ft/yr) and design erosion (2.3 ft/yr) rates. The observed erosion of the west bank, as measured at the NPS 14 oil centerline (STA 2+50), represents approximately 9% of the 105-foot design setback over 50% (15 years) of the original 30-year design life.

All VSM at HDD West were found to be within project tilt tolerances.

The LCMF survey shows no single pile cap has experienced a cumulative change of more than 0.04 feet of movement vertically over the span of 10 years.

4.2 HDD EAST BANK

The HDD East bank gravel pad is largely free from erosion. Since the 2013 monitoring event, the HDD East bank crossing eroded at an average rate of 0.69 ft/yr. This rate is less than both the long-term historic (1.10 ft/yr) and design erosion (2.5 ft/yr) rates. The observed erosion of the east bank at the NPS 14 oil centerline represents 11.5% of the 115-foot design setback over 50% (15 years) of the original 30-year design life.

The cumulative subsidence measured at all of the cross sections along the polygon trough was less than 3.7 feet. Maximum cumulative subsidence at cross section B was 3.6 feet. Cross section A saw the maximum incremental change since 2013 with an increase of 1.8 feet. A polygon trough does pass over the seawater casing axis; however, features of the trough do not meet or exceed the allowable physical conditions listed in the 2014 Monitoring Criteria. All VSM at HDD East were found to be within project tilt tolerances. Pile caps were not monitored at this location.

4.3 KACHEMACH RIVER

Based on visual inspection, the VSMs do not affect the Kachemach River channel at the crossing location. VSM 1715C (abandoned) exceeded the project tilt tolerance in the eastward direction, but not by more than the survey method accuracy. VSM 1715C (abandoned) has consistently fluctuated around the project tilt tolerance for the past seven years, as shown in Graph 6. All other VSM were within project tolerances. No excessive bank erosion or scour was observed at the Kachemach River crossing.

4.4 MILUVEACH RIVER

Based on visual inspection, the VSMs do not affect the Miluveach River channel at the crossing location. All VSMs at the Miluveach River remain within project tolerances. No excessive bank erosion or scour was observed at the Miluveach River crossing.

5.0 REFERENCES

ConocoPhillips Alaska, Inc. (CPAI). 2010. Foundation Design Specification. SPC-SS-NS-80502. December 2010.

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Michael Baker Jr., Inc. (Baker). 2013. 2013 Alpine Pipeline River Crossing Monitoring Report. Prepared for ConocoPhillips Alaska. 135894-MBJ-RPT-001. September 2013.

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—— 2005. 2005 Alpine Pipeline River Crossing Monitoring. Prepared for ConocoPhillips Alaska. 105758-MBJ-001. October 2005.

—— 2004. 2004 Alpine Pipeline River Crossing Monitoring. Prepared for ConocoPhillips Alaska. 103654-MBJ-001. October 2004.

—— 2003a. 2003 Alpine Pipeline River Crossing Monitoring. Prepared for ConocoPhillips Alaska. 101376-MBJ-001. July 2003.

—— 2003b. Alpine Development. Colville River Crossing Design Report. Prepared for Arco Alaska Inc. 23100-MBJ-RP-003. June 1997. Rev. 5. 2003.

—— 2003c. Mechanical Analysis of Aboveground Pipeline & Aboveground River Crossings. Prepared for ARCO Alaska Inc. 23100-MBJ-RP-001. October 1997. Rev 7. 2003.

—— 2002. HDD Transition Zones Civil Surveillance Trip Report – 2001. Prepared for Phillips Alaska Inc. 25114-217-MBJ-001. January 2002.

Appendix A Site Photographs

A.1 HDD West Bank

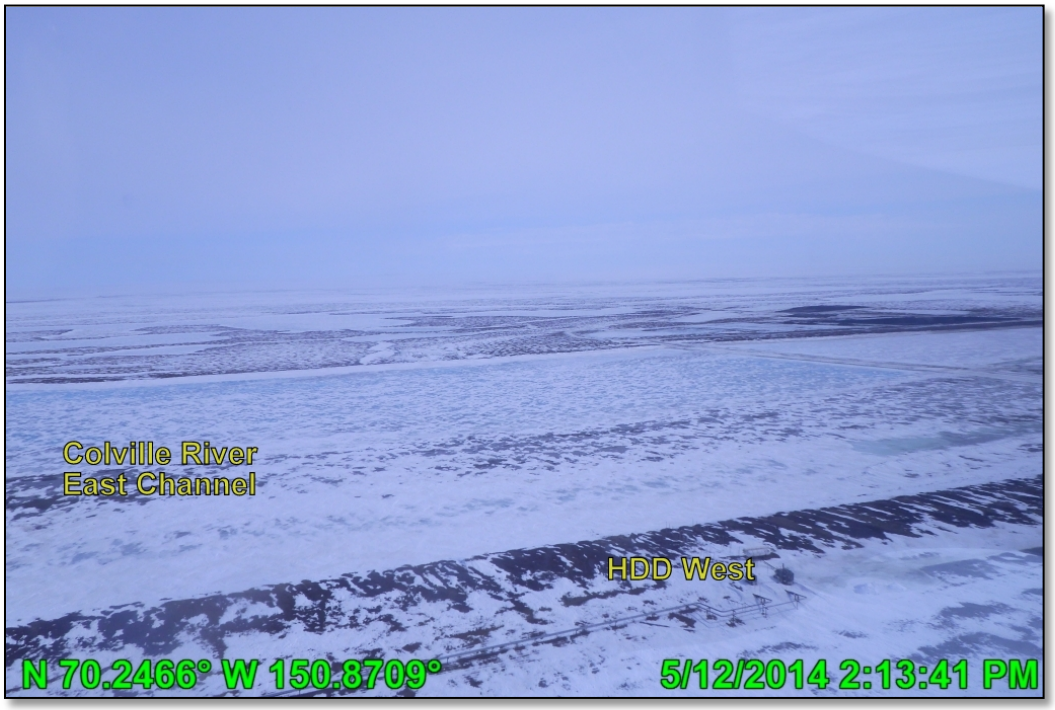


Photo A.1 HDD West pre breakup, looking southeast; May 12, 2014

Photo A.2 HDD West during breakup, looking southeast; May 15, 2014

Photo A.3 HDD West during breakup, looking southwest; May 15, 2014

Photo A.4 HDD West during breakup, looking west; May 17, 2014

Photo A.5 HDD West during breakup, looking southeast; May 31, 2014

Photo A.6 HDD West post breakup, looking south; June 6, 2014

Photo A.7 HDD West bank post breakup, looking north; August 15, 2014

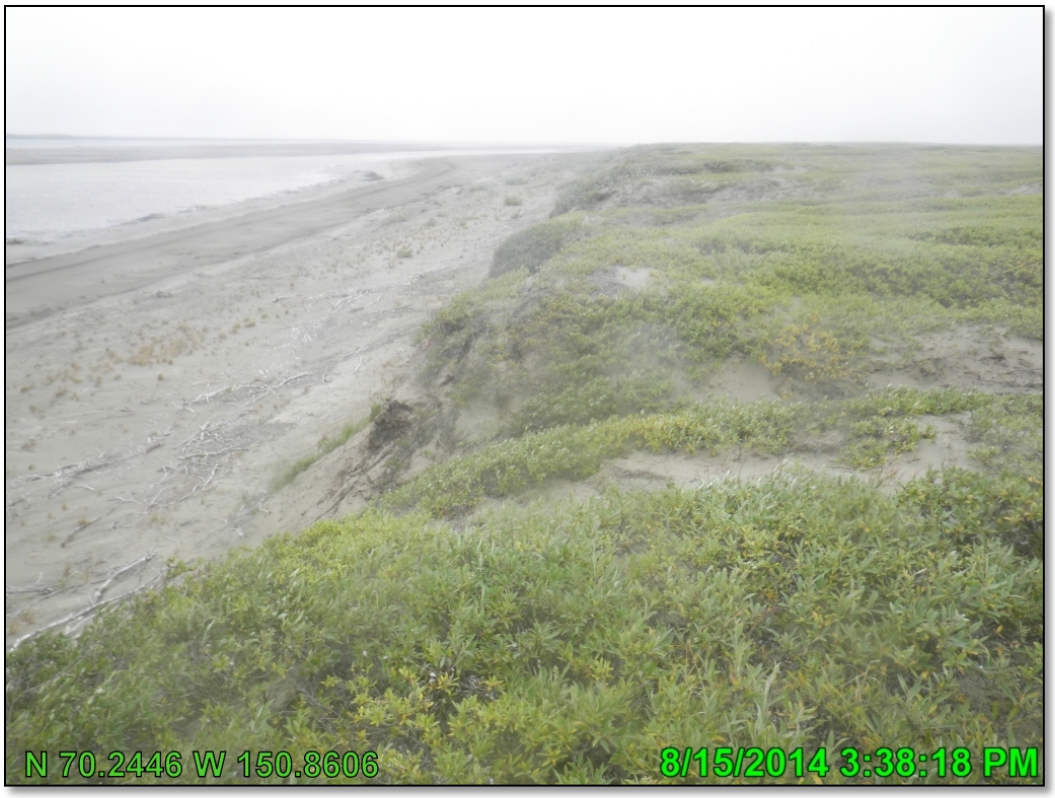


Photo A.8 HDD West bank post breakup, looking south; August 15, 2014

Photo A.9 HDD West pipeline entrance, looking east; August 15, 2014

Photo A.10 HDD West pipeline entrance, looking south; August 15, 2014

Photo A.11 HDD West north side of gravel pad, looking west; August 15, 2014

Photo A.12 HDD West south side of gravel pad, looking west; August 15, 2014

Photo A.13 HDD West looking west through thermo-siphons; August 15, 2014

A.2 HDD East Bank

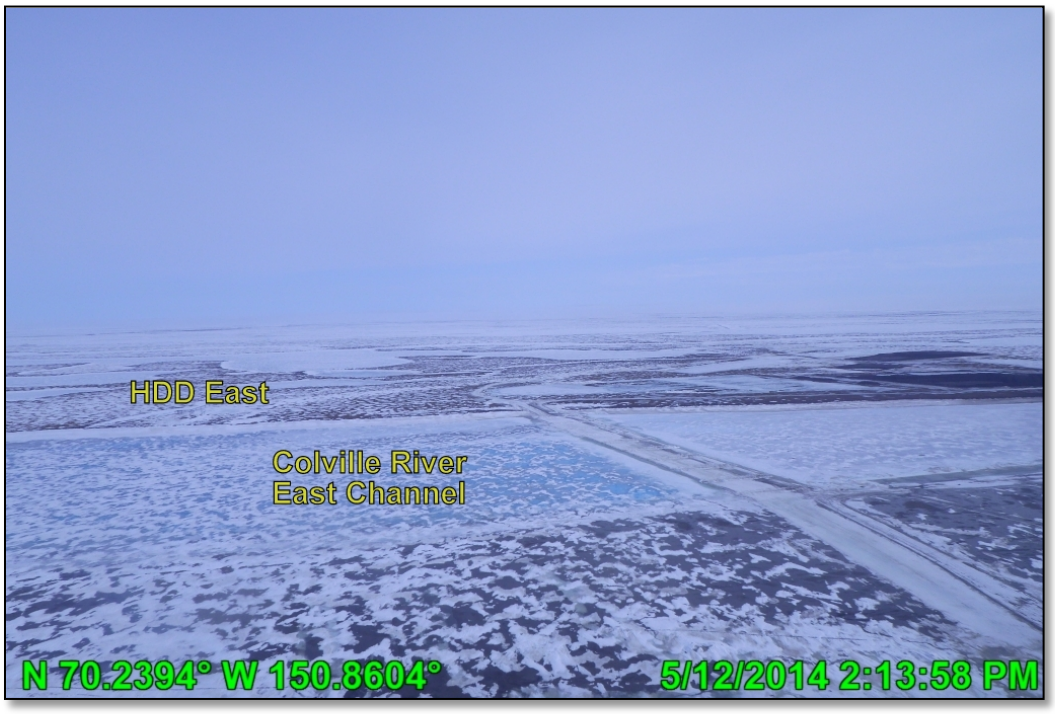


Photo A.14 HDD East pre breakup, looking southeast; May 12, 2014

Photo A.15 HDD East during breakup, looking southeast; May 30, 2014

Photo A.16 HDD East post breakup, looking east; June 9, 2014

Photo A.17 HDD East post breakup, looking northeast; August 15, 2014

Photo A.18 HDD East bank, looking north; August 15, 2014

Photo A.19 HDD East bank, looking south; August 15, 2014

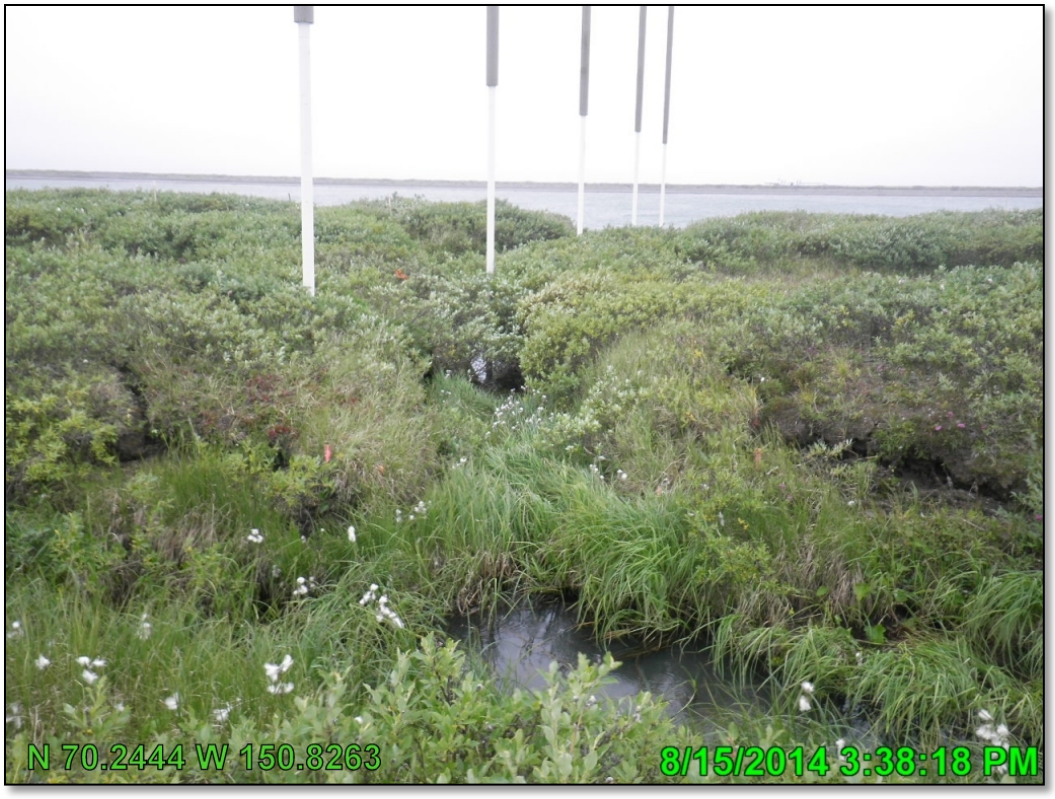


Photo A.20 HDD East polygon trough, looking southwest; August 15, 2014

Photo A.21 HDD East south side of gravel pad, looking east; August 15, 2014

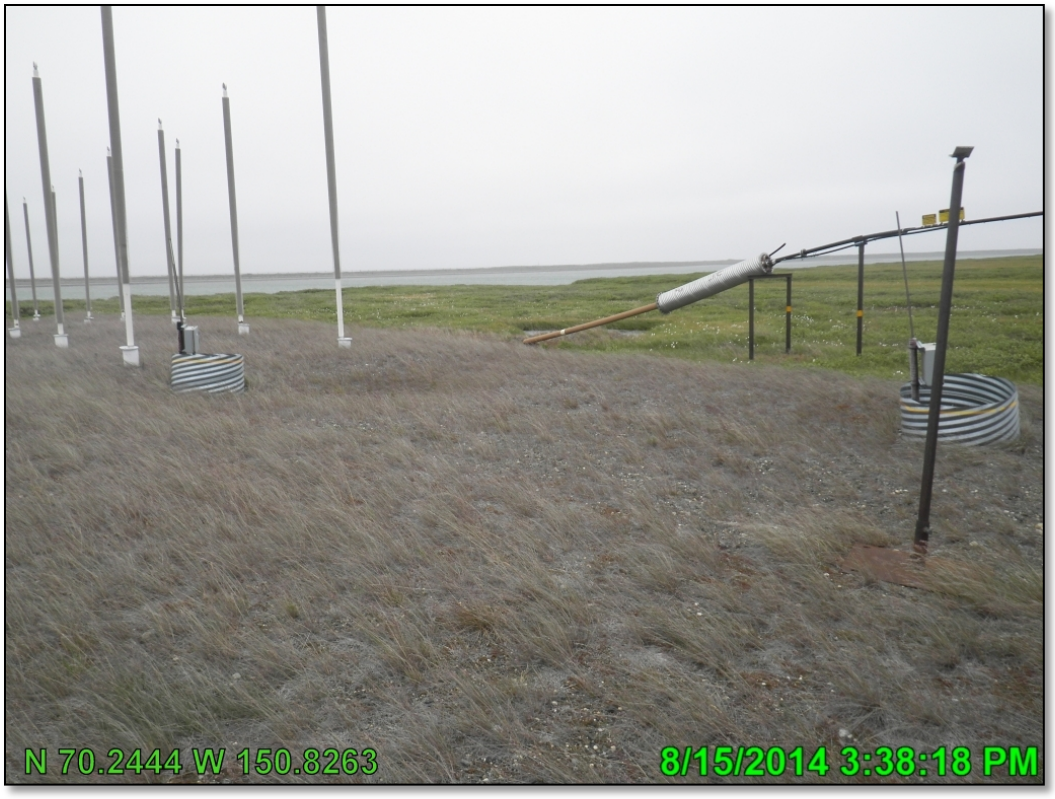


Photo A.22 HDD East depression over the NPS Oil Pipeline, looking northwest; August 15, 2014

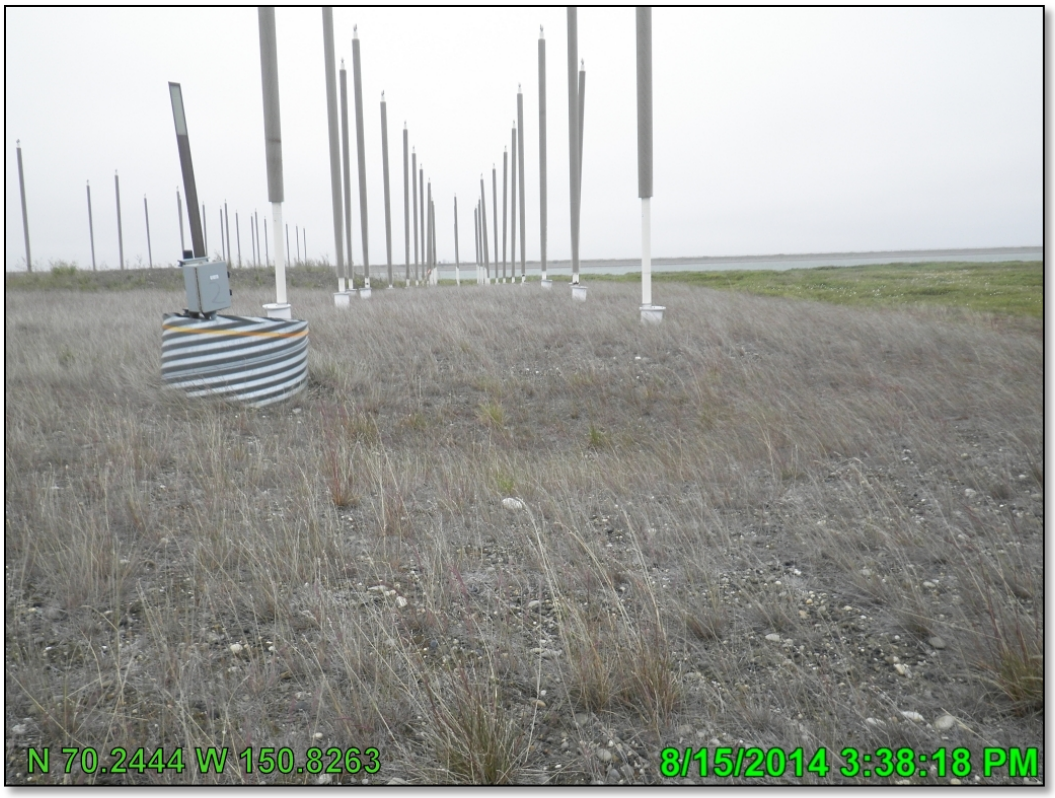


Photo A.23 HDD East depression over the NPS Oil Pipeline, looking west; August 15, 2014

Photo A.24 HDD East fill over Seawater Pipeline, looking southwest; August 15, 2014

Photo A.25 HDD East pipeline entrance, looking southwest

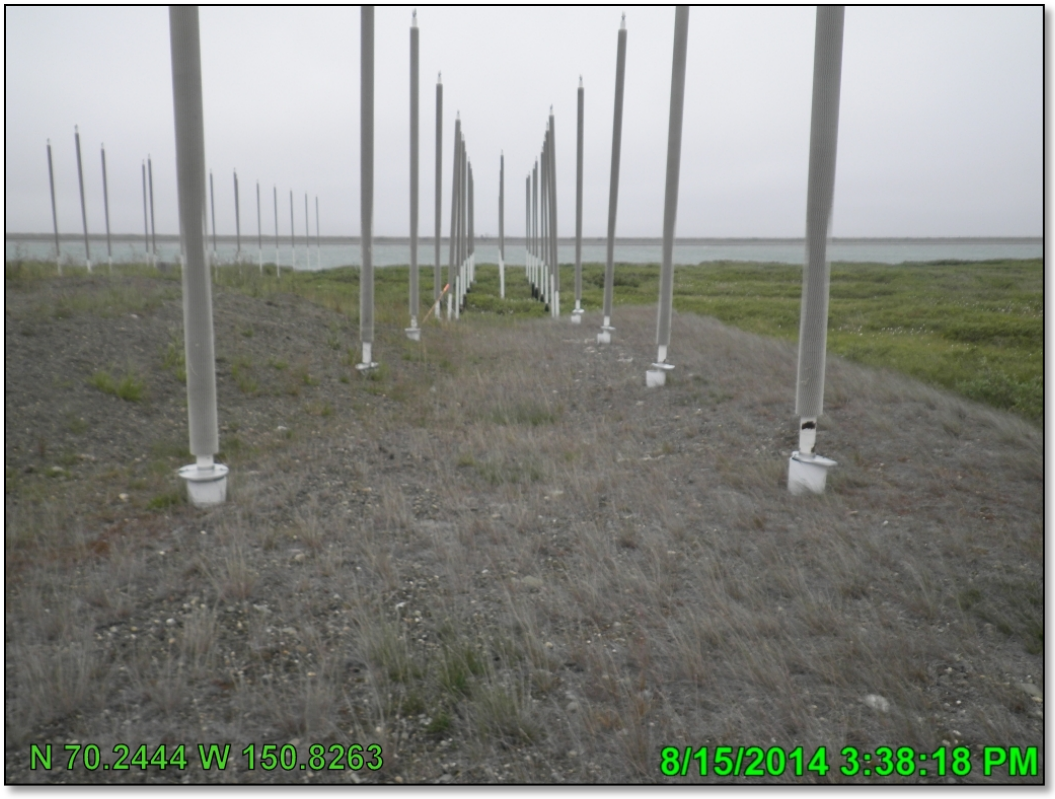


Photo A.26 HDD East looking west through thermo-siphons; August 15, 2014

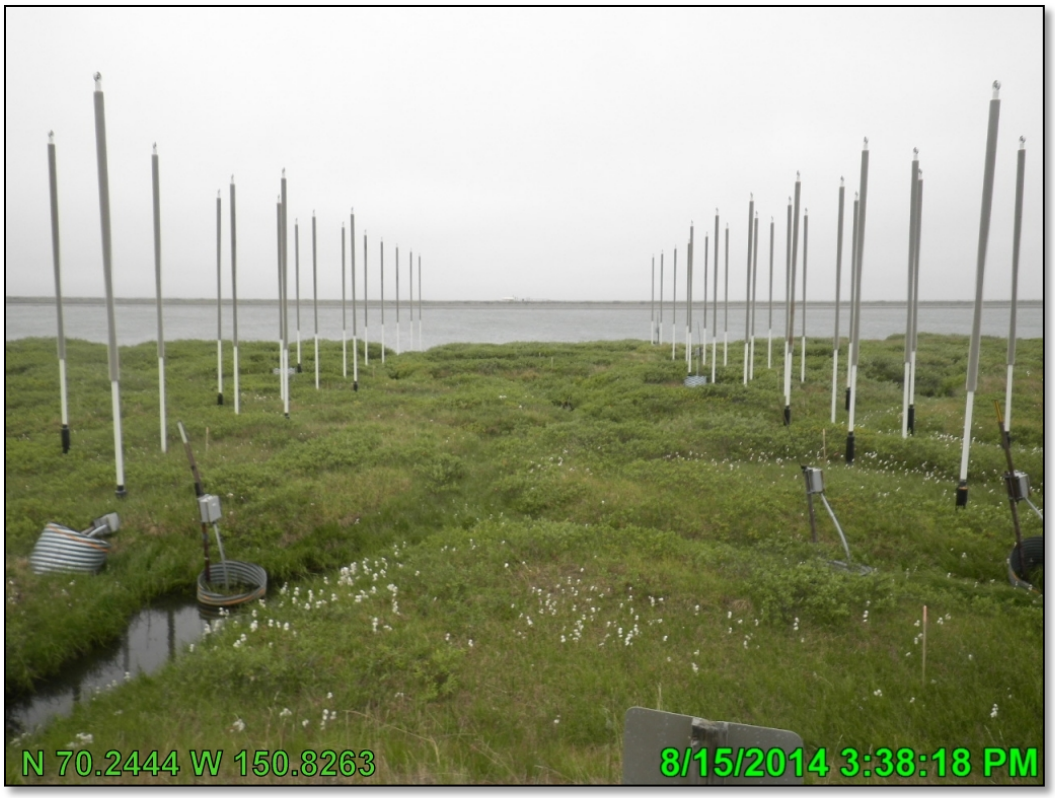


Photo A.27 HDD East looking west through thermo-siphons; August 15, 2014

A.3 Kachemach River

Photo A.28 Kachemach River during breakup, looking southwest; May 17, 2014

Photo A.29 Kachemach River during breakup, looking northwest; June 6, 2014

Photo A.30 Kachemach River post breakup, looking northwest; August 15, 2014

Photo A.31 Kachemach River post breakup, looking east; August 14, 2014

Photo A.32 Kachemach River post breakup, looking southwest; August 14, 2014

Photo A.33 Kachemach River post breakup, looking northwest; August 14, 2014

Photo A.34 Kachemach River post breakup, looking upstream; August 14, 2014

Photo A.35 Kachemach River post breakup, looking downstream; August 14, 2014

Photo A.36 Kachemach River post breakup water depth, looking east; September 14, 2014

Photo A.37 Kachemach River VSM 1714; August 14, 2014

A.4 Miluveach River

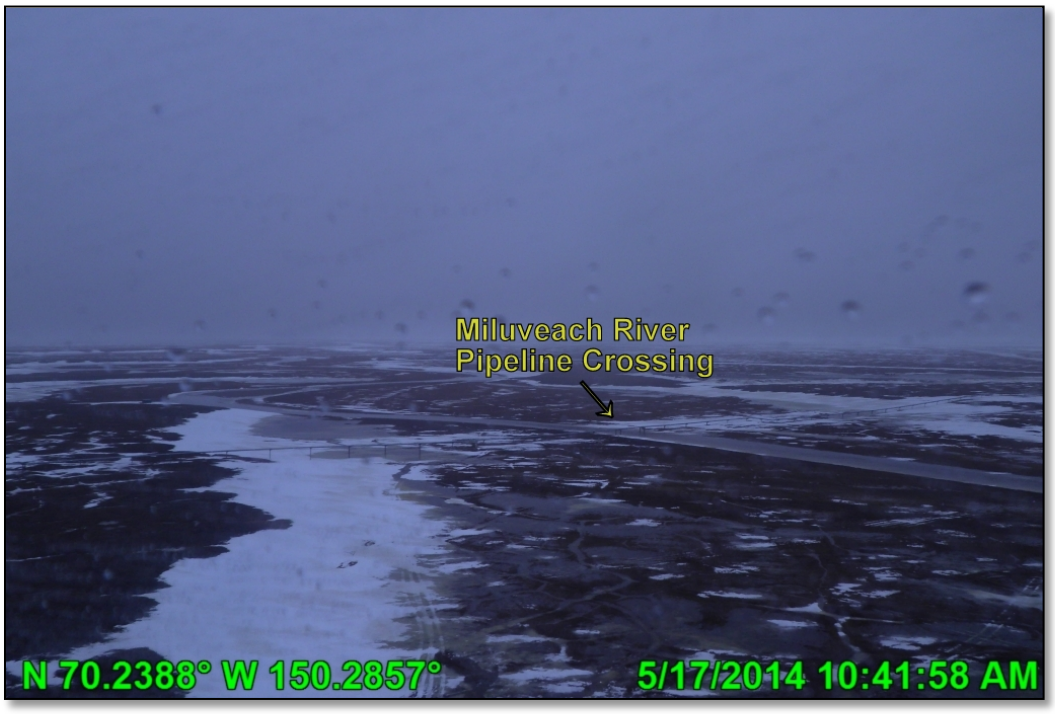


Photo A.38 Miluveach River during breakup, looing southwest; May 17, 2014

Photo A.39 Miluveach River during breakup, looking east; June 6, 2014

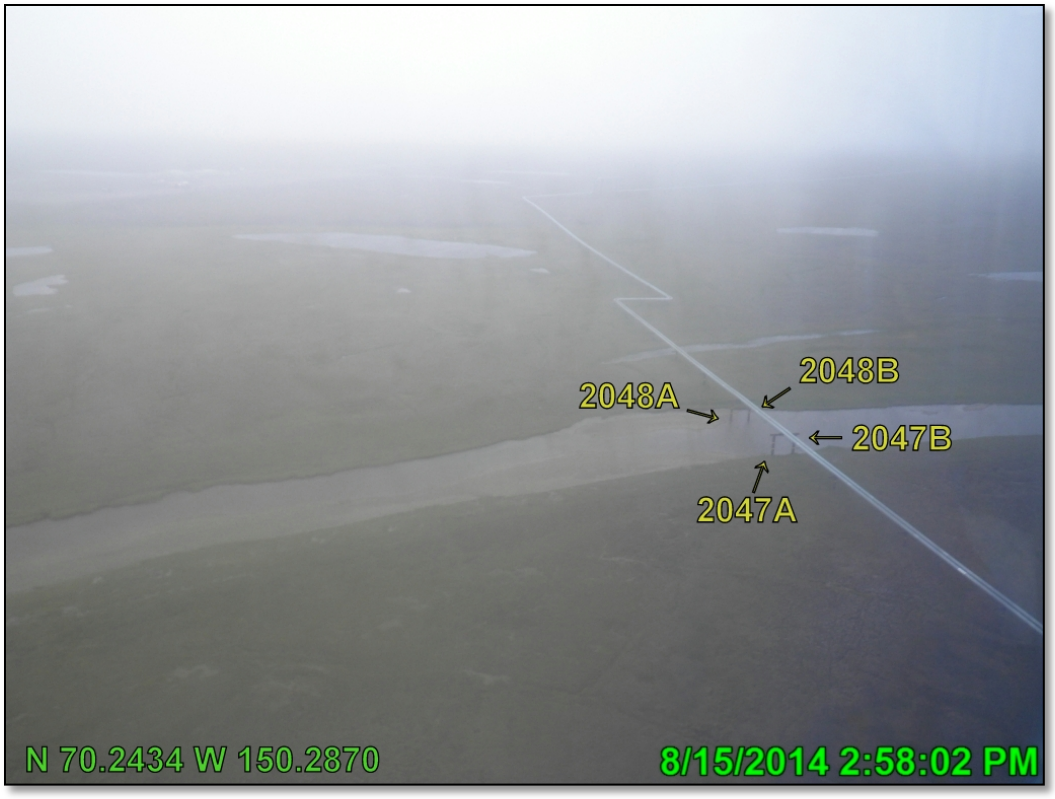


Photo A.40 Miluveach River post breakup, looking east; August 15, 2014

Photo A.41 Miluveach River post breakup, looking southwest; August 15, 2014

Photo A.42 Miluveach River VSMs, looking downstream; August 15, 2014

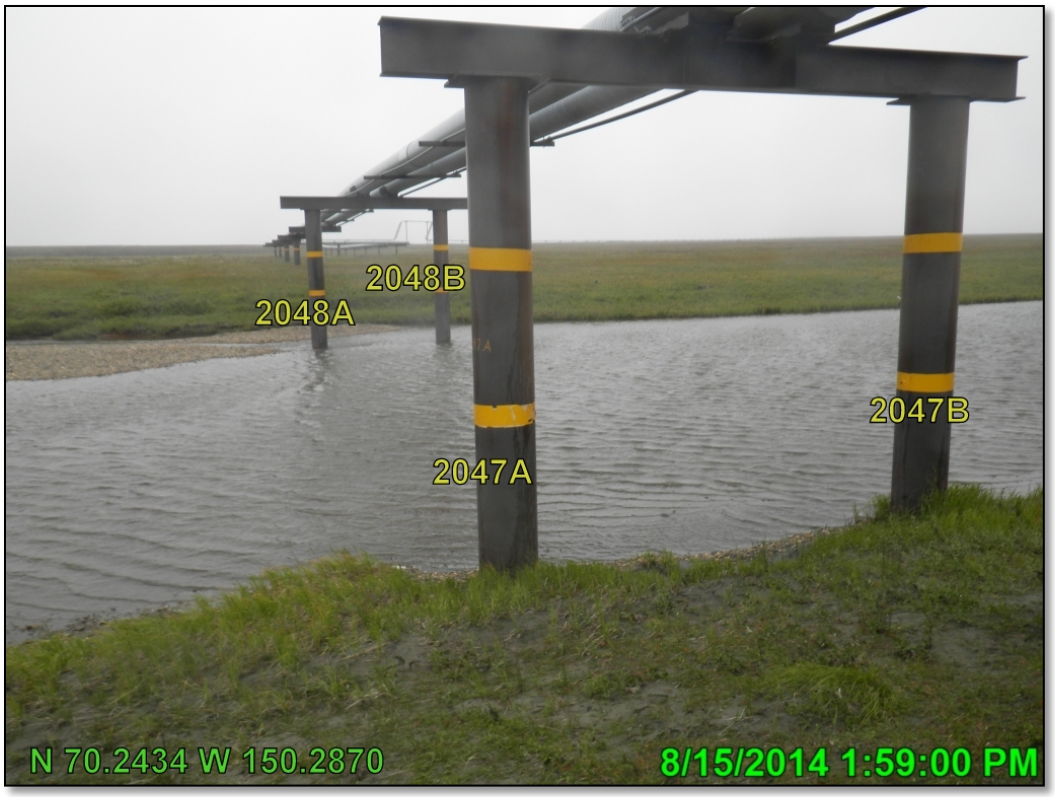


Photo A.43 Miluveach River post breakup, looking east; August 15, 2014

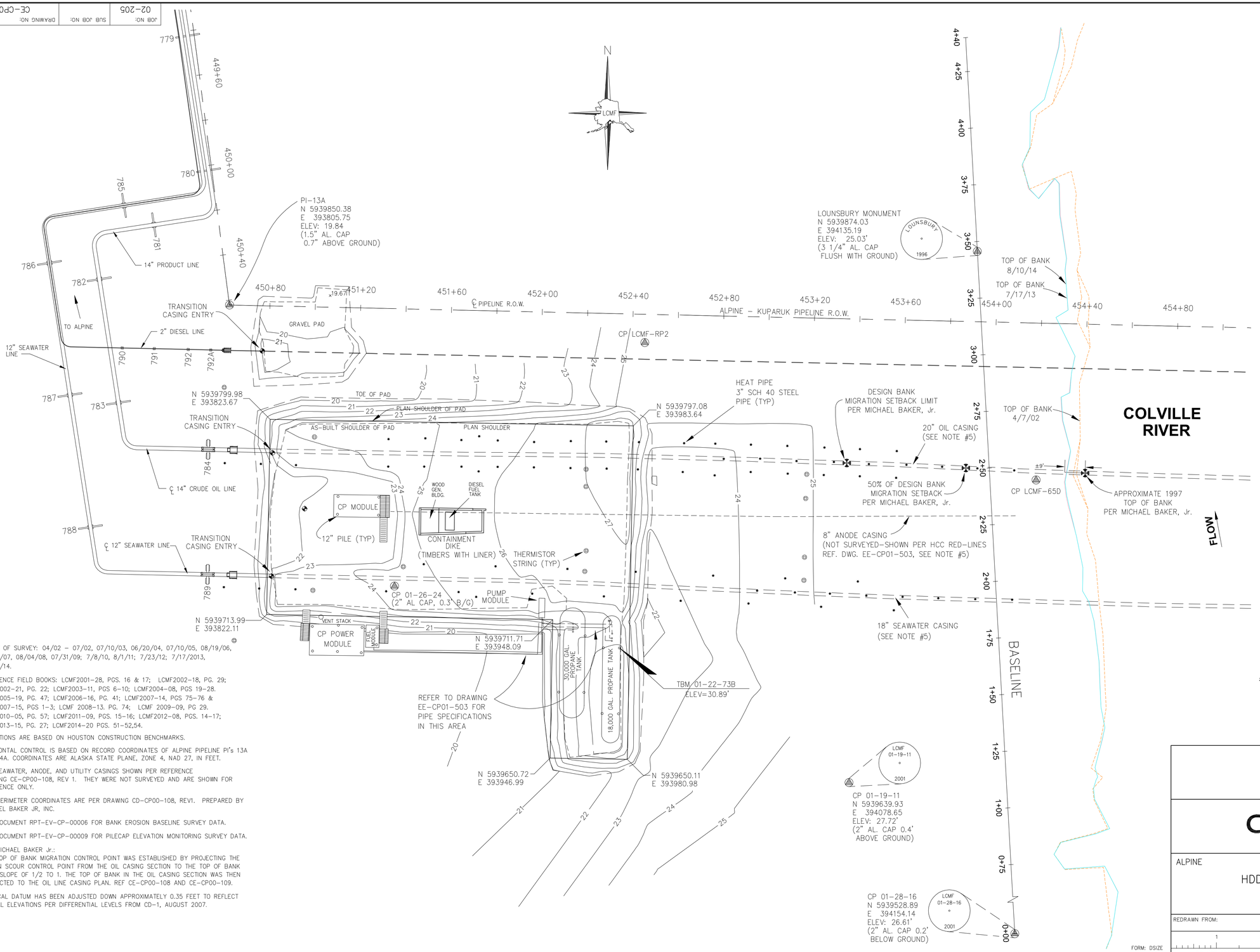
Photo A.44 Miluveach River post breakup, looking upstream; August 15, 2014

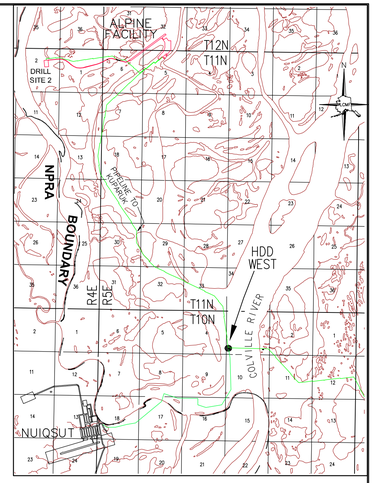
Photo A.45 Miluveach River post breakup, looking downstream; August 15, 2014

Photo A.46 Miluveach River post breakup water depth, looking south; September 15, 2014

Appendix B HDD West Bank Erosion Survey

JOB NO: 02-205 | SUB JOB NO: | DRAWING NO: CE-CP00-143





VICINITY MAP
NO SCALE

LEGEND

- HEAT PIPE
- THERMISTOR STRING
- TRANSITION CASING ENTRY POINT
- —21— 1' CONTOUR LINES
- PILE
- SURVEY CONTROL
- MICHAEL BAKER Jr. MIGRATION POINT
- TOE OF PAD
- SHOULDER OF PAD
- TOP OF BANK 7/8/02
- TOP OF BANK 7/17/13
- TOP OF BANK 8/10/14

GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 inch = 20 ft.

NOTES:

1. DATES OF SURVEY: 04/02 – 07/02, 07/10/03, 06/20/04, 07/10/05, 08/19/06, 08/31/07, 08/04/08, 07/31/09; 7/8/10, 8/1/11; 7/23/12; 7/17/2013, 08/10/14.
2. REFERENCE FIELD BOOKS: LCMF2001-28, PGS. 16 & 17; LCMF2002-18, PG. 29; LCMF2002-21, PG. 22; LCMF2003-11, PGS 6-10; LCMF2004-08, PGS 19-28. LCMF2005-19, PG. 47; LCMF2006-16, PG. 41; LCMF2007-14, PGS 75-76 & LCMF2007-15, PGS 1-3; LCMF 2008-13. PG. 74; LCMF 2009-09, PG 29. LCMF2010-05, PG. 57; LCMF2011-09, PGS. 15-16; LCMF2012-08, PGS. 14-17; LCMF2013-15, PG. 27; LCMF2014-20 PGS. 51-52,54.
3. ELEVATIONS ARE BASED ON HOUSTON CONSTRUCTION BENCHMARKS.
4. HORIZONTAL CONTROL IS BASED ON RECORD COORDINATES OF ALPINE PIPELINE PI's 13A AND 14A. COORDINATES ARE ALASKA STATE PLANE, ZONE 4, NAD 27, IN FEET.
5. OIL, SEAWATER, ANODE, AND UTILITY CASINGS SHOWN PER REFERENCE DRAWING CE-CP00-108, REV 1. THEY WERE NOT SURVEYED AND ARE SHOWN FOR REFERENCE ONLY.
6. PAD PERIMETER COORDINATES ARE PER DRAWING CD-CP00-108, REV1. PREPARED BY MICHAEL BAKER JR, INC.
7. SEE DOCUMENT RPT-EV-CP-00006 FOR BANK EROSION BASELINE SURVEY DATA.
8. SEE DOCUMENT RPT-EV-CP-00009 FOR PILECAP ELEVATION MONITORING SURVEY DATA.
9. PER MICHAEL BAKER Jr.:
   THE TOP OF BANK MIGRATION CONTROL POINT WAS ESTABLISHED BY PROJECTING THE DESIGN SCOUR CONTROL POINT FROM THE OIL CASING SECTION TO THE TOP OF BANK AT A SLOPE OF 1/2 TO 1. THE TOP OF BANK IN THE OIL CASING SECTION WAS THEN PROJECTED TO THE OIL LINE CASING PLAN. REF CE-CP00-108 AND CE-CP00-109.
10. VERTICAL DATUM HAS BEEN ADJUSTED DOWN APPROXIMATELY 0.35 FEET TO REFLECT ACTUAL ELEVATIONS PER DIFFERENTIAL LEVELS FROM CD-1, AUGUST 2007.

KUUKPIK LCMF LLC
810 E. 82nd Ave. Anchorage, Alaska 99518 (907)273-1830
www.LCMF.com
Alpine Survey Office

ConocoPhillips Alaska, Inc.

ALPINE | MODULE: CP00 | UNIT: CP

HDD BANK EROSION MONITORING
HDD SITE – WEST
ALPINE FACILITY

REDRAWN FROM: | CONSTRUCTION SHEET OF

1 2 3 4 5 6
DO NOT SCALE | ABOVE SCALE FOR REFERENCE ONLY

DATE: 11/5/02	DRAWN: CZ	DESIGN:	ECM NO: 1870227ACS
SCALE: 1"=20'	CHECKED: JZ		CC NO:
	APPROVAL: ML		CADD FILE NO. 01-12-05-1WEST
JOB NO: 02-205	SUB JOB NO:	DRAWING NO: CE-CP00-143	PART: 1 OF 1 / REV: 13

REFERENCE DWG NO/SHT NO:

REV	DATE	REVISIONS	BY	CHK	JOB ENGR	PROJ ENGR	CUST APP
12	7/17/13	UPDATED PER 9670829ACS	CZ	DB			
11	7/23/12	UPDATED PER 9101901ACS	AG	DB			
10	8/3/11	UPDATED PER 8292382ACS	AG	DB			
9	7/10/10	UPDATED PER 7224503ACS	CZ	GD			
8	7/31/09	UPDATED PER 6370813ACS	AG	DB			
7	8/7/08	UPDATED PER 5538034ACS	CZ	GD			
6	8/31/07	UPDATED PER 4810351ACS	CZ	DB			
5	8/21/06	UPDATED PER 4116808ACS	AG	GD			
4	7/10/05	UPDATED PER 3391755ACS	CZ	DB			
3	6/25/04	UPDATED PER 2390460ACS	CZ	BD			
2	11/15/03	ISSUED PER 2094387ACS	GD	JZ			
13	08/11/14	ISSUED PER 20306694ACS	TB	DB			

FORM: DSIZE

Alpine CP 00
HDD West Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations											Description
	See Drawing CE-CP00-143 Rev 10 for Survey Baseline Location											
	4/7/2002	7/8/2002	7/10/2003	6/20/2004	7/10/2005	8/19/2006	8/31/2007	8/5/2008	7/31/2009	7/8/2010	8/1/2011	Date
0+00	39.5	39.5	39.5	39.5	39.3	39.3	39.3	39.3	39.4	39.3	39.4	Baseline Offset (In Feet)
		0.0	0.0	0.0	-0.2	0.0	0.0	0.0	0.1	-0.1	0.1	Incremental Change
		0.0	0.0	0.0	-0.3	-0.2	-0.2	-0.2	-0.1	-0.2	-0.1	Cumulative Change
0+05	39.3	39.3	39.3	39.3	37.6	37.6	37.6	37.6	37.7	37.6	37.7	Baseline Offset (In Feet)
		0.0	0.0	0.0	-1.7	0.0	0.0	0.0	0.1	-0.1	0.1	Incremental Change
		0.0	0.0	0.0	-1.7	-1.7	-1.7	-1.7	-1.6	-1.7	-1.6	Cumulative Change
0+10	39.4	39.4	39.4	39.4	38.5	38.5	38.5	38.5	38.7	38.5	38.7	Baseline Offset (In Feet)
		0.0	0.0	0.0	-0.9	0.0	0.0	0.0	0.2	-0.2	0.2	Incremental Change
		0.0	0.0	0.0	-0.9	-0.9	-0.9	-0.9	-0.7	-0.9	-0.6	Cumulative Change
0+20	45.8	45.8	45.8	45.8	41.9	41.9	41.9	41.9	39.9	39.9	39.8	Baseline Offset (In Feet)
		0.0	0.0	0.0	-3.8	0.0	0.0	0.0	-2.0	0.0	-0.1	Incremental Change
		0.0	0.0	0.0	-3.8	-3.9	-3.9	-3.9	-5.9	-5.9	-6.0	Cumulative Change
0+25	41.5	41.5	41.5	41.5	39.1	39.1	39.1	39.1	37.6	37.6	37.6	Baseline Offset (In Feet)
		0.0	0.0	0.0	-2.4	0.0	0.0	0.0	-1.5	0.0	0.0	Incremental Change
		0.0	0.0	0.0	-2.4	-2.4	-2.4	-2.4	-3.9	-3.9	-3.9	Cumulative Change
0+30	37.7	37.9	37.9	37.9	37.9	37.9	37.9	37.9	37.8	37.9	37.9	Baseline Offset (In Feet)
		0.1	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.1	0.0	Incremental Change
		0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.2	0.2	Cumulative Change
0+40	41.9	41.9	41.9	41.9	41.9	41.9	41.9	41.9	42.2	41.9	41.6	Baseline Offset (In Feet)
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	-0.3	-0.3	Incremental Change
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	-0.3	Cumulative Change

Alpine CP 00
HDD West Site
Streambank Monitor

Baseline	**Streambank Monitor - Top of Bank Locations**											**Description**
Station	See Drawing CE-CP00-143 Rev 10 for Survey Baseline Location											
	4/7/2002	**7/8/2002**	**7/10/2003**	**6/20/2004**	**7/10/2005**	**8/19/2006**	**8/31/2007**	**8/5/2008**	**7/31/2009**	**7/8/2010**	**8/1/2011**	**Date**
0+50	42.0	42.0	42.0	42.0	42.0	42.0	44.5	44.5	44.5	44.0	44.0	Baseline Offset (In Feet)
		0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	-0.5	0.0	Incremental Change
		0.0	0.0	0.0	0.0	0.0	2.5	2.5	2.5	2.0	1.9	Cumulative Change
0+60	41.4	41.4	41.4	41.4	41.4	41.4	46.4	46.4	46.3	46.4	46.3	Baseline Offset (In Feet)
		0.0	0.0	0.0	0.0	0.0	5.0	0.0	-0.1	0.1	-0.1	Incremental Change
		0.0	0.0	0.0	0.0	0.0	5.0	5.0	4.9	5.0	4.9	Cumulative Change
0+70	40.7	40.7	40.7	40.7	40.7	40.7	41.9	41.9	41.9	41.9	42.1	Baseline Offset (In Feet)
		0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.2	Incremental Change
		0.0	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.4	Cumulative Change
0+75	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.3	21.4	21.3	Baseline Offset (In Feet)
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.1	-0.1	Incremental Change
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	-0.1	Cumulative Change
0+80	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.2	Baseline Offset (In Feet)
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	Incremental Change
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	Cumulative Change
0+85	29.0	29.0	29.0	29.0	29.0	29.0	29.7	29.7	30.3	29.7	30.3	Baseline Offset (In Feet)
		0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.6	-0.6	0.6	Incremental Change
		0.0	0.0	0.0	0.0	0.0	0.7	0.7	1.3	0.7	1.3	Cumulative Change
0+90	42.8	42.8	42.8	42.8	42.8	42.8	42.8	42.8	43.3	42.8	43.4	Baseline Offset (In Feet)
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	-0.5	0.6	Incremental Change
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	Cumulative Change

Alpine CP 00
HDD West Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations											Description
	See Drawing CE-CP00-143 Rev 10 for Survey Baseline Location											
	4/7/2002	7/8/2002	7/10/2003	6/20/2004	7/10/2005	8/19/2006	8/31/2007	8/5/2008	7/31/2009	7/8/2010	8/1/2011	Date
1+00	38.7	38.7	38.7	38.7	38.7	38.7	38.7	38.7	38.9	38.7	39.0	Baseline Offset (In Feet)
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	-0.2	0.3	Incremental Change
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	Cumulative Change
1+05	37.9	37.9	37.9	37.9	37.9	37.9	37.9	37.9	37.8	37.9	38.0	Baseline Offset (In Feet)
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.1	0.1	Incremental Change
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.1	Cumulative Change
1+10	41.4	41.4	41.4	41.4	39.2	39.2	39.2	39.2	39.2	39.2	39.2	Baseline Offset (In Feet)
		0.0	0.0	0.0	-2.2	0.1	0.0	0.0	0.0	0.0	0.0	Incremental Change
		0.0	0.0	0.0	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2	Cumulative Change
1+15	38.2	38.2	38.2	38.2	38.2	38.2	39.9	39.9	39.9	39.1	39.3	Baseline Offset (In Feet)
		0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	-0.8	0.1	Incremental Change
		0.0	0.0	0.0	0.0	0.0	1.7	1.7	1.7	0.9	1.0	Cumulative Change
1+20	39.4	39.4	39.4	39.4	39.4	39.4	40.4	40.4	40.4	40.4	40.5	Baseline Offset (In Feet)
		0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.1	Incremental Change
		0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.1	Cumulative Change
1+25	41.4	41.4	41.4	41.4	41.4	41.4	41.4	41.4	42.1	41.4	42.1	Baseline Offset (In Feet)
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	-0.7	0.7	Incremental Change
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.7	Cumulative Change
1+30	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5	43.0	43.6	Baseline Offset (In Feet)
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	-0.5	0.6	Incremental Change
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	Cumulative Change

Alpine CP 00
HDD West Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations											Description
	See Drawing CE-CP00-143 Rev 10 for Survey Baseline Location											
	4/7/2002	7/8/2002	7/10/2003	6/20/2004	7/10/2005	8/19/2006	8/31/2007	8/5/2008	7/31/2009	7/8/2010	8/1/2011	Date
1+35	44.2	44.2	44.2	44.2	43.8	43.8	43.8	43.8	44.1	43.8	44.1	Baseline Offset (In Feet)
		0.0	0.0	0.0	-0.4	0.0	0.0	0.0	0.3	-0.3	0.3	Incremental Change
		0.0	0.0	0.0	-0.4	-0.4	-0.4	-0.4	-0.1	-0.4	-0.1	Cumulative Change
1+40	45.3	45.3	45.3	45.3	43.4	43.4	43.4	43.4	43.4	43.4	43.5	Baseline Offset (In Feet)
		0.0	0.0	0.0	-1.9	0.0	0.0	0.0	0.0	0.0	0.1	Incremental Change
		0.0	0.0	0.0	-1.9	-1.9	-1.9	-1.9	-1.9	-1.9	-1.8	Cumulative Change
1+45	45.7	45.7	45.7	45.7	43.4	43.4	43.4	43.4	43.4	43.4	43.3	Baseline Offset (In Feet)
		0.0	0.0	0.0	-2.3	0.0	0.0	0.0	0.0	0.0	-0.1	Incremental Change
		0.0	0.0	0.0	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3	-2.4	Cumulative Change
1+50	45.7	45.7	45.7	45.7	43.9	43.9	43.9	43.9	44.1	43.9	43.4	Baseline Offset (In Feet)
		0.0	0.0	0.0	-1.8	0.0	0.0	0.0	0.2	-0.2	-0.5	Incremental Change
		0.0	0.0	0.0	-1.8	-1.8	-1.8	-1.8	-1.6	-1.8	-2.3	Cumulative Change
1+60	45.8	45.8	45.8	44.9	44.2	44.3	44.3	44.3	44.2	43.7	43.8	Baseline Offset (In Feet)
		0.0	0.0	-1.0	-0.6	0.0	0.0	0.0	-0.1	-0.5	0.0	Incremental Change
		0.0	0.0	-1.0	-1.6	-1.6	-1.5	-1.5	-1.6	-2.1	-2.1	Cumulative Change
1+65	45.9	45.9	45.9	45.0	44.3	44.4	44.4	44.4	44.2	43.8	43.6	Baseline Offset (In Feet)
		0.0	0.0	-0.9	-0.7	0.1	0.0	0.0	-0.2	-0.4	-0.2	Incremental Change
		0.0	0.0	-0.9	-1.6	-1.5	-1.5	-1.5	-1.7	-2.1	-2.3	Cumulative Change
1+75	45.9	45.9	45.9	45.9	44.4	44.4	44.4	44.4	44.4	44.3	42.7	Baseline Offset (In Feet)
		0.0	0.0	0.0	-1.5	0.0	0.0	0.0	0.0	-0.1	-1.6	Incremental Change
		0.0	0.0	0.0	-1.5	-1.5	-1.5	-1.5	-1.5	-1.6	-3.2	Cumulative Change

Alpine CP 00
HDD West Site
Streambank Monitor

Baseline	**Streambank Monitor - Top of Bank Locations**											**Description**
Station	See Drawing CE-CP00-143 Rev 10 for Survey Baseline Location											
	4/7/2002	**7/8/2002**	**7/10/2003**	**6/20/2004**	**7/10/2005**	**8/19/2006**	**8/31/2007**	**8/5/2008**	**7/31/2009**	**7/8/2010**	**8/1/2011**	**Date**
1+90	45.0	45.0	44.1	44.1	44.1	44.1	44.1	44.1	44.2	40.9	40.1	Baseline Offset (In Feet)
		0.0	-0.9	0.0	0.0	0.0	0.0	0.0	0.1	-3.3	-0.8	Incremental Change
		0.0	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.8	-4.1	-4.9	Cumulative Change
1+95	44.9	44.9	42.8	42.8	42.8	42.8	42.8	42.8	42.8	37.8	38.0	Baseline Offset (In Feet)
		0.0	-2.1	0.0	0.0	0.0	0.0	0.0	0.0	-5.0	0.2	Incremental Change
		0.0	-2.1	-2.1	-2.1	-2.1	-2.1	-2.1	-2.1	-7.1	-6.9	Cumulative Change
2+00	44.7	44.7	41.8	41.8	41.1	40.4	40.4	40.4	40.6	38.1	38.3	Baseline Offset (In Feet)
		0.0	-2.9	0.0	-0.8	-0.6	0.0	0.0	0.2	-2.5	0.2	Incremental Change
		0.0	-2.9	-2.9	-3.6	-4.3	-4.3	-4.3	-4.1	-6.6	-6.5	Cumulative Change
2+05	44.6	44.6	40.4	40.4	39.7	38.4	38.4	38.4	38.3	38.4	38.3	Baseline Offset (In Feet)
		0.0	-4.2	0.0	-0.7	-1.4	0.0	0.0	-0.1	0.1	-0.1	Incremental Change
		0.0	-4.2	-4.2	-4.8	-6.2	-6.2	-6.2	-6.3	-6.2	-6.2	Cumulative Change
2+10	43.7	43.7	40.4	40.2	40.2	38.3	38.3	38.3	38.1	38.3	37.6	Baseline Offset (In Feet)
		0.0	-3.2	-0.3	0.0	-1.9	0.0	0.0	-0.2	0.2	-0.7	Incremental Change
		0.0	-3.2	-3.5	-3.5	-5.4	-5.4	-5.4	-5.6	-5.4	-6.0	Cumulative Change
2+20	41.5	41.5	41.5	40.6	40.6	37.5	37.5	37.5	37.2	37.5	36.1	Baseline Offset (In Feet)
		0.0	0.0	-0.9	0.0	-3.1	0.0	0.0	-0.3	0.3	-1.4	Incremental Change
		0.0	0.0	-0.9	-0.9	-3.9	-4.0	-4.0	-4.3	-4.0	-5.4	Cumulative Change
2+25	42.0	42.0	42.0	40.7	40.7	35.9	35.9	35.9	35.7	35.9	35.1	Baseline Offset (In Feet)
		0.0	0.0	-1.3	0.0	-4.8	0.0	0.0	-0.2	0.2	-0.8	Incremental Change
		0.0	0.0	-1.3	-1.3	-6.1	-6.1	-6.1	-6.3	-6.1	-6.9	Cumulative Change

Alpine CP 00
HDD West Site
Streambank Monitor

Baseline	**Streambank Monitor - Top of Bank Locations**											**Description**
Station	See Drawing CE-CP00-143 Rev 10 for Survey Baseline Location											
	4/7/2002	**7/8/2002**	**7/10/2003**	**6/20/2004**	**7/10/2005**	**8/19/2006**	**8/31/2007**	**8/5/2008**	**7/31/2009**	**7/8/2010**	**8/1/2011**	**Date**
2+30	42.4	42.3	42.2	40.9	40.9	34.2	34.2	34.2	34.2	34.2	34.1	Baseline Offset (In Feet)
		0.0	-0.1	-1.4	0.0	-6.6	0.0	0.0	0.0	0.0	-0.1	Incremental Change
		0.0	-0.1	-1.5	-1.5	-8.1	-8.2	-8.2	-8.2	-8.2	-8.2	Cumulative Change
2+35	41.0	40.4	40.4	40.4	40.4	33.1	33.1	33.1	33.1	33.1	33.1	Baseline Offset (In Feet)
		-0.6	0.0	0.0	0.0	-7.3	0.0	0.0	0.0	0.0	0.0	Incremental Change
		-0.6	-0.6	-0.6	-0.6	-7.9	-7.9	-7.9	-7.9	-7.9	-7.9	Cumulative Change
2+45	38.3	36.8	36.8	36.8	36.8	32.7	32.7	32.7	32.7	32.7	33.3	Baseline Offset (In Feet)
		-1.5	0.0	0.0	0.0	-4.1	0.0	0.0	0.0	0.0	0.6	Incremental Change
		-1.5	-1.5	-1.5	-1.5	-5.6	-5.6	-5.6	-5.6	-5.6	-5.0	Cumulative Change
2+50	39.0	38.1	37.8	37.5	37.1	34.3	34.3	34.3	34.3	34.3	34.7	Baseline Offset (In Feet)
		-1.0	-0.3	-0.3	-0.4	-2.8	0.0	0.0	0.0	0.0	0.4	Incremental Change
		-1.0	-1.2	-1.5	-1.9	-4.7	-4.7	-4.7	-4.7	-4.7	-4.4	Cumulative Change
2+55	39.9	39.3	38.2	38.2	37.4	35.9	35.9	35.9	35.9	35.9	36.0	Baseline Offset (In Feet)
		-0.5	-1.1	0.0	-0.8	-1.5	0.0	0.0	0.0	0.0	0.1	Incremental Change
		-0.5	-1.6	-1.6	-2.4	-4.0	-4.0	-4.0	-4.0	-4.0	-3.8	Cumulative Change
2+60	40.7	40.7	40.7	40.7	38.3	35.1	35.1	35.1	35.2	35.1	35.2	Baseline Offset (In Feet)
		0.0	0.0	0.0	-2.4	-3.1	0.0	0.0	0.1	-0.1	0.1	Incremental Change
		0.0	0.0	0.0	-2.4	-5.5	-5.6	-5.6	-5.5	-5.6	-5.5	Cumulative Change
2+65	40.9	40.9	40.9	40.6	39.2	34.1	34.1	34.1	34.2	34.1	34.2	Baseline Offset (In Feet)
		0.0	0.0	-0.4	-1.3	-5.1	0.0	0.0	0.1	-0.1	0.1	Incremental Change
		0.0	0.0	-0.4	-1.7	-6.8	-6.8	-6.8	-6.7	-6.8	-6.8	Cumulative Change

Alpine CP 00
HDD West Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations											Description
	See Drawing CE-CP00-143 Rev 10 for Survey Baseline Location											
	4/7/2002	7/8/2002	7/10/2003	6/20/2004	7/10/2005	8/19/2006	8/31/2007	8/5/2008	7/31/2009	7/8/2010	8/1/2011	Date
2+70	41.1	41.1	41.1	40.3	40.3	33.3	33.3	33.3	33.4	33.3	33.3	Baseline Offset (In Feet)
		0.0	0.0	-0.8	0.0	-7.0	0.0	0.0	0.1	-0.1	0.0	Incremental Change
		0.0	0.0	-0.8	-0.8	-7.8	-7.8	-7.8	-7.7	-7.8	-7.8	Cumulative Change
2+75	41.3	41.3	41.3	39.9	39.9	33.3	33.3	33.3	33.3	33.3	33.3	Baseline Offset (In Feet)
		0.0	0.0	-1.4	0.0	-6.6	0.0	0.0	0.0	0.0	0.0	Incremental Change
		0.0	0.0	-1.4	-1.4	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	Cumulative Change
2+80	41.5	41.5	41.5	39.4	39.4	34.6	34.6	34.6	34.2	34.6	33.5	Baseline Offset (In Feet)
		0.0	0.0	-2.2	0.0	-4.8	0.0	0.0	-0.4	0.4	-1.1	Incremental Change
		0.0	0.0	-2.2	-2.2	-6.9	-6.9	-6.9	-7.3	-6.9	-8.0	Cumulative Change
2+85	41.7	41.7	41.7	39.6	39.6	37.8	37.8	37.8	37.6	37.8	36.1	Baseline Offset (In Feet)
		0.0	0.0	-2.1	0.0	-1.8	0.0	0.0	-0.2	0.2	-1.7	Incremental Change
		0.0	0.0	-2.1	-2.1	-3.9	-3.9	-3.9	-4.1	-3.9	-5.6	Cumulative Change
2+90	43.5	43.5	41.5	40.8	40.8	38.5	38.5	38.5	38.5	38.5	38.6	Baseline Offset (In Feet)
		0.0	-1.9	-0.7	0.0	-2.3	0.0	0.0	0.0	0.0	0.1	Incremental Change
		0.0	-1.9	-2.6	-2.6	-5.0	-5.0	-5.0	-5.0	-5.0	-4.9	Cumulative Change
3+00	47.0	47.0	46.1	46.1	44.8	41.6	41.6	41.6	41.6	40.5	40.3	Baseline Offset (In Feet)
		0.0	-0.9	0.0	-1.3	-3.2	0.0	0.0	0.0	-1.1	-0.3	Incremental Change
		0.0	-0.9	-0.9	-2.2	-5.4	-5.4	-5.4	-5.4	-6.5	-6.7	Cumulative Change
3+10	47.1	43.6	43.6	43.6	43.6	43.2	43.2	43.2	43.2	39.8	39.2	Baseline Offset (In Feet)
		-3.5	0.0	0.0	0.0	-0.4	0.0	0.0	0.0	-3.4	-0.6	Incremental Change
		-3.5	-3.5	-3.5	-3.5	-3.8	-3.8	-3.8	-3.8	-7.3	-7.9	Cumulative Change

Alpine CP 00
HDD West Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations											Description
	See Drawing CE-CP00-143 Rev 10 for Survey Baseline Location											
	4/7/2002	7/8/2002	7/10/2003	6/20/2004	7/10/2005	8/19/2006	8/31/2007	8/5/2008	7/31/2009	7/8/2010	8/1/2011	Date
3+15	47.4	42.9	42.9	42.9	42.3	42.9	42.9	42.0	42.0	39.4	38.9	Baseline Offset (In Feet)
		-4.5	0.0	0.0	-0.6	0.6	0.0	-0.9	0.0	-2.6	-0.5	Incremental Change
		-4.5	-4.5	-4.5	-5.2	-4.6	-4.5	-5.4	-5.4	-8.0	-8.5	Cumulative Change
3+25	47.3	44.6	44.6	44.4	42.3	38.9	38.9	37.4	37.4	36.9	36.7	Baseline Offset (In Feet)
		-2.7	0.0	-0.2	-2.1	-3.4	0.0	-1.5	0.0	-0.5	-0.2	Incremental Change
		-2.7	-2.7	-2.9	-5.0	-8.4	-8.4	-9.9	-9.9	-10.4	-10.6	Cumulative Change
3+30	45.4	44.0	44.0	43.2	42.7	36.2	36.2	35.4	35.4	35.2	35.1	Baseline Offset (In Feet)
		-1.4	0.0	-0.9	-0.5	-6.5	0.0	-0.8	0.0	-0.2	-0.1	Incremental Change
		-1.4	-1.4	-2.3	-2.7	-9.2	-9.2	-10.0	-10.0	-10.2	-10.3	Cumulative Change
3+35	43.4	43.4	43.4	43.4	42.0	36.4	36.4	35.8	35.8	35.8	35.5	Baseline Offset (In Feet)
		0.0	0.0	0.0	-1.4	-5.6	0.0	-0.6	0.0	0.0	-0.3	Incremental Change
		0.0	0.0	0.0	-1.4	-7.0	-7.0	-7.6	-7.6	-7.6	-7.9	Cumulative Change
3+40	44.8	44.8	44.0	44.0	41.3	41.1	41.1	40.1	40.1	40.1	38.7	Baseline Offset (In Feet)
		0.0	-0.8	0.0	-2.6	-0.3	0.0	-1.0	0.0	0.0	-1.4	Incremental Change
		0.0	-0.8	-0.8	-3.5	-3.7	-3.7	-4.7	-4.7	-4.7	-6.1	Cumulative Change
3+45	45.2	45.2	44.2	44.2	42.8	41.5	41.5	40.7	40.7	40.7	38.8	Baseline Offset (In Feet)
		0.0	-1.0	0.0	-1.5	-1.3	0.0	-0.8	0.0	0.0	-1.9	Incremental Change
		0.0	-1.0	-1.0	-2.5	-3.7	-3.7	-4.5	-4.5	-4.5	-6.4	Cumulative Change
3+50	44.9	44.9	44.2	44.2	42.3	41.4	41.4	40.8	40.8	40.8	38.7	Baseline Offset (In Feet)
		0.0	-0.6	0.0	-1.9	-0.9	0.0	-0.6	0.0	0.0	-2.1	Incremental Change
		0.0	-0.7	-0.7	-2.6	-3.5	-3.5	-4.1	-4.1	-4.1	-6.2	Cumulative Change

Alpine CP 00
HDD West Site
Streambank Monitor

Baseline	**Streambank Monitor - Top of Bank Locations**											**Description**
Station	See Drawing CE-CP00-143 Rev 10 for Survey Baseline Location											
	4/7/2002	**7/8/2002**	**7/10/2003**	**6/20/2004**	**7/10/2005**	**8/19/2006**	**8/31/2007**	**8/5/2008**	**7/31/2009**	**7/8/2010**	**8/1/2011**	**Date**
3+60	44.1	44.1	44.1	44.1	43.4	41.4	41.4	41.4	41.0	41.4	38.4	Baseline Offset (In Feet)
		0.0	0.0	0.0	-0.7	-2.0	0.0	0.0	-0.4	0.4	-3.0	Incremental Change
		0.0	0.0	0.0	-0.7	-2.7	-2.7	-2.7	-3.1	-2.7	-5.7	Cumulative Change
3+70	44.7	44.7	42.8	41.8	41.0	26.0	26.0	26.0	26.0	26.0	26.2	Baseline Offset (In Feet)
		0.0	-1.9	-1.1	-0.8	-15.0	0.0	0.0	0.0	0.0	0.1	Incremental Change
		0.0	-1.9	-2.9	-3.7	-18.7	-18.7	-18.7	-18.7	-18.7	-18.6	Cumulative Change
3+75	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.8	Baseline Offset (In Feet)
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	Incremental Change
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	Cumulative Change
3+85	23.1	23.1	23.1	23.1	23.1	23.0	23.0	23.0	23.1	23.0	23.0	Baseline Offset (In Feet)
		0.0	0.0	0.0	0.0	-0.1	0.0	0.0	0.1	-0.1	0.0	Incremental Change
		0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	0.0	-0.1	-0.1	Cumulative Change
4+00	28.4	28.4	28.4	28.4	26.5	26.5	26.5	26.5	26.4	26.5	26.3	Baseline Offset (In Feet)
		0.0	0.0	0.0	-1.8	0.0	0.0	0.0	-0.1	0.1	-0.2	Incremental Change
		0.0	0.0	0.0	-1.9	-1.9	-1.9	-1.9	-2.0	-1.9	-2.1	Cumulative Change
4+10	37.4	37.1	37.1	37.1	33.0	33.0	33.0	33.0	34.0	34.0	32.2	Baseline Offset (In Feet)
		-0.3	0.0	0.0	-4.1	0.0	0.0	0.0	1.0	0.0	-1.8	Incremental Change
		-0.3	-0.3	-0.3	-4.4	-4.4	-4.4	-4.4	-3.4	-3.4	-5.2	Cumulative Change
4+25	45.9	42.2	42.2	42.2	40.4	40.3	40.2	40.0	40.0	40.0	38.1	Baseline Offset (In Feet)
		-3.7	0.0	0.0	-1.9	0.0	-0.1	-0.2	0.0	0.0	-1.9	Incremental Change
		-3.7	-3.7	-3.7	-5.6	-5.6	-5.7	-5.9	-5.9	-5.9	-7.8	Cumulative Change

Alpine CP 00
HDD West Site
Streambank Monitor

Baseline	**Streambank Monitor - Top of Bank Locations**											**Description**
Station	See Drawing CE-CP00-143 Rev 10 for Survey Baseline Location											
	4/7/2002	**7/8/2002**	**7/10/2003**	**6/20/2004**	**7/10/2005**	**8/19/2006**	**8/31/2007**	**8/5/2008**	**7/31/2009**	**7/8/2010**	**8/1/2011**	**Date**
4+30	47.3	43.2	43.2	42.1	41.2	41.1	41.1	40.5	40.5	40.5	39.7	Baseline Offset (In Feet)
		-4.1	0.0	-1.1	-0.9	-0.1	0.0	-0.6	0.0	0.0	-0.8	Incremental Change
		-4.1	-4.1	-5.2	-6.1	-6.2	-6.2	-6.8	-6.8	-6.8	-7.6	Cumulative Change
4+35	48.8	43.1	43.1	41.9	41.9	41.8	41.8	41.1	41.1	41.1	41.0	Baseline Offset (In Feet)
		-5.7	0.0	-1.3	0.0	-0.1	0.0	-0.7	0.0	0.0	-0.1	Incremental Change
		-5.7	-5.7	-6.9	-6.9	-7.1	-7.0	-7.7	-7.7	-7.7	-7.8	Cumulative Change
4+40	50.9	42.5	42.5	42.1	42.1	42.1	42.1	41.9	41.9	41.9	41.7	Baseline Offset (In Feet)
		-8.4	0.0	-0.4	0.0	0.0	0.1	-0.2	0.0	0.0	-0.2	Incremental Change
		-8.4	-8.4	-8.8	-8.8	-8.9	-8.8	-9.0	-9.0	-9.0	-9.2	Cumulative Change

*****Note:** Survey completed on 4/7/02 was used for baseline data to compute Incremental/Cumulative Change. Negative numbers indicate erosion.

Alpine CP 00
HDD West Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations											Description
	See Drawing CE-CP00-143 Rev 13 for Survey Baseline Location											
	7/23/2012	7/17/2013	8/10/2014	Future	Future	Future	Future	Future	Future	Future	Future	Date
0+00	39.6	39.6	39.6									Baseline Offset (In Feet)
	0.2	0.0	0.0									Incremental Change
	0.1	0.1	0.1									Cumulative Change
0+05	37.8	37.8	37.8									Baseline Offset (In Feet)
	0.1	0.0	0.0									Incremental Change
	-1.5	-1.5	-1.5									Cumulative Change
0+10	38.8	38.8	38.8									Baseline Offset (In Feet)
	0.1	0.0	0.0									Incremental Change
	-0.5	-0.5	-0.5									Cumulative Change
0+20	40.1	40.1	40.1									Baseline Offset (In Feet)
	0.4	0.0	0.0									Incremental Change
	-5.6	-5.6	-5.6									Cumulative Change
0+25	37.9	37.9	37.9									Baseline Offset (In Feet)
	0.3	0.0	0.0									Incremental Change
	-3.7	-3.7	-3.7									Cumulative Change
0+30	38.1	38.1	38.1									Baseline Offset (In Feet)
	0.2	0.0	0.0									Incremental Change
	0.4	0.4	0.4									Cumulative Change
0+40	41.8	41.8	41.8									Baseline Offset (In Feet)
	0.2	0.0	0.0									Incremental Change
	-0.1	-0.1	-0.1									Cumulative Change

Alpine CP 00
HDD West Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations											Description
	See Drawing CE-CP00-143 Rev 13 for Survey Baseline Location											
	7/23/2012	7/17/2013	8/10/2014	Future	Future	Future	Future	Future	Future	Future	Future	Date
0+50	44.3	44.3	44.3									Baseline Offset (In Feet)
	0.3	0.0	0.0									Incremental Change
	2.3	2.3	2.3									Cumulative Change
0+60	46.3	46.3	46.3									Baseline Offset (In Feet)
	0.0	0.0	0.0									Incremental Change
	4.9	4.9	4.9									Cumulative Change
0+70	42.1	42.1	42.1									Baseline Offset (In Feet)
	0.0	0.0	0.0									Incremental Change
	1.4	1.4	1.4									Cumulative Change
0+75	21.4	21.4	21.4									Baseline Offset (In Feet)
	0.0	0.0	0.0									Incremental Change
	0.0	0.0	0.0									Cumulative Change
0+80	20.3	20.3	20.3									Baseline Offset (In Feet)
	0.1	0.0	0.0									Incremental Change
	0.2	0.2	0.2									Cumulative Change
0+85	30.7	30.7	30.1									Baseline Offset (In Feet)
	0.4	0.0	-0.6									Incremental Change
	1.7	1.7	1.1									Cumulative Change
0+90	43.6	43.6	43.6									Baseline Offset (In Feet)
	0.2	0.0	0.0									Incremental Change
	0.8	0.8	0.8									Cumulative Change

Alpine CP 00
HDD West Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations											Description
	See Drawing CE-CP00-143 Rev 13 for Survey Baseline Location											
	7/23/2012	7/17/2013	8/10/2014	Future	Future	Future	Future	Future	Future	Future	Future	Date
1+00	39.1	39.1	39.1									Baseline Offset (In Feet)
	0.1	0.0	0.0									Incremental Change
	0.4	0.4	0.4									Cumulative Change
1+05	38.2	38.2	38.2									Baseline Offset (In Feet)
	0.2	0.0	0.0									Incremental Change
	0.3	0.3	0.3									Cumulative Change
1+10	39.4	39.4	39.4									Baseline Offset (In Feet)
	0.2	0.0	0.0									Incremental Change
	-2.0	-2.0	-2.0									Cumulative Change
1+15	39.5	39.5	39.5									Baseline Offset (In Feet)
	0.2	0.0	0.0									Incremental Change
	1.3	1.3	1.3									Cumulative Change
1+20	40.7	40.7	40.7									Baseline Offset (In Feet)
	0.2	0.0	0.0									Incremental Change
	1.3	1.3	1.3									Cumulative Change
1+25	42.3	42.3	42.3									Baseline Offset (In Feet)
	0.2	0.0	0.0									Incremental Change
	0.9	0.9	0.9									Cumulative Change
1+30	43.8	43.8	43.8									Baseline Offset (In Feet)
	0.2	0.0	0.0									Incremental Change
	0.8	0.8	0.8									Cumulative Change

Alpine CP 00
HDD West Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations											Description
	See Drawing CE-CP00-143 Rev 13 for Survey Baseline Location											
	7/23/2012	7/17/2013	8/10/2014	Future	Future	Future	Future	Future	Future	Future	Future	Date
1+35	44.3	44.3	44.3									Baseline Offset (In Feet)
	0.2	0.0	0.0									Incremental Change
	0.1	0.1	0.1									Cumulative Change
1+40	43.7	43.7	43.7									Baseline Offset (In Feet)
	0.2	0.0	0.0									Incremental Change
	-1.6	-1.6	-1.6									Cumulative Change
1+45	43.4	43.4	43.4									Baseline Offset (In Feet)
	0.1	0.0	0.0									Incremental Change
	-2.3	-2.3	-2.3									Cumulative Change
1+50	43.5	43.5	43.5									Baseline Offset (In Feet)
	0.1	0.0	0.0									Incremental Change
	-2.2	-2.2	-2.2									Cumulative Change
1+60	43.6	43.6	43.6									Baseline Offset (In Feet)
	-0.1	0.0	0.0									Incremental Change
	-2.2	-2.2	-2.2									Cumulative Change
1+65	43.5	43.5	43.5									Baseline Offset (In Feet)
	-0.1	0.0	0.0									Incremental Change
	-2.4	-2.4	-2.4									Cumulative Change
1+75	42.8	42.8	42.8									Baseline Offset (In Feet)
	0.1	0.0	0.0									Incremental Change
	-3.1	-3.1	-3.1									Cumulative Change

Alpine CP 00
HDD West Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations											Description
	See Drawing CE-CP00-143 Rev 13 for Survey Baseline Location											
	7/23/2012	7/17/2013	8/10/2014	Future	Future	Future	Future	Future	Future	Future	Future	Date
1+90	40.0	40.0	40.0									Baseline Offset (In Feet)
	-0.1	0.0	0.0									Incremental Change
	-5.1	-5.1	-5.1									Cumulative Change
1+95	38.2	38.2	38.2									Baseline Offset (In Feet)
	0.3	0.0	0.0									Incremental Change
	-6.7	-6.7	-6.7									Cumulative Change
2+00	38.6	38.6	38.6									Baseline Offset (In Feet)
	0.3	0.0	0.0									Incremental Change
	-6.1	-6.1	-6.1									Cumulative Change
2+05	38.6	38.6	38.6									Baseline Offset (In Feet)
	0.3	0.0	0.0									Incremental Change
	-5.9	-5.9	-5.9									Cumulative Change
2+10	37.9	37.9	37.9									Baseline Offset (In Feet)
	0.3	0.0	0.0									Incremental Change
	-5.8	-5.8	-5.8									Cumulative Change
2+20	36.3	36.3	36.3									Baseline Offset (In Feet)
	0.2	0.0	0.0									Incremental Change
	-5.2	-5.2	-5.2									Cumulative Change
2+25	35.2	35.2	35.2									Baseline Offset (In Feet)
	0.1	0.0	0.0									Incremental Change
	-6.8	-6.8	-6.8									Cumulative Change

Alpine CP 00
HDD West Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations											Description
	See Drawing CE-CP00-143 Rev 13 for Survey Baseline Location											
	7/23/2012	7/17/2013	8/10/2014	Future	Future	Future	Future	Future	Future	Future	Future	Date
2+30	34.2	34.2	34.2									Baseline Offset (In Feet)
	0.0	0.0	0.0									Incremental Change
	-8.2	-8.2	-8.2									Cumulative Change
2+35	33.3	33.3	33.3									Baseline Offset (In Feet)
	0.2	0.0	0.0									Incremental Change
	-7.7	-7.7	-7.7									Cumulative Change
2+45	33.5	33.5	33.5									Baseline Offset (In Feet)
	0.2	0.0	0.0									Incremental Change
	-4.8	-4.8	-4.8									Cumulative Change
2+50	34.8	34.8	34.8									Baseline Offset (In Feet)
	0.1	0.0	0.0									Incremental Change
	-4.2	-4.2	-4.2									Cumulative Change
2+55	36.0	36.0	36.0									Baseline Offset (In Feet)
	0.0	0.0	0.0									Incremental Change
	-3.9	-3.9	-3.9									Cumulative Change
2+60	35.3	35.3	35.3									Baseline Offset (In Feet)
	0.1	0.0	0.0									Incremental Change
	-5.4	-5.4	-5.4									Cumulative Change
2+65	34.2	34.2	34.2									Baseline Offset (In Feet)
	0.1	0.0	0.0									Incremental Change
	-6.7	-6.7	-6.7									Cumulative Change

Alpine CP 00
HDD West Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations											Description
	See Drawing CE-CP00-143 Rev 13 for Survey Baseline Location											
	7/23/2012	7/17/2013	8/10/2014	Future	Future	Future	Future	Future	Future	Future	Future	Date
2+70	33.4	33.4	33.4									Baseline Offset (In Feet)
	0.1	0.0	0.0									Incremental Change
	-7.7	-7.7	-7.7									Cumulative Change
2+75	33.3	33.3	33.3									Baseline Offset (In Feet)
	0.0	0.0	0.0									Incremental Change
	-8.0	-8.0	-8.0									Cumulative Change
2+80	34.5	34.5	34.5									Baseline Offset (In Feet)
	0.9	0.0	0.0									Incremental Change
	-7.1	-7.1	-7.1									Cumulative Change
2+85	37.7	37.7	37.7									Baseline Offset (In Feet)
	1.6	0.0	0.0									Incremental Change
	-4.0	-4.0	-4.0									Cumulative Change
2+90	38.5	38.5	38.5									Baseline Offset (In Feet)
	-0.1	0.0	0.0									Incremental Change
	-5.0	-5.0	-5.0									Cumulative Change
3+00	39.3	39.3	39.3									Baseline Offset (In Feet)
	-1.0	0.0	0.0									Incremental Change
	-7.7	-7.7	-7.7									Cumulative Change
3+10	35.0	35.0	35.0									Baseline Offset (In Feet)
	-4.2	0.0	0.0									Incremental Change
	-12.1	-12.1	-12.1									Cumulative Change

Alpine CP 00
HDD West Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations											Description
	See Drawing CE-CP00-143 Rev 13 for Survey Baseline Location											
	7/23/2012	7/17/2013	8/10/2014	Future	Future	Future	Future	Future	Future	Future	Future	Date
3+15	33.5	33.5	33.5									Baseline Offset (In Feet)
	-5.4	0.0	0.0									Incremental Change
	-13.9	-13.9	-13.9									Cumulative Change
3+25	38.3	38.3	38.3									Baseline Offset (In Feet)
	1.6	0.0	0.0									Incremental Change
	-9.0	-9.0	-9.0									Cumulative Change
3+30	38.2	38.2	38.2									Baseline Offset (In Feet)
	3.1	0.0	0.0									Incremental Change
	-7.2	-7.2	-7.2									Cumulative Change
3+35	38.2	38.2	38.2									Baseline Offset (In Feet)
	2.6	0.0	0.0									Incremental Change
	-5.3	-5.3	-5.3									Cumulative Change
3+40	38.9	38.9	38.9									Baseline Offset (In Feet)
	0.1	0.0	0.0									Incremental Change
	-6.0	-6.0	-6.0									Cumulative Change
3+45	38.8	38.7	38.7									Baseline Offset (In Feet)
	0.0	-0.1	0.0									Incremental Change
	-6.4	-6.5	-6.5									Cumulative Change
3+50	38.7	38.2	38.2									Baseline Offset (In Feet)
	0.0	-0.5	0.0									Incremental Change
	-6.2	-6.7	-6.7									Cumulative Change

Alpine CP 00
HDD West Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations											Description
	See Drawing CE-CP00-143 Rev 13 for Survey Baseline Location											
	7/23/2012	7/17/2013	8/10/2014	Future	Future	Future	Future	Future	Future	Future	Future	Date
3+60	38.4	37.3	37.3									Baseline Offset (In Feet)
	0.0	-1.1	0.0									Incremental Change
	-5.7	-6.8	-6.8									Cumulative Change
3+70	26.0	26.0	26.0									Baseline Offset (In Feet)
	-0.2	0.0	0.0									Incremental Change
	-18.7	-18.7	-18.7									Cumulative Change
3+75	23.6	23.6	23.6									Baseline Offset (In Feet)
	-0.2	0.0	0.0									Incremental Change
	0.0	0.0	0.0									Cumulative Change
3+85	23.0	23.0	23.0									Baseline Offset (In Feet)
	0.0	0.0	0.0									Incremental Change
	-0.1	-0.1	-0.1									Cumulative Change
4+00	26.4	26.4	26.4									Baseline Offset (In Feet)
	0.1	0.0	0.0									Incremental Change
	-2.0	-2.0	-2.0									Cumulative Change
4+10	32.1	32.1	32.1									Baseline Offset (In Feet)
	-0.1	0.0	0.0									Incremental Change
	-5.3	-5.3	-5.3									Cumulative Change
4+25	38.0	38.0	38.0									Baseline Offset (In Feet)
	-0.1	0.0	0.0									Incremental Change
	-8.0	-8.0	-8.0									Cumulative Change

Alpine CP 00
HDD West Site
Streambank Monitor

Baseline	**Streambank Monitor - Top of Bank Locations**											**Description**
Station	See Drawing CE-CP00-143 Rev 13 for Survey Baseline Location											
	7/23/2012	**7/17/2013**	**8/10/2014**	**Future**	**Future**	**Future**	**Future**	**Future**	**Future**	**Future**	**Future**	**Date**
4+30	39.5	39.5	39.5									Baseline Offset (In Feet)
	-0.1	0.0	0.0									Incremental Change
	-7.8	-7.8	-7.8									Cumulative Change
4+35	40.9	40.9	40.9									Baseline Offset (In Feet)
	-0.1	0.0	0.0									Incremental Change
	-7.9	-7.9	-7.9									Cumulative Change
4+40	41.6	41.6	41.6									Baseline Offset (In Feet)
	0.0	0.0	0.0									Incremental Change
	-9.3	-9.3	-9.3									Cumulative Change

*****Note:** Survey completed on 4/7/02 was used for baseline data to compute Incremental/Cumulative Change. Negative numbers indicate erosion.

Alpine CP 00
HDD West Site
Pilecap Monitor

Pile Cap Designation	Pile Cap Monitor - Bottom of Pile Cap Locations									Description
	6/20/2004	8/4/2005	8/19/2006	8/31/2007	8/7/2008	8/3/2009	7/8/2010	8/3/2011	7/23/2012	Date
W-01 NE Cor	26.389	26.389	26.391	26.398	26.397	26.401	26.401	26.413	26.420	Bottom of Pile Cap (In Feet)
		0.000	0.002	0.007	-0.001	0.004	0.000	0.012	0.007	Incremental Change
		0.000	0.002	0.009	0.008	0.012	0.012	0.024	0.031	Cumulative Change
W-02 NE Cor	26.391	26.390	26.390	26.400	26.397	26.403	26.401	26.416	26.420	Bottom of Pile Cap (In Feet)
		-0.001	0.000	0.010	-0.003	0.006	-0.002	0.015	0.004	Incremental Change
		-0.001	-0.001	0.009	0.006	0.012	0.010	0.025	0.029	Cumulative Change
W-03 NE Cor	26.391	26.391	26.394	26.400	26.398	26.403	26.401	26.414	26.420	Bottom of Pile Cap (In Feet)
		0.000	0.003	0.006	-0.002	0.005	-0.002	0.013	0.006	Incremental Change
		0.000	0.003	0.009	0.007	0.012	0.010	0.023	0.029	Cumulative Change
W-04 NE Cor	26.389	26.388	26.390	26.394	26.394	26.396	26.397	26.407	26.415	Bottom of Pile Cap (In Feet)
		-0.001	0.002	0.004	0.000	0.002	0.001	0.010	0.008	Incremental Change
		-0.001	0.001	0.005	0.005	0.007	0.008	0.018	0.026	Cumulative Change
W-05 NE Cor	26.383	26.378	26.386	26.390	26.389	26.393	26.393	26.404	26.410	Bottom of Pile Cap (In Feet)
		-0.005	0.008	0.004	-0.001	0.004	0.000	0.011	0.006	Incremental Change
		-0.005	0.003	0.007	0.006	0.010	0.010	0.021	0.027	Cumulative Change
W-06 NE Cor	26.395	26.391	26.394	26.400	26.397	26.401	26.401	26.412	26.416	Bottom of Pile Cap (In Feet)
		-0.004	0.003	0.006	-0.003	0.004	0.000	0.011	0.004	Incremental Change
		-0.004	-0.001	0.005	0.002	0.006	0.006	0.017	0.021	Cumulative Change
W-07 NE Cor	26.397	26.393	26.402	26.406	26.404	26.408	26.405	26.419	26.423	Bottom of Pile Cap (In Feet)
		-0.004	0.009	0.004	-0.002	0.004	-0.003	0.014	0.004	Incremental Change
		-0.004	0.005	0.009	0.007	0.011	0.008	0.022	0.026	Cumulative Change

Alpine CP 00
HDD West Site
Pilecap Monitor

Pile Cap Designation	Pile Cap Monitor - Bottom of Pile Cap Locations									Description
	6/20/2004	8/4/2005	8/19/2006	8/31/2007	8/7/2008	8/3/2009	7/8/2010	8/3/2011	7/23/2012	Date
W-08 NE Cor	26.403	26.401	26.404	26.408	26.406	26.412	26.410	26.423	26.422	Bottom of Pile Cap (In Feet)
		-0.002	0.003	0.004	-0.002	0.006	-0.002	0.013	-0.001	Incremental Change
		-0.002	0.001	0.005	0.003	0.009	0.007	0.020	0.019	Cumulative Change
W-09 NE Cor	31.291	31.294	31.292	31.290	31.292	31.294	31.296	31.301	31.297	Bottom of Pile Cap (In Feet)
		0.003	-0.002	-0.002	0.002	0.002	0.002	0.005	-0.004	Incremental Change
		0.003	0.001	-0.001	0.001	0.003	0.005	0.010	0.006	Cumulative Change
W-10 NE Cor	31.266	31.261	31.261	31.264	31.263	31.263	31.262	31.264	31.263	Bottom of Pile Cap (In Feet)
		-0.005	0.000	0.003	-0.001	0.000	-0.001	0.002	-0.001	Incremental Change
		-0.005	-0.005	-0.002	-0.003	-0.003	-0.004	-0.002	-0.003	Cumulative Change
W-11 NE Cor	31.299	31.300	31.288	31.294	31.299	31.304	31.299	31.304	31.302	Bottom of Pile Cap (In Feet)
		0.001	-0.012	0.006	0.005	0.005	-0.005	0.005	-0.002	Incremental Change
		0.001	-0.011	-0.005	0.000	0.005	0.000	0.005	0.003	Cumulative Change
W-12 NE Cor	31.301	31.301	31.298	31.294	31.297	31.298	31.296	31.301	31.298	Bottom of Pile Cap (In Feet)
		0.000	-0.003	-0.004	0.003	0.001	-0.002	0.005	-0.003	Incremental Change
		0.000	-0.003	-0.007	-0.004	-0.003	-0.005	0.000	-0.003	Cumulative Change
W-13 NE Cor	27.377	27.373	27.383	27.393	27.389	27.391	27.394	27.401	27.408	Bottom of Pile Cap (In Feet)
		-0.004	0.010	0.010	-0.004	0.002	0.003	0.007	0.007	Incremental Change
		-0.004	0.006	0.016	0.012	0.014	0.017	0.024	0.031	Cumulative Change
W-14 NE Cor	27.428	27.423	27.433	27.439	27.442	27.442	27.454	27.455	27.462	Bottom of Pile Cap (In Feet)
		-0.005	0.010	0.006	0.003	0.000	0.012	0.001	0.007	Incremental Change
		-0.005	0.005	0.011	0.014	0.014	0.026	0.027	0.034	Cumulative Change

Alpine CP 00
HDD West Site
Pilecap Monitor

Pile Cap Designation	Pile Cap Monitor - Bottom of Pile Cap Locations									Description
	6/20/2004	8/4/2005	8/19/2006	8/31/2007	8/7/2008	8/3/2009	7/8/2010	8/3/2011	7/23/2012	Date
W-15 NE Cor	27.413	27.407	27.407	27.425	27.428	27.425	27.434	27.436	27.442	Bottom of Pile Cap (In Feet)
		-0.006	0.000	0.018	0.003	-0.003	0.009	0.002	0.006	Incremental Change
		-0.006	-0.006	0.012	0.015	0.012	0.021	0.023	0.029	Cumulative Change
W-16 NE Cor	27.389	27.385	27.392	27.416	27.400	27.404	27.410	27.414	27.421	Bottom of Pile Cap (In Feet)
		-0.004	0.007	0.024	-0.016	0.004	0.006	0.004	0.007	Incremental Change
		-0.004	0.003	0.027	0.011	0.015	0.021	0.025	0.032	Cumulative Change
W-17 NE Cor	28.940	28.947	28.944	28.940	28.945	28.946	28.942	28.948	28.943	Bottom of Pile Cap (In Feet)
		0.007	-0.003	-0.004	0.005	0.001	-0.004	0.006	-0.005	Incremental Change
		0.007	0.004	0.000	0.005	0.006	0.002	0.008	0.003	Cumulative Change
W-18 NE Cor	28.965	28.972	28.968	28.965	28.970	28.969	28.968	28.968	28.972	Bottom of Pile Cap (In Feet)
		0.007	-0.004	-0.003	0.005	-0.001	-0.001	0.000	0.004	Incremental Change
		0.007	0.003	0.000	0.005	0.004	0.003	0.003	0.007	Cumulative Change
W-19 NE Cor	28.959	28.962	28.960	28.956	28.958	28.958	28.955	28.955	28.952	Bottom of Pile Cap (In Feet)
		0.003	-0.002	-0.004	0.002	0.000	-0.003	0.000	-0.003	Incremental Change
		0.003	0.001	-0.003	-0.001	-0.001	-0.004	-0.004	-0.007	Cumulative Change
W-20 NE Cor	28.964	28.965	28.965	28.965	28.966	28.964	28.964	28.963	28.964	Bottom of Pile Cap (In Feet)
		0.001	0.000	0.000	0.001	-0.002	0.000	-0.001	0.001	Incremental Change
		0.001	0.001	0.001	0.002	0.000	0.000	-0.001	0.000	Cumulative Change

Note: Survey completed on 6/20/2004 was used to compute Incremental/Cumulative Change. Positive numbers indicate subsidence.

All Pile Caps are 0.083' Thick. Add Cap thickness to shown elevations for Top of Pile Cap Elevations

Alpine CP 00
HDD West Site
Pilecap Monitor

Pile Cap Designation	Pile Cap Monitor - Bottom of Pile Cap Locations									Description
	7/17/2013	8/9/2014	Future	Future	Future	Future	Future	Future	Future	Date
W-01 NE Cor	26.420	26.427								Bottom of Pile Cap (In Feet)
	0.000	0.007								Incremental Change
	0.031	0.038								Cumulative Change
W-02 NE Cor	26.422	26.427								Bottom of Pile Cap (In Feet)
	0.002	0.005								Incremental Change
	0.031	0.036								Cumulative Change
W-03 NE Cor	26.422	26.428								Bottom of Pile Cap (In Feet)
	0.002	0.006								Incremental Change
	0.031	0.037								Cumulative Change
W-04 NE Cor	26.419	26.424								Bottom of Pile Cap (In Feet)
	0.004	0.005								Incremental Change
	0.030	0.035								Cumulative Change
W-05 NE Cor	26.413	26.418								Bottom of Pile Cap (In Feet)
	0.003	0.005								Incremental Change
	0.030	0.035								Cumulative Change
W-06 NE Cor	26.422	26.425								Bottom of Pile Cap (In Feet)
	0.006	0.003								Incremental Change
	0.027	0.030								Cumulative Change
W-07 NE Cor	26.426	26.432								Bottom of Pile Cap (In Feet)
	0.003	0.006								Incremental Change
	0.029	0.035								Cumulative Change

Alpine CP 00
HDD West Site
Pilecap Monitor

Pile Cap Designation	Pile Cap Monitor - Bottom of Pile Cap Locations									Description
	7/17/2013	8/9/2014	Future	Future	Future	Future	Future	Future	Future	Date
W-08 NE Cor	26.430	26.435								Bottom of Pile Cap (In Feet)
	0.008	0.005								Incremental Change
	0.027	0.032								Cumulative Change
W-09 NE Cor	31.303	31.305								Bottom of Pile Cap (In Feet)
	0.006	0.002								Incremental Change
	0.012	0.014								Cumulative Change
W-10 NE Cor	31.266	31.266								Bottom of Pile Cap (In Feet)
	0.003	0.000								Incremental Change
	0.000	0.000								Cumulative Change
W-11 NE Cor	31.310	31.310								Bottom of Pile Cap (In Feet)
	0.008	0.000								Incremental Change
	0.011	0.011								Cumulative Change
W-12 NE Cor	31.302	31.303								Bottom of Pile Cap (In Feet)
	0.004	0.001								Incremental Change
	0.001	0.002								Cumulative Change
W-13 NE Cor	27.409	27.413								Bottom of Pile Cap (In Feet)
	0.001	0.004								Incremental Change
	0.032	0.036								Cumulative Change
W-14 NE Cor	27.463	27.468								Bottom of Pile Cap (In Feet)
	0.001	0.005								Incremental Change
	0.035	0.040								Cumulative Change

Alpine CP 00
HDD West Site
Pilecap Monitor

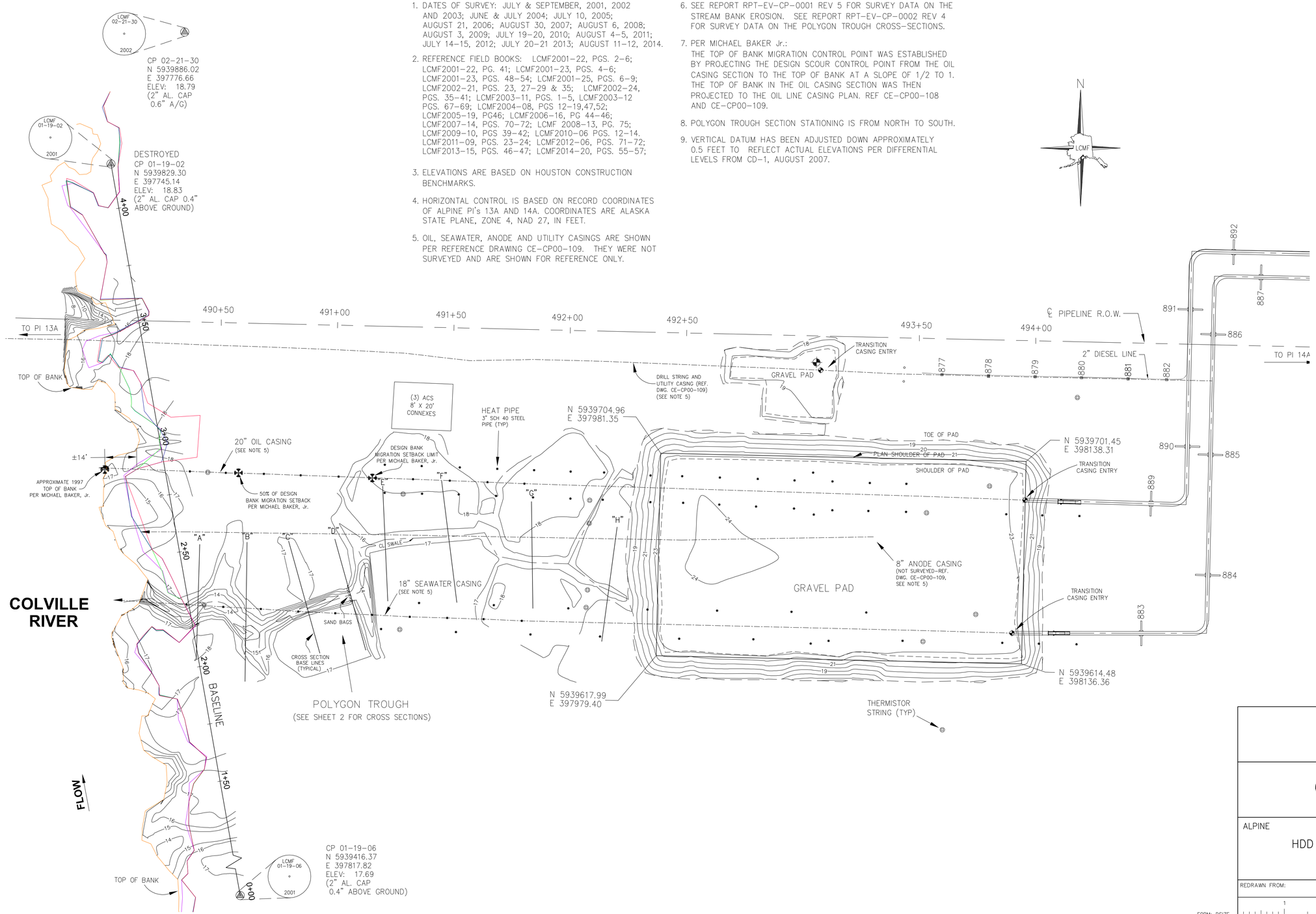
Pile Cap Designation	Pile Cap Monitor - Bottom of Pile Cap Locations									Description
	7/17/2013	8/9/2014	Future	Future	Future	Future	Future	Future	Future	Date
W-15 NE Cor	27.448	27.451								Bottom of Pile Cap (In Feet)
	0.006	0.003								Incremental Change
	0.035	0.038								Cumulative Change
W-16 NE Cor	27.421	27.428								Bottom of Pile Cap (In Feet)
	0.000	0.007								Incremental Change
	0.032	0.039								Cumulative Change
W-17 NE Cor	28.957	28.952								Bottom of Pile Cap (In Feet)
	0.014	-0.005								Incremental Change
	0.017	0.012								Cumulative Change
W-18 NE Cor	28.982	28.982								Bottom of Pile Cap (In Feet)
	0.010	0.000								Incremental Change
	0.017	0.017								Cumulative Change
W-19 NE Cor	28.970	28.963								Bottom of Pile Cap (In Feet)
	0.018	-0.007								Incremental Change
	0.011	0.004								Cumulative Change
W-20 NE Cor	28.973	28.973								Bottom of Pile Cap (In Feet)
	0.009	0.000								Incremental Change
	0.009	0.009								Cumulative Change
Note: Survey completed on 6/20/2004 was used to compute Incremental/Cumulative Change. Positive numbers indicate subsidence.										
All Pile Caps are 0.083' Thick. Add Cap thickness to shown elevations for Top of Pile Cap Elevations										

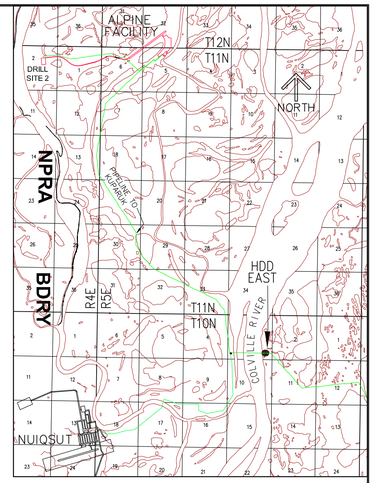
Appendix C HDD East Bank Erosion Survey

JOB NO: 02-205 | SUB JOB NO: | DRAWING NO: CE-CP00-134

NOTES:

1. DATES OF SURVEY: JULY & SEPTEMBER, 2001, 2002 AND 2003; JUNE & JULY 2004; JULY 10, 2005; AUGUST 21, 2006; AUGUST 30, 2007; AUGUST 6, 2008; AUGUST 3, 2009; JULY 19–20, 2010; AUGUST 4–5, 2011; JULY 14–15, 2012; JULY 20–21 2013; AUGUST 11–12, 2014.
2. REFERENCE FIELD BOOKS: LCMF2001–22, PGS. 2–6; LCMF2001–22, PG. 41; LCMF2001–23, PGS. 4–6; LCMF2001–23, PGS. 48–54; LCMF2001–25, PGS. 6–9; LCMF2002–21, PGS. 23, 27–29 & 35; LCMF2002–24, PGS. 35–41; LCMF2003–11, PGS. 1–5, LCMF2003–12 PGS. 67–69; LCMF2004–08, PGS 12–19,47,52; LCMF2005–19, PG46; LCMF2006–16, PG 44–46; LCMF2007–14, PGS. 70–72; LCMF 2008–13, PG. 75; LCMF2009–10, PGS 39–42; LCMF2010–06 PGS. 12–14. LCMF2011–09, PGS. 23–24; LCMF2012–06, PGS. 71–72; LCMF2013–15, PGS. 46–47; LCMF2014–20, PGS. 55–57;
3. ELEVATIONS ARE BASED ON HOUSTON CONSTRUCTION BENCHMARKS.
4. HORIZONTAL CONTROL IS BASED ON RECORD COORDINATES OF ALPINE PI's 13A AND 14A. COORDINATES ARE ALASKA STATE PLANE, ZONE 4, NAD 27, IN FEET.
5. OIL, SEAWATER, ANODE AND UTILITY CASINGS ARE SHOWN PER REFERENCE DRAWING CE–CP00–109. THEY WERE NOT SURVEYED AND ARE SHOWN FOR REFERENCE ONLY.
6. SEE REPORT RPT–EV–CP–0001 REV 5 FOR SURVEY DATA ON THE STREAM BANK EROSION. SEE REPORT RPT–EV–CP–0002 REV 4 FOR SURVEY DATA ON THE POLYGON TROUGH CROSS–SECTIONS.
7. PER MICHAEL BAKER Jr.: THE TOP OF BANK MIGRATION CONTROL POINT WAS ESTABLISHED BY PROJECTING THE DESIGN SCOUR CONTROL POINT FROM THE OIL CASING SECTION TO THE TOP OF BANK AT A SLOPE OF 1/2 TO 1. THE TOP OF BANK IN THE OIL CASING SECTION WAS THEN PROJECTED TO THE OIL LINE CASING PLAN. REF CE–CP00–108 AND CE–CP00–109.
8. POLYGON TROUGH SECTION STATIONING IS FROM NORTH TO SOUTH.
9. VERTICAL DATUM HAS BEEN ADJUSTED DOWN APPROXIMATELY 0.5 FEET TO REFLECT ACTUAL ELEVATIONS PER DIFFERENTIAL LEVELS FROM CD–1, AUGUST 2007.





VICINITY MAP
NO SCALE

LEGEND

- HEAT PIPE
- THERMISTOR STRING
- TRANSITION CASING ENTRY POINT
- 21 1' CONTOUR LINES
- PILE
- SURVEY CONTROL
- MICHAEL BAKER Jr. MIGRATION POINT
- TOP OF BANK 9/8/01
- TOP OF BANK 7/20/10
- TOP OF BANK 8/4/11
- TOP OF BANK 7/14/12
- TOP OF BANK 7/21/13
- TOP OF BANK 08/12/14

GRAPHIC SCALE

20 0 10 20 40
(IN FEET)
1 inch = 20 ft.

FORM: DSIZE

REFERENCE DWG NO/SHT NO:
CE–CP00–109
PD–CP00–130 SHEET 1

REV	DATE	REVISIONS	BY	CHK	JOB ENGR	PROJ ENGR	CUST APP
11	7/15/12	UPDATED PER 9101901ACS	AG	GD			
10	8/5/11	UPDATED PER 8292382ACS	AG	DB			
9	7/21/10	ISSUED PER 7224503ACS	AG	DB			
8	8/5/09	UPDATED PER 6370813ACS	AG	GD			
7	8/6/08	UPDATED PER 5538034ACS	CZ	GD			
6	8/30/07	UPDATED PER 4810351ACS	CZ	DB			
5	8/25/06	UPDATED PER 4116808ACS	AG	DB			
4	7/11/05	UPDATED PER 3391755ACS	CZ	GD			
3	6/27/04	ISSUED PER 2390460ACS	CZ	BD			
2	12/31/03	ISSUED PER 2094387ACS–ADDED SHEET 2 AND 2003 DATA	GD/CZ	JZ			C/K
13	8/14/2014	UPDATED PER 20306694ACS	TB	GD			TM
12	7/21/13	UPDATED PER 9670829ACS	CZ	DB			

KUUKPIK LCMF LLC
815 E. 82nd Ave. Anchorage, Alaska 99518 (907)273-1830
Alpine Survey Office

ConocoPhillips Alaska, Inc.

ALPINE | MODULE: CP00 | UNIT: CP

HDD BANK EROSION TOPO/MONITORING
HDD SITE – EAST
ALPINE FACILITY

REDRAWN FROM: | CONSTRUCTION SHEET OF

1 2 3 4 5 6
DO NOT SCALE — ABOVE SCALE FOR REFERENCE ONLY

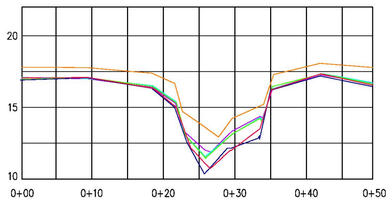
DATE: 7/31/01	DRAWN: GD/CZ	DESIGN:	ECM NO: A01007ACS
SCALE: 1"=20'	CHECKED: JZ		CC NO:
	APPROVAL: CD		CADD FILE NO. 01–12–05–1EAST
JOB NO: 02–205	SUB JOB NO:	DRAWING NO: CE–CP00–134	PART: 1 OF 2 / REV: 13

JOB NO:	SUB JOB NO:	DRAWING NO:
02-205		CE-CP00-134

CROSS SECTIONS, POLYGON TROUGH

HORIZONTAL SCALE = 1"=10' VERTICAL SCALE = 1"=5'

"A"



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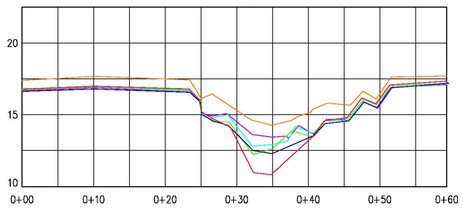

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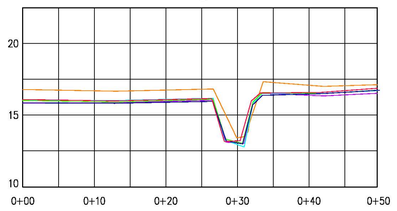

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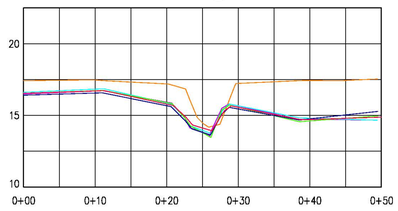

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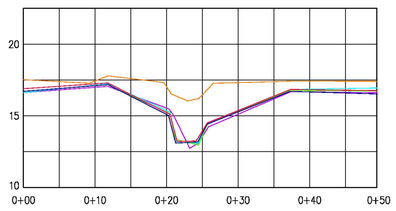

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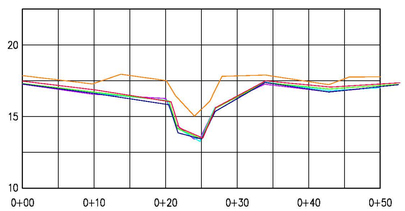

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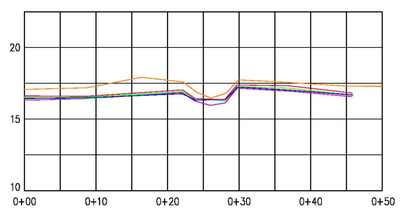
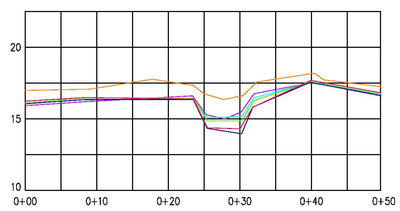


"H"

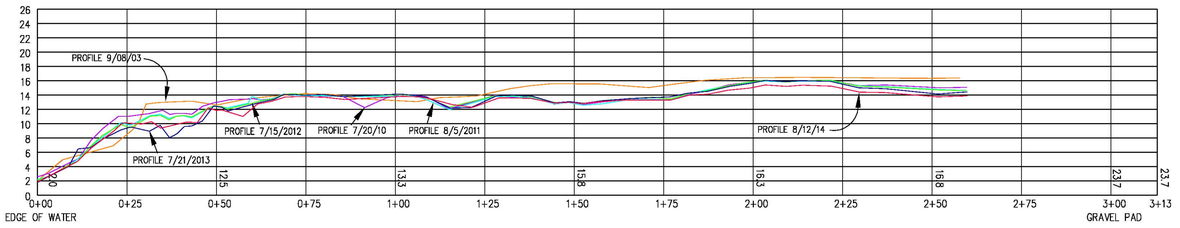


LEGEND

- CROSS SECTION 9/8/03
- CROSS SECTION 7/20/10
- CROSS SECTION 8/4/11
- CROSS SECTION 7/14/12
- CROSS SECTION 7/21/13
- CROSS SECTION 8/12/14

CENTERLINE PROFILE, POLYGON TROUGH

HORIZONTAL SCALE = 1"=20' VERTICAL SCALE = 1"=10'



KUUKPIK LCMF LLC
Alpine Survey Office

ConocoPhillips Alaska, Inc.

ALPINE MODULE: CP00 UNIT: CP

HDD BANK EROSION TOPO/MONITORING
HDD SITE – EAST
ALPINE FACILITY

REDRAWN FROM: CONSTRUCTION SHEET OF

1 2 3 4 5 6

DO NOT SCALE ABOVE SCALE FOR REFERENCE ONLY

DATE: 12/31/03	DRAWN: GD/CZ	DESIGN:	ECM NO: 2094387ACS
SCALE: 1"=20'	CHECKED: JZ		CC NO:
	APPROVAL: COLEGROVE/KANADY		CADD FILE NO. 01-12-05-1EAST
JOB NO: 02-205	SUB JOB NO:	DRAWING NO: CE-CP00-134	PART: 2 OF 2 / REV: 12

FORM: DSIZE

REFERENCE DWG NO/SHT NO:
CE-CP00-109
PD-CP00-130 SHEET 1

REV	DATE	REVISIONS	BY	CHK	JOB ENGR	PROJ ENGR	CUST APP
12	8/14/14	UPDATED PER 20306694ACS	TB	GD			
11	7/21/13	UPDATED PER 9670829ACS	CZ	DB			
10	7/16/12	UPDATED PER 9101901ACS	AG	GD			
9	8/5/11	UPDATED PER 8292382ACS	AG	DB			
8	7/21/10	ISSUED PER 7224503ACS	AG	DB			
7	8/6/09	UPDATED PER 6370813ACS	AG	GD			
6	8/6/08	UPDATED PER 5538034ACS	CZ	GD			
5	8/30/07	UPDATED PER 4810351ACS	CZ	DB			
4	8/25/06	UPDATED PER 4116808ACS	AG	DB			
3	7/28/05	UPDATED PER 3391755ACS	CZ	GD			
2	7/9/04	ISSUED PER 2390460ACS	AG	GD			
1	12/31/03	ISSUED PER 2094387ACS	GD	JZ			C/K

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 3 for Survey Baseline Stations										
	7/29/2001	8/7/2001	8/15/2001	8/23/2001	9/8/2001	7/8/2002	9/12/2002	7/9/2003	9/8/2003	6/19/2004	Date
0+10	N/A	N/A	N/A	N/A	N/A	N/A	-25.3	-25.3	-25.3	-25.3	Baseline Offset (In Feet)
								0.0	0.0	0.0	Incremental Change
								0.0	0.0	0.0	Cumulative Change
0+20	N/A	N/A	N/A	N/A	N/A	N/A	-32.1	-30.9	-30.9	-30.9	Baseline Offset (In Feet)
								-1.2	0.0	0.0	Incremental Change
								-1.2	-1.2	-1.2	Cumulative Change
0+25	N/A	N/A	N/A	N/A	N/A	N/A	-38.2	-38.2	-38.2	-38.2	Baseline Offset (In Feet)
								0.0	0.0	0.0	Incremental Change
								0.0	0.0	0.0	Cumulative Change
0+30	N/A	N/A	N/A	N/A	N/A	N/A	-41.1	-41.1	-41.1	-41.1	Baseline Offset (In Feet)
								0.0	0.0	0.0	Incremental Change
								0.0	0.0	0.0	Cumulative Change
0+40	N/A	N/A	N/A	N/A	N/A	N/A	-37.7	-37.7	-37.7	-37.7	Baseline Offset (In Feet)
								0.0	0.0	0.0	Incremental Change
								0.0	0.0	0.0	Cumulative Change
0+50	N/A	N/A	N/A	N/A	N/A	N/A	-30.3	-30.3	-30.3	-30.3	Baseline Offset (In Feet)
								0.0	0.0	0.0	Incremental Change
								0.0	0.0	0.0	Cumulative Change
0+60	N/A	N/A	N/A	N/A	N/A	N/A	-28.0	-27.9	-27.5	-27.5	Baseline Offset (In Feet)
								-0.1	-0.5	0.0	Incremental Change
								-0.1	-0.5	-0.5	Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 3 for Survey Baseline Stations										
	7/29/2001	8/7/2001	8/15/2001	8/23/2001	9/8/2001	7/8/2002	9/12/2002	7/9/2003	9/8/2003	6/19/2004	Date
0+65	N/A	N/A	N/A	N/A	N/A	N/A	-39.8	-39.8	-23.9	-23.9	Baseline Offset (In Feet)
								0.0	-16.0	0.0	Incremental Change
								0.0	-16.0	-16.0	Cumulative Change
0+70	N/A	-32.4	N/A	-31.2	-31.2	-31.5	-27.7	-27.7	-20.0	-20.0	Baseline Offset (In Feet)
				-1.2	0.0	0.3	-3.8	0.0	-7.7	0.0	Incremental Change
				-1.2	-1.2	-0.9	-4.7	-4.7	-12.4	-12.4	Cumulative Change
0+75	N/A	-27.1	-27.0	-27.0	-27.1	-27.0	-27.2	-27.6	-21.1	-21.0	Baseline Offset (In Feet)
			-0.1	0.0	0.1	-0.1	0.2	0.4	-6.5	-0.1	Incremental Change
			-0.1	-0.1	0.0	-0.1	0.1	0.5	-6.0	-6.1	Cumulative Change
0+80	N/A	-26.4	N/A	-26.6	-26.5	-26.5	-27.5	-27.5	-22.4	-22.4	Baseline Offset (In Feet)
				0.2	-0.1	0.0	1.0	0.0	-5.1	0.0	Incremental Change
				0.2	0.1	0.0	1.1	1.1	-4.0	-4.0	Cumulative Change
0+90	N/A	-29.2	N/A	-28.9	-29.2	-29.2	-29.2	-29.2	-29.2	-27.8	Baseline Offset (In Feet)
				-0.3	0.3	0.0	0.0	0.0	0.0	-1.5	Incremental Change
				-0.3	0.0	0.0	0.0	0.0	0.0	-1.5	Cumulative Change
1+00	N/A	-26.7	-26.9	-26.3	-26.8	-26.7	-26.7	-26.7	-26.7	-26.7	Baseline Offset (In Feet)
			0.2	-0.6	0.5	-0.1	0.0	0.0	0.0	0.0	Incremental Change
			0.2	-0.4	0.1	0.0	0.0	0.0	0.0	0.0	Cumulative Change
1+10	N/A	-25.6	N/A	-25.3	-25.4	-25.6	-25.6	-25.6	-23.9	-23.9	Baseline Offset (In Feet)
				-0.3	0.1	0.2	0.0	0.0	-1.7	0.0	Incremental Change
				-0.3	-0.2	0.0	0.0	0.0	-1.7	-1.7	Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 3 for Survey Baseline Stations										
	7/29/2001	8/7/2001	8/15/2001	8/23/2001	9/8/2001	7/8/2002	9/12/2002	7/9/2003	9/8/2003	6/19/2004	Date
1+15	N/A	-27.6	N/A	-27.5	-27.6	-27.6	-24.5	-24.5	-20.8	-20.8	Baseline Offset (In Feet)
				-0.1	0.1	0.0	-3.1	0.0	-3.7	0.0	Incremental Change
				-0.1	0.0	0.0	-3.1	-3.1	-6.8	-6.8	Cumulative Change
1+20	N/A	-35.5	N/A	-30.5	-30.5	-22.1	-22.6	-22.6	-21.4	-21.4	Baseline Offset (In Feet)
				-5.0	0.0	-8.4	0.4	0.0	-1.2	0.0	Incremental Change
				-5.0	-5.0	-13.4	-12.9	-12.9	-14.0	-14.1	Cumulative Change
1+25	-38.4	-38.7	-39.1	-33.0	-32.8	-22.5	-23.0	-22.9	-18.1	-18.1	Baseline Offset (In Feet)
			0.4	-6.1	-0.2	-10.3	0.5	-0.1	-4.8	0.0	Incremental Change
			0.4	-5.7	-5.9	-16.2	-15.7	-15.8	-20.6	-20.6	Cumulative Change
1+30	N/A	-37.8	N/A	-36.2	-36.1	-27.7	-28.0	-27.9	-17.3	-17.3	Baseline Offset (In Feet)
				-1.6	-0.1	-8.4	0.2	-0.1	-10.6	0.0	Incremental Change
				-1.6	-1.7	-10.1	-9.9	-9.9	-20.5	-20.5	Cumulative Change
1+40	N/A	-33.8	N/A	-35.0	-34.9	-21.3	-20.6	-20.6	-17.1	-17.1	Baseline Offset (In Feet)
				1.2	-0.1	-13.6	-0.8	0.0	-3.5	0.0	Incremental Change
				1.2	1.1	-12.5	-13.3	-13.2	-16.7	-16.7	Cumulative Change
1+45	N/A	-28.2	N/A	-29.5	-28.8	18.6	-16.5	-16.5	-16.1	-16.1	Baseline Offset (In Feet)
				1.3	-0.7	-47.4	35.0	0.0	-0.4	0.0	Incremental Change
				1.3	0.6	-46.8	-11.7	-11.7	-12.1	-12.1	Cumulative Change
1+50	-18.4	-23.7	-23.8	-23.9	-23.8	-20.7	-15.6	-15.6	-13.8	-13.8	Baseline Offset (In Feet)
			0.1	0.1	-0.1	-3.1	-5.1	0.0	-1.8	0.0	Incremental Change
			0.1	0.2	0.1	-3.0	-8.1	-8.1	-9.9	-9.9	Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 3 for Survey Baseline Stations										
	7/29/2001	8/7/2001	8/15/2001	8/23/2001	9/8/2001	7/8/2002	9/12/2002	7/9/2003	9/8/2003	6/19/2004	Date
1+55	N/A	-22.2	N/A	-21.9	-22.2	-21.8	-14.5	-14.5	-11.5	-11.5	Baseline Offset (In Feet)
				-0.2	0.3	-0.4	-7.3	0.0	-3.0	0.0	Incremental Change
				-0.2	0.1	-0.4	-7.7	-7.7	-10.7	-10.7	Cumulative Change
1+60	-17.1	-21.6	-21.8	-21.7	-21.6	-21.4	-15.1	-14.9	-9.0	-9.0	Baseline Offset (In Feet)
			0.2	-0.1	-0.1	-0.2	-6.3	-0.2	-5.9	0.0	Incremental Change
			0.2	0.1	0.0	-0.2	-6.5	-6.7	-12.6	-12.6	Cumulative Change
1+65	N/A	-26.2	N/A	-26.3	-26.5	-25.8	-24.9	-24.6	-11.4	-9.7	Baseline Offset (In Feet)
				0.0	0.2	-0.6	-1.0	-0.2	-13.3	-1.7	Incremental Change
				0.0	0.2	-0.4	-1.4	-1.6	-14.9	-16.6	Cumulative Change
1+70	N/A	-30.1	N/A	-30.1	-30.1	-29.6	-29.7	-29.7	-15.7	-13.0	Baseline Offset (In Feet)
				0.1	0.0	-0.5	0.2	0.0	-14.1	-2.7	Incremental Change
				0.1	0.0	-0.5	-0.3	-0.3	-14.4	-17.1	Cumulative Change
1+75	-30.4	-30.7	-31.1	-30.7	-30.5	-30.0	-29.6	-29.6	-16.1	-14.4	Baseline Offset (In Feet)
			0.4	-0.4	-0.2	-0.5	-0.4	0.0	-13.5	-1.7	Incremental Change
			0.4	0.0	-0.2	-0.7	-1.1	-1.1	-14.6	-16.3	Cumulative Change
1+80	N/A	-30.2	N/A	-30.7	-29.4	-30.2	-24.6	-22.1	-13.9	-13.9	Baseline Offset (In Feet)
				0.5	-1.3	0.8	-5.7	-2.4	-8.3	0.0	Incremental Change
				0.5	-0.8	0.0	-5.7	-8.1	-16.4	-16.4	Cumulative Change
1+85	-27.1	-24.5	-24.4	-24.2	-24.5	-24.5	-20.5	-17.0	-12.7	-12.7	Baseline Offset (In Feet)
			-0.1	-0.2	0.3	0.0	-4.0	-3.5	-4.3	0.0	Incremental Change
			-0.1	-0.3	0.0	0.0	-4.0	-7.5	-11.8	-11.8	Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 3 for Survey Baseline Stations										
	7/29/2001	8/7/2001	8/15/2001	8/23/2001	9/8/2001	7/8/2002	9/12/2002	7/9/2003	9/8/2003	6/19/2004	Date
1+90	N/A	-12.8	N/A	-21.4	-21.5	-21.6	-21.9	-19.5	-16.9	-16.9	Baseline Offset (In Feet)
				8.6	0.0	0.1	0.3	-2.4	-2.6	0.0	Incremental Change
				8.6	8.7	8.8	9.1	6.7	4.1	4.1	Cumulative Change
1+95	N/A	-27.6	N/A	-27.8	-28.5	-27.7	-27.7	-27.7	-27.7	-27.7	Baseline Offset (In Feet)
				0.2	0.7	-0.9	0.0	0.0	0.0	0.0	Incremental Change
				0.2	0.9	0.1	0.1	0.1	0.1	0.1	Cumulative Change
2+00	-32.6	-33.7	-33.8	-33.7	-33.4	-33.7	-27.8	-27.8	-27.8	-27.8	Baseline Offset (In Feet)
			0.1	-0.1	-0.3	0.3	-5.9	0.0	0.0	0.0	Incremental Change
			0.1	0.0	-0.3	0.0	-5.9	-5.9	-5.9	-5.9	Cumulative Change
2+05	N/A	-32.9	N/A	-32.7	-32.6	-32.5	-27.3	-27.3	-27.3	-27.3	Baseline Offset (In Feet)
				-0.3	-0.1	-0.1	-5.2	0.0	0.0	0.0	Incremental Change
				-0.3	-0.4	-0.4	-5.6	-5.6	-5.6	-5.6	Cumulative Change
2+10	N/A	-33.7	N/A	-33.5	-33.5	-29.1	-26.0	-26.0	-26.0	-26.0	Baseline Offset (In Feet)
				-0.2	0.0	-4.4	-3.2	0.0	0.0	0.0	Incremental Change
				-0.2	-0.2	-4.6	-7.8	-7.8	-7.8	-7.7	Cumulative Change
2+15	-32.9	-34.9	-35.4	-34.5	-34.5	-28.8	-23.2	-23.2	-23.2	-23.2	Baseline Offset (In Feet)
			0.5	-0.9	0.0	-5.7	-5.6	0.0	0.0	0.0	Incremental Change
			0.5	-0.4	-0.4	-6.1	-11.7	-11.7	-11.7	-11.7	Cumulative Change
2+20	N/A	-34.4	N/A	-34.4	-34.9	-32.0	-21.0	-21.0	-21.0	-20.4	Baseline Offset (In Feet)
				0.0	0.5	-2.9	-11.0	0.0	0.0	-0.6	Incremental Change
				0.0	0.5	-2.4	-13.4	-13.4	-13.4	-14.0	Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 3 for Survey Baseline Stations										
	7/29/2001	8/7/2001	8/15/2001	8/23/2001	9/8/2001	7/8/2002	9/12/2002	7/9/2003	9/8/2003	6/19/2004	Date
2+25	-30.0	-32.0	-31.5	-31.5	-31.2	-31.1	-18.4	-18.4	-8.0	-5.2	Baseline Offset (In Feet)
			-0.5	0.0	-0.3	-0.1	-12.7	0.0	-10.4	-2.9	Incremental Change
			-0.5	-0.5	-0.8	-0.9	-13.6	-13.6	-24.0	-26.8	Cumulative Change
2+30	-22.0	-23.4	-22.6	-23.5	-23.2	-19.7	-13.7	-13.7	-2.4	-2.4	Baseline Offset (In Feet)
			-0.8	0.9	-0.3	-3.5	-6.0	0.0	-11.3	0.0	Incremental Change
			-0.8	0.1	-0.2	-3.7	-9.7	-9.7	-21.0	-21.0	Cumulative Change
2+35	-21.7	-20.6	-20.1	-20.6	-18.8	-11.7	-8.9	-7.0	-7.0	-7.1	Baseline Offset (In Feet)
			-0.5	0.5	-1.8	-7.1	-2.8	-1.9	0.0	0.1	Incremental Change
			-0.5	0.0	-1.8	-8.9	-11.7	-13.6	-13.6	-13.5	Cumulative Change
2+40	N/A	-19.2	N/A	-20.1	-15.9	-12.0	-8.3	-8.3	-8.3	-8.3	Baseline Offset (In Feet)
				0.9	-4.2	-3.9	-3.6	0.0	0.0	0.0	Incremental Change
				0.9	-3.3	-7.2	-10.8	-10.8	-10.8	-10.8	Cumulative Change
2+50	-21.0	-21.8	-21.3	-21.0	-21.0	-20.7	-14.7	-14.6	-14.6	-14.6	Baseline Offset (In Feet)
			-0.5	-0.3	0.0	-0.3	-6.0	-0.1	0.0	0.0	Incremental Change
			-0.5	-0.8	-0.8	-1.1	-7.1	-7.2	-7.2	-7.2	Cumulative Change
2+60	-26.1	-26.5	-26.7	-26.1	-26.0	-25.9	-20.5	-20.6	-20.6	-20.5	Baseline Offset (In Feet)
			0.2	-0.6	-0.1	-0.1	-5.4	0.1	0.0	-0.1	Incremental Change
			0.2	-0.4	-0.5	-0.6	-6.0	-5.9	-5.9	-6.0	Cumulative Change
2+70	-28.9	-30.4	-30.9	-30.4	-30.0	-30.6	-25.5	-25.4	-20.8	-20.8	Baseline Offset (In Feet)
			0.5	-0.5	-0.4	0.6	-5.1	-0.1	-4.6	0.0	Incremental Change
			0.5	0.0	-0.4	0.2	-4.9	-5.0	-9.6	-9.6	Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 3 for Survey Baseline Stations										
	7/29/2001	8/7/2001	8/15/2001	8/23/2001	9/8/2001	7/8/2002	9/12/2002	7/9/2003	9/8/2003	6/19/2004	Date
2+75	-28.4	-31.4	-31.4	-31.3	-30.7	-31.2	-26.1	-26.0	-20.9	-20.9	Baseline Offset (In Feet)
			0.0	-0.1	-0.6	0.5	-5.1	-0.1	-5.1	0.0	Incremental Change
			0.0	-0.1	-0.7	-0.2	-5.3	-5.4	-10.5	-10.5	Cumulative Change
2+85	-27.5	-26.9	-27.1	-26.9	-26.8	-26.8	-22.8	-22.8	-22.8	-22.8	Baseline Offset (In Feet)
			0.2	-0.2	-0.1	0.0	-4.0	0.0	0.0	0.0	Incremental Change
			0.2	0.0	-0.1	-0.1	-4.1	-4.1	-4.1	-4.1	Cumulative Change
2+90	-24.5	-24.5	-24.8	-24.2	-24.5	-24.5	-21.4	-21.4	-21.4	-21.3	Baseline Offset (In Feet)
			0.3	-0.6	0.3	0.0	-3.1	0.0	0.0	-0.1	Incremental Change
			0.3	-0.3	0.0	0.0	-3.1	-3.1	-3.1	-3.2	Cumulative Change
3+00	-5.5	-9.1	-9.2	-8.9	-8.7	-9.0	-9.0	-8.9	-6.0	-6.0	Baseline Offset (In Feet)
			0.1	-0.3	-0.2	0.3	0.0	-0.1	-2.9	0.0	Incremental Change
			0.1	-0.2	-0.4	-0.1	-0.1	-0.2	-3.1	-3.1	Cumulative Change
3+10	N/A	-11.4	N/A	-11.3	-11.0	-11.4	-11.4	-11.4	-11.4	-11.4	Baseline Offset (In Feet)
				-0.1	-0.3	0.4	0.0	0.0	0.0	0.0	Incremental Change
				-0.1	-0.4	-0.1	-0.1	-0.1	-0.1	-0.1	Cumulative Change
3+15	N/A	-16.2	N/A	-16.2	-16.2	-16.1	-16.0	-15.9	-15.9	-15.9	Baseline Offset (In Feet)
				0.1	-0.1	0.0	-0.2	-0.1	0.0	0.0	Incremental Change
				0.1	0.0	0.0	-0.2	-0.3	-0.3	-0.3	Cumulative Change
3+20	N/A	-15.9	N/A	-15.6	-15.8	-15.9	-11.9	-11.9	-11.9	-11.8	Baseline Offset (In Feet)
				-0.4	0.2	0.1	-4.1	0.0	0.0	0.0	Incremental Change
				-0.4	-0.1	0.0	-4.1	-4.1	-4.1	-4.1	Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 3 for Survey Baseline Stations										
	7/29/2001	8/7/2001	8/15/2001	8/23/2001	9/8/2001	7/8/2002	9/12/2002	7/9/2003	9/8/2003	6/19/2004	Date
3+25	-18.5	-17.1	-17.7	-17.3	-17.3	-16.6	-11.4	-11.1	-11.1	-11.1	Baseline Offset (In Feet)
			0.6	-0.4	0.0	-0.7	-5.2	-0.3	0.0	0.0	Incremental Change
			0.6	0.2	0.2	-0.5	-5.7	-6.0	-6.0	-6.0	Cumulative Change
3+30	-34.3	-35.4	-35.7	-35.3	-35.0	-35.4	-23.4	-13.9	-11.5	-11.5	Baseline Offset (In Feet)
			0.3	-0.4	-0.3	0.4	-12.0	-9.5	-2.4	0.0	Incremental Change
			0.3	-0.1	-0.4	0.0	-12.0	-21.5	-23.9	-23.9	Cumulative Change
3+35	-35.4	-35.7	-35.7	-35.3	-35.0	-35.0	-23.8	-23.5	-23.5	-23.5	Baseline Offset (In Feet)
			0.0	-0.4	-0.3	0.0	-11.2	-0.3	0.0	0.0	Incremental Change
			0.0	-0.4	-0.7	-0.7	-11.9	-12.2	-12.2	-12.2	Cumulative Change
3+40	-33.8	-34.2	-34.1	-34.0	-33.9	-33.9	-25.4	-25.4	-25.4	-25.4	Baseline Offset (In Feet)
			-0.1	-0.1	-0.1	0.0	-8.5	0.0	0.0	0.0	Incremental Change
			-0.1	-0.2	-0.3	-0.3	-8.8	-8.8	-8.8	-8.8	Cumulative Change
3+45	-32.0	-32.4	-32.5	-32.6	-32.4	-32.5	-27.3	-27.4	-27.4	-26.4	Baseline Offset (In Feet)
			0.1	0.1	-0.2	0.1	-5.2	0.1	0.0	-1.0	Incremental Change
			0.1	0.2	0.0	0.1	-5.1	-5.0	-5.0	-6.0	Cumulative Change
3+52	-9.7	-10.1	-10.2	-10.4	-10.4	-10.1	-9.9	-8.4	-8.4	-8.4	Baseline Offset (In Feet)
			0.1	0.2	0.0	-0.3	-0.2	-1.5	0.0	0.0	Incremental Change
			0.1	0.3	0.3	0.0	-0.2	-1.7	-1.7	-1.7	Cumulative Change
3+60	N/A	-11.9	N/A	-10.8	-12.4	-11.5	-11.3	-11.2	-11.2	-10.8	Baseline Offset (In Feet)
				-1.1	1.7	-0.9	-0.2	-0.1	0.0	-0.4	Incremental Change
				-1.1	0.5	-0.4	-0.6	-0.7	-0.7	-1.1	Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 3 for Survey Baseline Stations										
	7/29/2001	8/7/2001	8/15/2001	8/23/2001	9/8/2001	7/8/2002	9/12/2002	7/9/2003	9/8/2003	6/19/2004	Date
3+65	N/A	-18.8	N/A	-18.5	-18.9	-18.7	-18.7	-18.7	-18.7	-18.4	Baseline Offset (In Feet)
				-0.3	0.4	-0.2	0.0	0.0	0.0	-0.3	Incremental Change
				-0.3	0.1	-0.1	-0.1	-0.1	-0.1	-0.4	Cumulative Change
3+70	N/A	-23.9	N/A	-24.1	-23.8	-24.2	-24.0	-24.0	-24.0	-24.1	Baseline Offset (In Feet)
				0.2	-0.3	0.4	-0.1	0.0	0.0	0.1	Incremental Change
				0.2	-0.2	0.2	0.1	0.0	0.0	0.2	Cumulative Change
3+75	N/A	-23.2	-23.3	-23.4	-23.3	-23.3	-20.2	-20.2	-20.2	-20.2	Baseline Offset (In Feet)
			0.1	0.1	-0.1	0.0	-3.1	0.0	0.0	0.0	Incremental Change
			0.1	0.2	0.1	0.1	-3.0	-3.0	-3.0	-3.0	Cumulative Change
3+80	N/A	-19.6	N/A	-19.0	-19.3	-19.7	-12.9	-12.9	-12.9	-11.6	Baseline Offset (In Feet)
				-0.6	0.3	0.4	-6.8	0.0	0.0	-1.3	Incremental Change
				-0.6	-0.4	0.1	-6.7	-6.7	-6.7	-8.0	Cumulative Change
3+85	N/A	-19.9	N/A	-19.9	-19.5	-19.3	-13.2	-12.3	-12.3	-12.0	Baseline Offset (In Feet)
				0.0	-0.5	-0.1	-6.1	-1.0	0.0	-0.3	Incremental Change
				0.0	-0.4	-0.6	-6.7	-7.7	-7.7	-7.9	Cumulative Change
3+95	N/A	-26.1	N/A	-25.7	-25.9	-26.3	-22.4	-22.4	-22.4	-21.9	Baseline Offset (In Feet)
				-0.4	0.2	0.4	-3.9	0.0	0.0	-0.5	Incremental Change
				-0.4	-0.2	0.2	-3.7	-3.8	-3.8	-4.2	Cumulative Change
4+00	N/A	-29.9	-30.0	-29.5	-29.7	-30.2	-21.2	-21.2	-21.2	-21.9	Baseline Offset (In Feet)
			0.1	-0.5	0.2	0.5	-9.0	0.0	0.0	0.7	Incremental Change
			0.1	-0.4	-0.2	0.3	-8.7	-8.7	-8.7	-8.0	Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 3 for Survey Baseline Stations										
	7/29/2001	8/7/2001	8/15/2001	8/23/2001	9/8/2001	7/8/2002	9/12/2002	7/9/2003	9/8/2003	6/19/2004	Date
4+05	N/A	-29.8	N/A	-29.4	-29.4	-29.9	-19.5	-19.5	-19.5	-19.5	Baseline Offset (In Feet)
				-0.4	0.0	0.4	-10.4	0.0	0.0	0.0	Incremental Change
				-0.4	-0.4	0.1	-10.3	-10.3	-10.3	-10.3	Cumulative Change
4+15	N/A	N/A	N/A	-30.7	-30.6	-27.3	2.7	2.6	2.6	2.6	Baseline Offset (In Feet)
					-0.1	-3.4	-29.9	0.0	0.0	0.0	Incremental Change
					-0.1	-3.4	-33.4	-33.3	-33.3	-33.3	Cumulative Change
4+25	N/A	N/A	N/A	-8.6	-5.4	-1.0	5.1	5.1	5.1	5.1	Baseline Offset (In Feet)
					-3.2	-4.4	-6.1	0.0	0.0	0.0	Incremental Change
					-3.2	-7.6	-13.7	-13.7	-13.7	-13.7	Cumulative Change
4+35	N/A	N/A	N/A	-5.6	-5.4	-0.7	4.4	4.5	4.5	4.5	Baseline Offset (In Feet)
					-0.2	-4.6	-5.1	0.0	0.0	0.0	Incremental Change
					-0.2	-4.8	-10.0	-10.0	-10.0	-10.0	Cumulative Change
4+45	N/A	N/A	N/A	N/A	N/A	-5.1	1.3	1.2	1.2	1.9	Baseline Offset (In Feet)
							-6.4	0.1	0.0	-0.7	Incremental Change
							-6.4	-6.3	-6.3	-7.0	Cumulative Change
4+50	N/A	N/A	N/A	N/A	N/A	-6.3	1.9	1.8	4.1	4.1	Baseline Offset (In Feet)
							-8.2	0.1	-2.3	0.0	Incremental Change
								-8.1	-10.4	-10.4	Cumulative Change

***Note:** Field Survey dated 8/7/01 was used for baseline data to compute Incremental/Cumulative Change. Negative numbers indicate erosion.

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 12 for Survey Baseline Stations										
	6/19/2004	7/10/2005	8/21/2006	8/30/2007	8/6/2008	8/3/2009	7/20/2010	8/4/2011	7/14/2012	7/21/2013	Date
0+10	-25.3	-25.3	-25.3	-25.3	-25.3	-25.6	-25.6	-23.9	-24.0	-24.0	Baseline Offset (In Feet)
	0.0	0.0	0.0	0.0	0.0	0.3	0.0	-1.7	0.1	0.0	Incremental Change
	0.0	0.0	0.0	0.0	0.0	0.3	0.3	-1.4	-1.4	-1.4	Cumulative Change
0+20	-30.9	-30.9	-30.9	-30.9	-30.9	-31.0	-29.1	-29.2	-29.2	-29.2	Baseline Offset (In Feet)
	0.0	0.0	0.0	0.0	0.0	0.1	-1.9	0.1	0.0	0.0	Incremental Change
	-1.2	-1.2	-1.2	-1.2	-1.2	-1.1	-3.0	-2.9	-2.9	-2.9	Cumulative Change
0+25	-38.2	-37.0	-37.0	-37.0	-37.0	-34.1	-29.9	-29.2	-29.2	-29.2	Baseline Offset (In Feet)
	0.0	-1.2	0.0	0.0	0.0	-2.9	-4.2	-0.7	0.0	0.0	Incremental Change
	0.0	-1.2	-1.2	-1.2	-1.2	-4.1	-8.3	-9.0	-9.1	-9.1	Cumulative Change
0+30	-41.1	-36.9	-36.9	-36.9	-36.9	-34.3	-31.4	-29.3	-29.3	-29.3	Baseline Offset (In Feet)
	0.0	-4.2	0.0	0.0	0.0	-2.6	-2.9	-2.2	0.0	0.0	Incremental Change
	0.0	-4.2	-4.2	-4.2	-4.2	-6.8	-9.7	-11.8	-11.8	-11.8	Cumulative Change
0+40	-37.7	-36.5	-35.1	-35.1	-35.1	-34.8	-34.3	-29.4	-29.4	-29.4	Baseline Offset (In Feet)
	0.0	-1.2	-1.4	0.0	0.0	-0.3	-0.5	-4.9	0.0	0.0	Incremental Change
	0.0	-1.2	-2.6	-2.6	-2.6	-2.9	-3.4	-8.3	-8.2	-8.2	Cumulative Change
0+50	-30.3	-30.3	-30.3	-30.3	-30.3	-30.3	-30.3	-30.1	-30.1	-30.1	Baseline Offset (In Feet)
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2	0.0	0.0	Incremental Change
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2	-0.2	-0.2	Cumulative Change
0+60	-27.5	-27.5	-27.5	-27.5	-27.5	-27.5	-27.5	-25.3	-25.4	-25.4	Baseline Offset (In Feet)
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.2	0.0	0.0	Incremental Change
	-0.5	-0.5	-0.5	-0.5	-0.5	-0.4	-0.5	-2.7	-2.6	-2.6	Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 12 for Survey Baseline Stations										
	6/19/2004	7/10/2005	8/21/2006	8/30/2007	8/6/2008	8/3/2009	7/20/2010	8/4/2011	7/14/2012	7/21/2013	Date
0+65	-23.9	-23.4	-23.4	-23.4	-23.4	-23.4	-23.4	-19.9	-19.9	-19.9	Baseline Offset (In Feet)
	0.0	-0.5	0.0	0.0	0.0	0.0	0.0	-3.5	0.0	0.0	Incremental Change
	-16.0	-16.4	-16.4	-16.4	-16.4	-16.4	-16.4	-19.9	-19.9	-19.9	Cumulative Change
0+70	-20.0	-16.2	-16.2	-16.2	-16.2	-16.2	-16.2	-16.2	-16.2	-16.2	Baseline Offset (In Feet)
	0.0	-3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Incremental Change
	-12.4	-16.2	-16.2	-16.2	-16.2	-16.2	-16.2	-16.2	-16.2	-16.2	Cumulative Change
0+75	-21.0	-18.0	-18.0	-18.0	-18.0	-18.0	-18.0	-17.8	-17.8	-17.8	Baseline Offset (In Feet)
	-0.1	-3.0	0.1	0.0	0.0	0.0	0.0	-0.2	0.0	0.0	Incremental Change
	-6.1	-9.1	-9.1	-9.1	-9.1	-9.1	-9.1	-9.3	-9.3	-9.3	Cumulative Change
0+80	-22.4	-22.4	-22.4	-22.4	-22.4	-22.4	-22.1	-21.7	-21.6	-21.6	Baseline Offset (In Feet)
	0.0	0.0	0.0	0.0	0.0	0.0	-0.3	-0.4	-0.1	0.0	Incremental Change
	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0	-4.3	-4.8	-4.8	-4.8	Cumulative Change
0+90	-27.8	-27.8	-27.2	-27.2	-27.2	-27.2	-26.5	-23.1	-23.1	-23.1	Baseline Offset (In Feet)
	-1.5	0.0	-0.6	0.0	0.0	0.0	-0.7	-3.4	0.0	0.0	Incremental Change
	-1.5	-1.5	-2.0	-2.0	-2.0	-2.0	-2.7	-6.1	-6.1	-6.1	Cumulative Change
1+00	-26.7	-26.7	-26.7	-26.7	-26.7	-26.7	-25.5	-20.0	-20.0	-20.0	Baseline Offset (In Feet)
	0.0	0.0	0.0	0.0	0.0	0.0	-1.2	-5.5	0.0	0.0	Incremental Change
	0.0	0.0	0.0	0.0	0.0	0.0	-1.2	-6.7	-6.7	-6.7	Cumulative Change
1+10	-23.9	-23.9	-23.9	-23.9	-23.9	-23.9	-23.7	-23.0	-23.0	-23.0	Baseline Offset (In Feet)
	0.0	0.0	0.0	0.0	0.0	0.0	-0.2	-0.7	0.0	0.0	Incremental Change
	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.9	-2.6	-2.6	-2.6	Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 12 for Survey Baseline Stations										
	6/19/2004	7/10/2005	8/21/2006	8/30/2007	8/6/2008	8/3/2009	7/20/2010	8/4/2011	7/14/2012	7/21/2013	Date
1+15	-20.8	-20.2	-20.2	-20.2	-20.2	-20.2	-20.2	-20.3	-20.3	-20.3	Baseline Offset (In Feet)
	0.0	-0.7	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	Incremental Change
	-6.8	-7.4	-7.4	-7.4	-7.4	-7.4	-7.4	-7.3	-7.3	-7.3	Cumulative Change
1+20	-21.4	-18.2	-18.2	-18.2	-18.2	-18.8	-18.5	-18.6	-18.6	-18.6	Baseline Offset (In Feet)
	0.0	-3.2	0.0	0.0	0.0	0.6	-0.3	0.1	0.0	0.0	Incremental Change
	-14.1	-17.3	-17.3	-17.3	-17.3	-16.7	-17.0	-16.9	-16.9	-16.9	Cumulative Change
1+25	-18.1	-16.4	-16.4	-16.4	-16.4	-16.4	-16.4	-16.1	-16.2	-16.2	Baseline Offset (In Feet)
	0.0	-1.7	0.0	0.0	0.0	0.0	0.0	-0.3	0.0	0.0	Incremental Change
	-20.6	-22.3	-22.3	-22.3	-22.3	-22.3	-22.3	-22.6	-22.6	-22.6	Cumulative Change
1+30	-17.3	-17.0	-17.0	-17.0	-17.0	-17.0	-17.0	-16.3	-16.3	-16.3	Baseline Offset (In Feet)
	0.0	-0.3	0.0	0.0	0.0	0.0	0.0	-0.7	0.0	0.0	Incremental Change
	-20.5	-20.8	-20.8	-20.8	-20.8	-20.8	-20.8	-21.5	-21.5	-21.5	Cumulative Change
1+40	-17.1	-15.8	-15.8	-15.8	-15.8	-16.0	-16.0	-15.4	-15.4	-15.4	Baseline Offset (In Feet)
	0.0	-1.3	0.0	0.0	0.0	0.2	0.0	-0.6	0.0	0.0	Incremental Change
	-16.7	-18.1	-18.0	-18.0	-18.0	-17.8	-17.8	-18.5	-18.5	-18.5	Cumulative Change
1+45	-16.1	-14.3	-14.3	-14.3	-14.3	-14.3	-14.3	-14.1	-14.1	-14.1	Baseline Offset (In Feet)
	0.0	-1.8	0.0	0.0	0.0	0.0	0.0	-0.3	0.0	0.0	Incremental Change
	-12.1	-13.9	-13.9	-13.9	-13.9	-13.9	-13.9	-14.1	-14.1	-14.1	Cumulative Change
1+50	-13.8	-13.4	-13.4	-13.4	-13.4	-13.4	-13.4	-11.7	-11.7	-11.7	Baseline Offset (In Feet)
	0.0	-0.4	0.0	0.0	0.0	0.0	0.0	-1.7	0.0	0.0	Incremental Change
	-9.9	-10.3	-10.3	-10.3	-10.3	-10.3	-10.3	-12.0	-12.0	-12.0	Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 12 for Survey Baseline Stations										
	6/19/2004	7/10/2005	8/21/2006	8/30/2007	8/6/2008	8/3/2009	7/20/2010	8/4/2011	7/14/2012	7/21/2013	Date
1+55	-11.5	-7.1	-7.1	-7.1	-7.1	-7.5	-7.5	-7.0	-7.0	-7.0	Baseline Offset (In Feet)
	0.0	-4.4	0.0	0.0	0.0	0.4	0.0	-0.5	0.0	0.0	Incremental Change
	-10.7	-15.1	-15.1	-15.1	-15.1	-14.7	-14.7	-15.2	-15.2	-15.2	Cumulative Change
1+60	-9.0	-4.2	-4.2	-4.2	-4.2	-4.2	-4.2	-4.4	-4.5	-4.5	Baseline Offset (In Feet)
	0.0	-4.8	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	Incremental Change
	-12.6	-17.4	-17.4	-17.4	-17.4	-17.4	-17.4	-17.2	-17.2	-17.2	Cumulative Change
1+65	-9.7	-6.9	-6.9	-6.9	-6.9	-6.9	-6.9	-7.0	-7.0	-7.0	Baseline Offset (In Feet)
	-1.7	-2.8	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	Incremental Change
	-16.6	-19.4	-19.3	-19.3	-19.3	-19.3	-19.3	-19.2	-19.3	-19.3	Cumulative Change
1+70	-13.0	-10.8	-10.8	-10.8	-10.8	-10.8	-10.8	-10.0	-10.0	-10.0	Baseline Offset (In Feet)
	-2.7	-2.2	0.0	0.0	0.0	0.0	0.0	-0.8	0.0	0.0	Incremental Change
	-17.1	-19.3	-19.3	-19.3	-19.3	-19.3	-19.3	-20.0	-20.0	-20.0	Cumulative Change
1+75	-14.4	-12.0	-12.0	-12.0	-12.0	-12.0	-12.0	-10.2	-10.2	-10.2	Baseline Offset (In Feet)
	-1.7	-2.5	0.0	0.0	0.0	0.0	0.0	-1.8	0.0	0.0	Incremental Change
	-16.3	-18.7	-18.7	-18.7	-18.7	-18.7	-18.7	-20.5	-20.5	-20.5	Cumulative Change
1+80	-13.9	-12.8	-12.8	-12.8	-12.8	-12.8	-12.8	-10.5	-10.5	-10.5	Baseline Offset (In Feet)
	0.0	-1.1	0.0	0.0	0.0	0.0	0.0	-2.3	0.0	0.0	Incremental Change
	-16.4	-17.4	-17.4	-17.4	-17.4	-17.4	-17.4	-19.7	-19.8	-19.8	Cumulative Change
1+85	-12.7	-12.3	-12.3	-12.3	-12.3	-12.3	-12.3	-11.4	-11.4	-11.4	Baseline Offset (In Feet)
	0.0	-0.4	0.0	0.0	0.0	0.0	0.0	-0.9	0.0	0.0	Incremental Change
	-11.8	-12.2	-12.2	-12.2	-12.2	-12.2	-12.2	-13.1	-13.1	-13.1	Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 12 for Survey Baseline Stations										
	6/19/2004	7/10/2005	8/21/2006	8/30/2007	8/6/2008	8/3/2009	7/20/2010	8/4/2011	7/14/2012	7/21/2013	Date
1+90	-16.9	-16.9	-16.9	-16.9	-16.9	-16.9	-16.6	-16.7	-16.8	-16.8	Baseline Offset (In Feet)
	0.0	0.0	0.0	0.0	0.0	0.0	-0.3	0.1	0.1	0.0	Incremental Change
	4.1	4.1	4.1	4.1	4.1	4.1	3.8	3.9	4.0	4.0	Cumulative Change
1+95	-27.7	-27.7	-26.3	-26.3	-26.3	-26.3	-18.7	-18.7	-18.7	-18.7	Baseline Offset (In Feet)
	0.0	0.0	-1.4	0.0	0.0	0.0	-7.6	0.0	0.0	0.0	Incremental Change
	0.1	0.1	-1.3	-1.3	-1.3	-1.3	-8.9	-9.0	-9.0	-9.0	Cumulative Change
2+00	-27.8	-27.8	-26.4	-26.4	-26.4	-26.4	-20.4	-20.4	-20.4	-20.4	Baseline Offset (In Feet)
	0.0	0.0	-1.4	0.0	0.0	0.0	-6.0	0.0	0.0	0.0	Incremental Change
	-5.9	-5.9	-7.3	-7.3	-7.3	-7.3	-13.3	-13.3	-13.3	-13.3	Cumulative Change
2+05	-27.3	-27.3	-26.8	-26.8	-26.8	-26.8	-23.1	-22.5	-22.4	-22.4	Baseline Offset (In Feet)
	0.0	0.0	-0.5	0.0	0.0	0.0	-3.7	-0.6	0.0	0.0	Incremental Change
	-5.6	-5.6	-6.1	-6.1	-6.1	-6.1	-9.8	-10.5	-10.5	-10.5	Cumulative Change
2+10	-26.0	-26.0	-26.0	-26.0	-26.0	-26.5	-26.0	-24.6	-24.6	-24.6	Baseline Offset (In Feet)
	0.0	0.0	0.0	0.0	0.0	0.5	-0.5	-1.4	0.0	0.0	Incremental Change
	-7.7	-7.7	-7.7	-7.7	-7.7	-7.2	-7.7	-9.2	-9.2	-9.2	Cumulative Change
2+15	-23.2	-23.2	-23.2	-23.2	-23.7	-23.7	-23.7	-23.8	-23.8	-23.8	Baseline Offset (In Feet)
	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	Incremental Change
	-11.7	-11.7	-11.7	-11.7	-11.2	-11.2	-11.2	-11.1	-11.1	-11.1	Cumulative Change
2+20	-20.4	-17.4	-17.3	-17.3	-17.3	-18.2	-18.2	-17.5	-17.4	-17.4	Baseline Offset (In Feet)
	-0.6	-3.0	0.0	0.0	0.0	0.9	0.0	-0.7	0.0	0.0	Incremental Change
	-14.0	-17.0	-17.1	-17.1	-17.1	-16.2	-16.2	-16.9	-17.0	-17.0	Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 12 for Survey Baseline Stations										
	6/19/2004	7/10/2005	8/21/2006	8/30/2007	8/6/2008	8/3/2009	7/20/2010	8/4/2011	7/14/2012	7/21/2013	Date
2+25	-5.2	-5.2	-5.2	-1.0	-1.0	-1.0	-1.0	-1.1	-1.1	-1.1	Baseline Offset (In Feet)
	-2.9	0.0	0.0	-4.2	0.0	0.0	0.0	0.1	0.0	0.0	Incremental Change
	-26.8	-26.8	-26.8	-31.0	-31.0	-31.0	-31.0	-31.0	-30.9	-30.9	Cumulative Change
2+30	-2.4	-2.4	-2.4	-2.4	-2.4	-2.8	-2.8	-3.0	-3.0	-2.6	Baseline Offset (In Feet)
	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.2	0.0	-0.4	Incremental Change
	-21.0	-21.0	-21.0	-21.0	-21.0	-20.6	-20.6	-20.5	-20.4	-20.8	Cumulative Change
2+35	-7.1	-7.1	-7.1	-7.1	-7.1	-7.9	-7.9	-8.1	-8.1	-4.0	Baseline Offset (In Feet)
	0.1	0.0	0.0	0.0	0.0	0.8	0.0	0.2	0.0	-4.2	Incremental Change
	-13.5	-13.5	-13.5	-13.5	-13.5	-12.7	-12.7	-12.5	-12.5	-16.7	Cumulative Change
2+40	-8.3	-8.3	-8.3	-8.3	-8.2	-8.2	-8.2	-8.5	-8.5	-5.3	Baseline Offset (In Feet)
	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	0.3	0.0	-3.3	Incremental Change
	-10.8	-10.8	-10.9	-10.9	-11.0	-11.0	-11.0	-10.6	-10.6	-13.9	Cumulative Change
2+50	-14.6	-14.6	-13.6	-13.3	-13.3	-13.3	-13.3	-10.6	-10.6	-9.0	Baseline Offset (In Feet)
	0.0	0.0	-1.0	-0.3	0.0	0.0	0.0	-2.7	0.0	-1.6	Incremental Change
	-7.2	-7.2	-8.2	-8.5	-8.5	-8.5	-8.5	-11.2	-11.2	-12.8	Cumulative Change
2+60	-20.5	-19.8	-17.7	-17.7	-17.7	-17.4	-16.3	-14.2	-14.2	-14.2	Baseline Offset (In Feet)
	-0.1	-0.7	-2.1	0.0	0.0	-0.3	-1.1	-2.1	0.0	0.0	Incremental Change
	-6.0	-6.7	-8.8	-8.8	-8.8	-9.1	-10.2	-12.3	-12.3	-12.3	Cumulative Change
2+70	-20.8	-20.8	-20.6	-20.0	-20.0	-20.0	-17.4	-17.7	-17.6	-17.6	Baseline Offset (In Feet)
	0.0	0.0	-0.2	-0.6	0.0	0.0	-2.6	0.3	0.0	0.0	Incremental Change
	-9.6	-9.6	-9.8	-10.4	-10.4	-10.4	-13.0	-12.8	-12.8	-12.8	Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 12 for Survey Baseline Stations										
	6/19/2004	7/10/2005	8/21/2006	8/30/2007	8/6/2008	8/3/2009	7/20/2010	8/4/2011	7/14/2012	7/21/2013	Date
2+75	-20.9	-20.8	-19.7	-19.7	-19.7	-19.4	-17.6	-17.5	-17.5	-17.5	Baseline Offset (In Feet)
	0.0	-0.1	-1.1	0.0	0.0	-0.3	-1.8	-0.1	0.0	0.0	Incremental Change
	-10.5	-10.6	-11.7	-11.7	-11.7	-12.0	-13.8	-13.9	-13.9	-13.9	Cumulative Change
2+85	-22.8	-20.4	-17.9	-17.9	-17.9	-17.9	-17.9	-17.2	-17.2	-17.2	Baseline Offset (In Feet)
	0.0	-2.4	-2.5	0.0	0.0	0.0	0.0	-0.7	0.0	0.0	Incremental Change
	-4.1	-6.5	-9.1	-9.0	-9.0	-9.0	-9.0	-9.7	-9.7	-9.7	Cumulative Change
2+90	-21.3	-21.3	-17.3	-16.5	-15.1	-15.1	-12.0	-8.7	-8.8	-0.6	Baseline Offset (In Feet)
	-0.1	0.0	-4.1	-0.8	-1.4	0.0	-3.1	-3.3	0.0	-8.2	Incremental Change
	-3.2	-3.2	-7.2	-8.0	-9.4	-9.4	-12.5	-15.8	-15.7	-23.9	Cumulative Change
3+00	-6.0	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	2.1	Baseline Offset (In Feet)
	0.0	-6.3	0.0	0.0	0.0	0.0	0.0	0.2	0.0	-2.0	Incremental Change
	-3.1	-9.4	-9.4	-9.4	-9.4	-9.4	-9.4	-9.2	-9.2	-11.2	Cumulative Change
3+10	-11.4	-6.9	-5.2	-5.2	-5.2	-5.0	-5.0	-5.3	-5.2	-3.2	Baseline Offset (In Feet)
	0.0	-4.4	-1.7	0.0	0.0	-0.2	0.0	0.3	-0.1	-2.0	Incremental Change
	-0.1	-4.5	-6.2	-6.2	-6.2	-6.4	-6.4	-6.2	-6.2	-8.3	Cumulative Change
3+15	-15.9	-10.5	-9.6	-9.6	-9.6	-9.6	-9.6	-9.5	-9.6	-4.2	Baseline Offset (In Feet)
	0.0	-5.4	-0.9	0.0	0.0	0.0	0.0	-0.1	0.0	-5.3	Incremental Change
	-0.3	-5.7	-6.6	-6.6	-6.6	-6.6	-6.6	-6.7	-6.6	-11.9	Cumulative Change
3+20	-11.8	-11.8	-8.9	-8.9	-8.9	-8.9	-8.9	-8.9	-8.9	-4.0	Baseline Offset (In Feet)
	0.0	0.0	-2.9	0.0	0.0	0.0	0.0	0.0	0.0	-4.9	Incremental Change
	-4.1	-4.1	-7.0	-7.0	-7.0	-7.0	-7.0	-7.1	-7.1	-12.0	Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 12 for Survey Baseline Stations										
	6/19/2004	7/10/2005	8/21/2006	8/30/2007	8/6/2008	8/3/2009	7/20/2010	8/4/2011	7/14/2012	7/21/2013	Date
3+25	-11.1	-10.3	-9.5	-9.5	-9.5	-9.5	-9.5	-9.6	-9.6	-4.0	Baseline Offset (In Feet)
	0.0	-0.8	-0.8	0.0	0.0	0.0	0.0	0.1	0.0	-5.6	Incremental Change
	-6.0	-6.8	-7.6	-7.6	-7.6	-7.6	-7.6	-7.5	-7.5	-13.2	Cumulative Change
3+30	-11.5	-11.2	-11.2	-11.2	-11.2	-11.2	-11.0	-11.0	-11.0	-5.9	Baseline Offset (In Feet)
	0.0	-0.3	0.0	0.0	0.0	0.0	-0.2	0.0	0.0	-5.1	Incremental Change
	-23.9	-24.2	-24.2	-24.2	-24.2	-24.2	-24.4	-24.4	-24.4	-29.5	Cumulative Change
3+35	-23.5	-23.5	-23.5	-23.5	-23.5	-24.6	-24.6	-12.7	-12.7	-12.7	Baseline Offset (In Feet)
	0.0	0.0	0.0	0.0	0.0	1.1	0.0	-11.9	0.0	0.0	Incremental Change
	-12.2	-12.2	-12.2	-12.2	-12.2	-11.1	-11.1	-23.0	-23.0	-23.0	Cumulative Change
3+40	-25.4	-25.4	-25.4	-25.4	-25.4	-25.4	-25.4	-18.9	-18.9	-18.9	Baseline Offset (In Feet)
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-6.5	0.0	0.0	Incremental Change
	-8.8	-8.8	-8.8	-8.8	-8.8	-8.8	-8.8	-15.3	-15.3	-15.3	Cumulative Change
3+45	-26.4	-24.1	-24.1	-24.1	-24.1	-24.6	-24.6	-17.0	-17.0	-17.0	Baseline Offset (In Feet)
	-1.0	-2.3	0.0	0.0	0.0	0.5	0.0	-7.6	0.0	0.0	Incremental Change
	-6.0	-8.3	-8.3	-8.3	-8.3	-7.8	-7.8	-15.4	-15.4	-15.4	Cumulative Change
3+52	-8.4	-8.4	2.4	2.4	2.4	3.1	3.1	3.1	3.1	3.1	Baseline Offset (In Feet)
	0.0	0.0	-10.8	0.0	0.0	-0.7	0.0	0.0	0.0	0.0	Incremental Change
	-1.7	-1.7	-12.5	-12.5	-12.5	-13.2	-13.2	-13.2	-13.2	-13.2	Cumulative Change
3+60	-10.8	-10.8	3.0	3.0	3.0	3.0	3.0	3.1	3.1	3.1	Baseline Offset (In Feet)
	-0.4	0.0	-13.8	0.0	0.0	0.0	0.0	0.1	0.0	0.0	Incremental Change
	-1.1	-1.1	-14.9	-14.9	-14.9	-14.9	-14.9	-15.0	-15.0	-15.0	Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 12 for Survey Baseline Stations										
	6/19/2004	7/10/2005	8/21/2006	8/30/2007	8/6/2008	8/3/2009	7/20/2010	8/4/2011	7/14/2012	7/21/2013	Date
3+65	-18.4	-18.4	-3.3	-13.8	-13.8	-13.8	-13.8	-13.9	-13.9	-13.9	Baseline Offset (In Feet)
	-0.3	0.0	-15.1	10.5	0.0	0.0	0.0	0.0	0.0	0.0	Incremental Change
	-0.4	-0.4	-15.5	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	Cumulative Change
3+70	-24.1	-21.2	-9.6	-11.9	-11.9	-11.9	-11.9	-12.0	-12.0	-12.0	Baseline Offset (In Feet)
	0.1	-2.9	-11.6	2.3	0.0	0.0	0.0	0.1	0.0	0.0	Incremental Change
	0.2	-2.8	-14.3	-12.0	-12.0	-12.0	-12.0	-12.0	-12.0	-12.0	Cumulative Change
3+75	-20.2	-19.3	-11.3	-10.1	-10.1	-10.1	-10.1	-10.1	-10.1	-10.1	Baseline Offset (In Feet)
	0.0	-0.9	-8.0	-1.2	0.0	0.0	0.0	0.0	0.0	0.0	Incremental Change
	-3.0	-3.9	-11.9	-13.1	-13.1	-13.1	-13.1	-13.1	-13.1	-13.1	Cumulative Change
3+80	-11.6	-11.6	-9.0	-9.0	-9.0	-9.0	-9.0	-8.9	-8.9	-8.9	Baseline Offset (In Feet)
	-1.3	0.0	-2.6	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	Incremental Change
	-8.0	-8.0	-10.6	-10.6	-10.6	-10.6	-10.6	-10.7	-10.7	-10.7	Cumulative Change
3+85	-12.0	-12.0	-11.1	-11.1	-11.1	-11.1	-11.1	-10.6	-10.6	-10.6	Baseline Offset (In Feet)
	-0.3	0.0	-0.9	0.0	0.0	0.0	0.0	-0.5	0.0	0.0	Incremental Change
	-7.9	-7.9	-8.9	-8.8	-8.8	-8.8	-8.8	-9.4	-9.3	-9.3	Cumulative Change
3+95	-21.9	-21.9	-16.1	-16.1	-16.1	-16.1	-16.1	-14.1	-14.1	-14.1	Baseline Offset (In Feet)
	-0.5	0.0	-5.8	0.0	0.0	0.0	0.0	-2.0	0.0	0.0	Incremental Change
	-4.2	-4.2	-10.1	-10.0	-10.0	-10.0	-10.0	-12.0	-12.0	-12.0	Cumulative Change
4+00	-21.9	-21.9	-18.6	-18.6	-18.6	-18.6	-18.6	-15.9	-15.9	-15.9	Baseline Offset (In Feet)
	0.7	0.0	-3.3	0.0	0.0	0.0	0.0	-2.7	0.0	0.0	Incremental Change
	-8.0	-8.0	-11.3	-11.3	-11.3	-11.3	-11.3	-14.0	-14.0	-14.0	Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 12 for Survey Baseline Stations										
	6/19/2004	7/10/2005	8/21/2006	8/30/2007	8/6/2008	8/3/2009	7/20/2010	8/4/2011	7/14/2012	7/21/2013	Date
4+05	-19.5	-19.5	-21.7	-21.7	-21.7	-21.3	-21.3	-20.4	-20.5	-20.5	Baseline Offset (In Feet)
	0.0	0.0	2.2	0.0	0.0	-0.4	0.0	-0.9	0.0	0.0	Incremental Change
	-10.3	-10.3	-8.1	-8.1	-8.1	-8.5	-8.5	-9.4	-9.4	-9.4	Cumulative Change
4+15	2.6	2.6	2.7	2.7	2.5	2.5	2.5	2.5	2.5	2.5	Baseline Offset (In Feet)
	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	Incremental Change
	-33.3	-33.3	-33.4	-33.4	-33.2	-33.2	-33.2	-33.2	-33.2	-33.2	Cumulative Change
4+25	5.1	5.1	5.1	5.1	5.1	4.7	4.7	4.7	4.6	4.6	Baseline Offset (In Feet)
	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	Incremental Change
	-13.7	-13.7	-13.7	-13.7	-13.7	-13.3	-13.3	-13.3	-13.2	-13.2	Cumulative Change
4+35	4.5	4.5	4.5	4.5	4.5	4.9	4.9	5.0	4.9	4.9	Baseline Offset (In Feet)
	0.0	0.0	0.0	0.0	0.0	-0.4	0.0	0.1	0.0	0.0	Incremental Change
	-10.0	-10.0	-10.1	-10.1	-10.1	-10.5	-10.5	-10.5	-10.5	-10.5	Cumulative Change
4+45	1.9	1.9	1.9	1.9	1.9	1.6	1.6	1.6	1.6	1.6	Baseline Offset (In Feet)
	-0.7	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	Incremental Change
	-7.0	-7.0	-7.0	-7.0	-7.0	-6.7	-6.7	-6.7	-6.7	-6.7	Cumulative Change
4+50	4.1	4.1	4.1	4.1	4.1	4.1	4.1	5.0	5.0	5.0	Baseline Offset (In Feet)
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.1	0.0	Incremental Change
	-10.4	-10.4	-10.4	-10.4	-10.4	-10.4	-10.4	-11.3	-11.3	-11.3	Cumulative Change

***Note:** Field Survey dated 8/7/01 was used for baseline data to compute Incremental/Cumulative Change. Negative numbers indicate erosion.

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 12 for Survey Baseline Stations										
	7/21/2013	8/12/2014	Future	Future	Future	Future	Future	Future	Future	Future	Date
0+10	-24.0	-24.0									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-1.4	-1.3									Cumulative Change
0+20	-29.2	-29.2									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-2.9	-2.9									Cumulative Change
0+25	-29.2	-29.2									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-9.1	-9.1									Cumulative Change
0+30	-29.3	-29.3									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-11.8	-11.8									Cumulative Change
0+40	-29.4	-29.4									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-8.2	-8.3									Cumulative Change
0+50	-30.1	-30.1									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-0.2	-0.2									Cumulative Change
0+60	-25.4	-25.4									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-2.6	-2.6									Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 12 for Survey Baseline Stations										
	7/21/2013	8/12/2014	Future	Future	Future	Future	Future	Future	Future	Future	Date
0+65	-19.9	-19.9									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-19.9	-19.9									Cumulative Change
0+70	-16.2	-16.2									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-16.2	-16.2									Cumulative Change
0+75	-17.8	-17.8									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-9.3	-9.3									Cumulative Change
0+80	-21.6	-21.6									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-4.8	-4.8									Cumulative Change
0+90	-23.1	-23.1									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-6.1	-6.1									Cumulative Change
1+00	-20.0	-20.0									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-6.7	-6.7									Cumulative Change
1+10	-23.0	-23.0									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-2.6	-2.6									Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 12 for Survey Baseline Stations										
	7/21/2013	8/12/2014	Future	Future	Future	Future	Future	Future	Future	Future	Date
1+15	-20.3	-20.3									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-7.3	-7.3									Cumulative Change
1+20	-18.6	-18.6									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-16.9	-16.9									Cumulative Change
1+25	-16.2	-16.2									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-22.6	-22.6									Cumulative Change
1+30	-16.3	-16.3									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-21.5	-21.5									Cumulative Change
1+40	-15.4	-15.4									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-18.5	-18.5									Cumulative Change
1+45	-14.1	-14.1									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-14.1	-14.1									Cumulative Change
1+50	-11.7	-11.7									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-12.0	-12.0									Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 12 for Survey Baseline Stations										
	7/21/2013	8/12/2014	Future	Future	Future	Future	Future	Future	Future	Future	Date
1+55	-7.0	-7.0									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-15.2	-15.2									Cumulative Change
1+60	-4.5	-4.5									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-17.2	-17.1									Cumulative Change
1+65	-7.0	-7.0									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-19.3	-19.3									Cumulative Change
1+70	-10.0	-10.0									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-20.0	-20.1									Cumulative Change
1+75	-10.2	-10.2									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-20.5	-20.5									Cumulative Change
1+80	-10.5	-10.5									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-19.8	-19.8									Cumulative Change
1+85	-11.4	-11.4									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-13.1	-13.1									Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 12 for Survey Baseline Stations										
	7/21/2013	8/12/2014	Future	Future	Future	Future	Future	Future	Future	Future	Date
1+90	-16.8	-17.4									Baseline Offset (In Feet)
	0.0	0.6									Incremental Change
	4.0	4.6									Cumulative Change
1+95	-18.7	-18.7									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-9.0	-8.9									Cumulative Change
2+00	-20.4	-20.4									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-13.3	-13.3									Cumulative Change
2+05	-22.4	-22.6									Baseline Offset (In Feet)
	0.0	0.2									Incremental Change
	-10.5	-10.3									Cumulative Change
2+10	-24.6	-24.8									Baseline Offset (In Feet)
	0.0	0.2									Incremental Change
	-9.2	-9.0									Cumulative Change
2+15	-23.8	-24.2									Baseline Offset (In Feet)
	0.0	0.4									Incremental Change
	-11.1	-10.7									Cumulative Change
2+20	-17.4	-16.7									Baseline Offset (In Feet)
	0.0	-0.7									Incremental Change
	-17.0	-17.7									Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 12 for Survey Baseline Stations										
	7/21/2013	8/12/2014	Future	Future	Future	Future	Future	Future	Future	Future	Date
2+25	-1.1	-1.1									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-30.9	-30.9									Cumulative Change
2+30	-2.6	-2.6									Baseline Offset (In Feet)
	-0.4	0.0									Incremental Change
	-20.8	-20.8									Cumulative Change
2+35	-4.0	-3.9									Baseline Offset (In Feet)
	-4.2	0.0									Incremental Change
	-16.7	-16.7									Cumulative Change
2+40	-5.3	-5.3									Baseline Offset (In Feet)
	-3.3	0.0									Incremental Change
	-13.9	-13.9									Cumulative Change
2+50	-9.0	-9.0									Baseline Offset (In Feet)
	-1.6	0.0									Incremental Change
	-12.8	-12.8									Cumulative Change
2+60	-14.2	-12.6									Baseline Offset (In Feet)
	0.0	-1.6									Incremental Change
	-12.3	-13.9									Cumulative Change
2+70	-17.6	-14.3									Baseline Offset (In Feet)
	0.0	-3.3									Incremental Change
	-12.8	-16.1									Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 12 for Survey Baseline Stations										
	7/21/2013	8/12/2014	Future	Future	Future	Future	Future	Future	Future	Future	Date
2+75	-17.5	-15.3									Baseline Offset (In Feet)
	0.0	-2.2									Incremental Change
	-13.9	-16.1									Cumulative Change
2+85	-17.2	-16.5									Baseline Offset (In Feet)
	0.0	-0.7									Incremental Change
	-9.7	-10.4									Cumulative Change
2+90	-0.6	14.8									Baseline Offset (In Feet)
	-8.2	-15.4									Incremental Change
	-23.9	-39.3									Cumulative Change
3+00	2.1	17.4									Baseline Offset (In Feet)
	-2.0	-15.3									Incremental Change
	-11.2	-26.5									Cumulative Change
3+10	-3.2	3.8									Baseline Offset (In Feet)
	-2.0	-7.0									Incremental Change
	-8.3	-15.2									Cumulative Change
3+15	-4.2	-1.8									Baseline Offset (In Feet)
	-5.3	-2.4									Incremental Change
	-11.9	-14.3									Cumulative Change
3+20	-4.0	-3.0									Baseline Offset (In Feet)
	-4.9	-1.0									Incremental Change
	-12.0	-13.0									Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 12 for Survey Baseline Stations										
	7/21/2013	8/12/2014	Future	Future	Future	Future	Future	Future	Future	Future	Date
3+25	-4.0	-4.0									Baseline Offset (In Feet)
	-5.6	0.0									Incremental Change
	-13.2	-13.1									Cumulative Change
3+30	-5.9	-5.9									Baseline Offset (In Feet)
	-5.1	0.0									Incremental Change
	-29.5	-29.5									Cumulative Change
3+35	-12.7	-13.3									Baseline Offset (In Feet)
	0.0	0.6									Incremental Change
	-23.0	-22.4									Cumulative Change
3+40	-18.9	-19.4									Baseline Offset (In Feet)
	0.0	0.5									Incremental Change
	-15.3	-14.9									Cumulative Change
3+45	-17.0	-17.7									Baseline Offset (In Feet)
	0.0	0.7									Incremental Change
	-15.4	-14.7									Cumulative Change
3+52	3.1	3.7									Baseline Offset (In Feet)
	0.0	-0.6									Incremental Change
	-13.2	-13.8									Cumulative Change
3+60	3.1	3.1									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-15.0	-15.0									Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 12 for Survey Baseline Stations										
	7/21/2013	8/12/2014	Future	Future	Future	Future	Future	Future	Future	Future	Date
3+65	-13.9	-13.9									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-5.0	-5.0									Cumulative Change
3+70	-12.0	-12.0									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-12.0	-11.9									Cumulative Change
3+75	-10.1	-10.1									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-13.1	-13.1									Cumulative Change
3+80	-8.9	-8.9									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-10.7	-10.7									Cumulative Change
3+85	-10.6	-10.6									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-9.3	-9.3									Cumulative Change
3+95	-14.1	-14.1									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-12.0	-12.0									Cumulative Change
4+00	-15.9	-15.9									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-14.0	-14.0									Cumulative Change

Alpine CP 00
HDD East Site
Streambank Monitor

Baseline Station	Streambank Monitor - Top of Bank Locations										Description
	See Drawing CE-CP00-134 Rev 12 for Survey Baseline Stations										
	7/21/2013	8/12/2014	Future	Future	Future	Future	Future	Future	Future	Future	Date
4+05	-20.5	-20.5									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-9.4	-9.4									Cumulative Change
4+15	2.5	2.4									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-33.2	-33.1									Cumulative Change
4+25	4.6	5.4									Baseline Offset (In Feet)
	0.0	-0.7									Incremental Change
	-13.2	-14.0									Cumulative Change
4+35	4.9	4.9									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-10.5	-10.5									Cumulative Change
4+45	1.6	1.6									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-6.7	-6.7									Cumulative Change
4+50	5.0	5.0									Baseline Offset (In Feet)
	0.0	0.0									Incremental Change
	-11.3	-11.3									Cumulative Change

*****Note:** Field Survey dated 8/7/01 was used for baseline data to compute Incremental/Cumulative Change. Negative numbers indicate erosion.

Alpine CP 00
HDD East Site
Subsidence Monitor - Seawater Line

Baseline Station	Point Description	Subsidence Monitor - Cross-Section A								Description
		See Drawing CE-CP00-134 for Survey Cross-Section Locations								
		7/14/2012	7/20/2013	8/12/2014	Future	Future	Future	Future	Future	Date
0+00	**Tundra**	17.0	16.9	17.1						Elevation (In Feet)
		-0.1	0.0	0.1						Incremental Change
		-0.9	-1.0	-0.8						Cumulative Change
0+09	**Tundra**	17.1	17.1	17.1						Elevation (In Feet)
		0.1	0.0	0.0						Incremental Change
		-0.8	-0.8	-0.8						Cumulative Change
0+18	**Tundra**	16.5	16.3	16.4						Elevation (In Feet)
		-0.1	-0.1	0.0						Incremental Change
		-1.2	-1.3	-1.2						Cumulative Change
0+21	**Top Bank**	15.3	15.0	15.3						Elevation (In Feet)
		-0.1	-0.3	0.3						Incremental Change
		-1.5	-1.8	-1.5						Cumulative Change
0+22.5	**Gradebreak**	13.0	12.5	14.3						Elevation (In Feet)
		-0.1	-0.5	1.8						Incremental Change
		-2.4	-2.9	-1.1						Cumulative Change
0+25	**Toe Bank**	11.5	10.4	11.7						Elevation (In Feet)
		-0.1	-1.1	1.3						Incremental Change
		-2.1	-3.2	-1.9						Cumulative Change
0+27	**CL Swale**	11.1	9.8	10.9						Elevation (In Feet)
		-0.1	-1.4	1.2						Incremental Change
		-2.2	-3.5	-2.4						Cumulative Change
0+29	**Toe Bank**	13.1	12.1	11.9						Elevation (In Feet)
		0.1	-1.0	-0.3						Incremental Change
		-0.2	-1.2	-1.4						Cumulative Change

Alpine CP 00
HDD East Site
Subsidence Monitor - Seawater Line

Baseline Station	Point Description	Subsidence Monitor - Cross-Section A								Description
		See Drawing CE-CP00-134 for Survey Cross-Section Locations								
		7/14/2012	7/20/2013	8/12/2014	Future	Future	Future	Future	Future	Date
0+34	**Gradebreak**	14.0	12.8	14.4						Elevation (In Feet)
		-0.2	-1.1	1.6						Incremental Change
		-1.6	-2.8	-1.2						Cumulative Change
0+35	**Top Bank**	16.5	16.2	16.2						Elevation (In Feet)
		0.2	-0.3	0.1						Incremental Change
		-1.2	-1.4	-1.4						Cumulative Change
0+42	**Tundra**	17.3	17.2	17.3						Elevation (In Feet)
		0.0	-0.1	0.1						Incremental Change
		-1.0	-1.1	-1.0						Cumulative Change
0+50	**Tundra**	16.6	16.5	16.5						Elevation (In Feet)
		-0.1	-0.2	0.1						Incremental Change
		-1.4	-1.6	-1.5						Cumulative Change
*****Note: Baseline Stationing Runs from North to South along Cross-Sections.**										
*****Note: Vertical Datum Adjusted Down Approximately 0.5 feet to reflet Actual Elevation per Differential Levels from CD-1, ran August 2007**										

Alpine CP 00
HDD East Site
Subsidence Monitor - Seawater Line

Baseline Station	Point Description	Subsidence Monitor - Cross-Section B								Description
		See Drawing CE-CP00-134 for Survey Cross-Section Locations								
		7/14/2012	7/20/2013	8/12/2014	Future	Future	Future	Future	Future	Date
0+00	**Tundra**	16.7	16.6	16.8						Elevation (In Feet)
		-0.1	-0.1	0.1						Incremental Change
		-0.8	-0.9	-0.7						Cumulative Change
0+10	**Tundra**	17.0	16.8	17.0						Elevation (In Feet)
		0.0	-0.2	0.2						Incremental Change
		-0.9	-1.1	-0.9						Cumulative Change
0+23	**Tundra**	16.7	16.6	16.8						Elevation (In Feet)
		0.1	-0.2	0.2						Incremental Change
		-0.8	-0.9	-0.7						Cumulative Change
0+25	**Top of Bank**	15.1	15.0	16.0						Elevation (In Feet)
		0.0	-0.1	1.0						Incremental Change
		-2.1	-2.2	-1.2						Cumulative Change
0+27	**Gradebreak**	14.5	14.5	14.7						Elevation (In Feet)
		-0.3	0.1	0.2						Incremental Change
		-2.2	-2.2	-2.0						Cumulative Change
0+32	**Toe Bank**	12.2	12.5	11.5						Elevation (In Feet)
		-0.6	0.3	-1.0						Incremental Change
		-2.0	-1.7	-2.7						Cumulative Change
0+35	**CL Swale**	12.6	12.3	10.8						Elevation (In Feet)
		-1.2	-0.3	-1.5						Incremental Change
		-1.8	-2.1	-3.6						Cumulative Change
0+37	**Toe Bank**	N/A	13.5	11.8						Elevation (In Feet)
		N/A	N/A	-1.7						Incremental Change
		N/A	-0.4	-2.2						Cumulative Change

Alpine CP 00

HDD East Site

Subsidence Monitor - Seawater Line

Baseline Station	Point Description	Subsidence Monitor - Cross-Section B								Description
		See Drawing CE-CP00-134 for Survey Cross-Section Locations								
		7/14/2012	7/20/2013	8/12/2014	Future	Future	Future	Future	Future	Date
0+38	**Gradebreak**	13.9	13.5	12.2						Elevation (In Feet)
		-0.3	-0.3	-1.3						Incremental Change
		-1.3	-1.7	-3.0						Cumulative Change
0+40	**Gradebreak**	13.4	13.4	13.1						Elevation (In Feet)
		-0.3	0.0	-0.3						Incremental Change
		-1.1	-1.1	-1.4						Cumulative Change
0+42	**Gradebreak**	14.6	14.4	14.3						Elevation (In Feet)
		0.0	-0.2	-0.1						Incremental Change
		-1.3	-1.4	-1.5						Cumulative Change
0+49	**Gradebreak**	15.7	15.5	15.9						Elevation (In Feet)
		0.2	-0.2	0.4						Incremental Change
		-0.5	-0.7	-0.3						Cumulative Change
0+52	**Top Bank**	17.0	16.9	17.1						Elevation (In Feet)
		0.1	-0.1	0.2						Incremental Change
		-0.3	-0.4	-0.2						Cumulative Change
0+60	**Tundra**	17.2	17.2	17.3						Elevation (In Feet)
		0.1	0.0	0.1						Incremental Change
		-0.6	-0.6	-0.5						Cumulative Change

*****Note: Baseline Stationing Runs from North to South along Cross-Sections.**

*****Note: Vertical Datum Adjusted Down Approximately 0.5 feet to reflet Actual Elevation per Differential Levels from CD-1, ran August 2007**

Alpine CP 00
HDD East Site
Subsidence Monitor - Seawater Line

Baseline Station	Point Description	Subsidence Monitor - Cross-Section C								Description
		See Drawing CE-CP00-134 for Survey Cross-Section Locations								
		7/14/2012	7/20/2013	8/12/2014	Future	Future	Future	Future	Future	Date
0+00	**Tundra**	16.0	15.9	16.1						Elevation (In Feet)
		0.0	-0.2	0.2						Incremental Change
		-0.9	-1.1	-0.8						Cumulative Change
0+13	**Tundra**	15.9	15.8	16.0						Elevation (In Feet)
		-0.1	-0.1	0.2						Incremental Change
		-0.9	-1.0	-0.8						Cumulative Change
0+27	**Top Bank**	16.1	16.0	15.7						Elevation (In Feet)
		-0.1	-0.2	-0.3						Incremental Change
		-0.9	-1.1	-1.3						Cumulative Change
0+29	**Toe Bank**	13.3	13.2	13.2						Elevation (In Feet)
		0.0	-0.1	0.0						Incremental Change
		0.5	0.4	0.4						Cumulative Change
0+31	**Toe Bank**	13.0	13.0	13.8						Elevation (In Feet)
		0.3	0.0	0.8						Incremental Change
		-0.9	-0.9	-0.1						Cumulative Change
0+32	**Gradebreak**	15.9	15.7	15.5						Elevation (In Feet)
		0.1	-0.2	-0.2						Incremental Change
		-0.8	-1.0	-1.2						Cumulative Change
0+33	**Top Bank**	16.6	16.4	16.3						Elevation (In Feet)
		0.0	-0.2	-0.1						Incremental Change
		-0.7	-0.9	-1.0						Cumulative Change
0+42	**Tundra**	16.5	16.5	16.6						Elevation (In Feet)
		0.0	0.0	0.1						Incremental Change
		-0.5	-0.5	-0.4						Cumulative Change

Alpine CP 00
HDD East Site
Subsidence Monitor - Seawater Line

Baseline	**Point**	**Subsidence Monitor - Cross-Section C**								**Description**
Station	**Description**	See Drawing CE-CP00-134 for Survey Cross-Section Locations								
		7/14/2012	**7/20/2013**	**8/12/2014**	**Future**	**Future**	**Future**	**Future**	**Future**	**Date**
0+50	**Tundra**	16.8	16.7	16.9						Elevation (In Feet)
		0.0	0.0	0.1						Incremental Change
		-0.4	-0.5	-0.3						Cumulative Change
*****Note: Baseline Stationing Runs from North to South along Cross-Sections.**										
*****Note: Vertical Datum Adjusted Down Approximately 0.5 feet to reflet Actual Elevation per Differential Levels from CD-1, ran August 2007**										

Alpine CP 00
HDD East Site
Subsidence Monitor - Seawater Line

Baseline Station	Point Description	Subsidence Monitor - Cross-Section D								Description
		See Drawing CE-CP00-134 for Survey Cross-Section Locations								
		7/15/2012	7/20/2013	8/12/2014	Future	Future	Future	Future	Future	Date
0+00	**Tundra**	16.5	16.4	16.5						Elevation (In Feet)
		-0.1	-0.1	0.1						Incremental Change
		-1.1	-1.2	-1.1						Cumulative Change
0+10	**Tundra**	16.7	16.6	16.7						Elevation (In Feet)
		-0.1	-0.2	0.1						Incremental Change
		-1.0	-1.1	-1.0						Cumulative Change
0+20	**Gradebreak**	15.8	15.6	15.8						Elevation (In Feet)
		0.1	-0.2	0.2						Incremental Change
		-1.6	-1.8	-1.6						Cumulative Change
0+22	**Top Bank**	14.8	14.7	15.1						Elevation (In Feet)
		0.0	-0.2	0.4						Incremental Change
		-2.0	-2.1	-1.7						Cumulative Change
0+24	**Toe Bank**	14.3	14.1	14.2						Elevation (In Feet)
		0.0	-0.2	0.2						Incremental Change
		-0.4	-0.6	-0.5						Cumulative Change
0+25	**CL Swale**	13.5	13.6	14.1						Elevation (In Feet)
		0.1	0.2	0.5						Incremental Change
		-0.6	-0.5	0.0						Cumulative Change
0+27	**Toe Bank**	15.4	15.1	14.7						Elevation (In Feet)
		0.0	-0.3	-0.4						Incremental Change
		1.0	0.7	0.3						Cumulative Change
0+29	**Top Bank**	15.7	15.6	15.6						Elevation (In Feet)
		-0.1	-0.1	0.1						Incremental Change
		-1.6	-1.8	-1.7						Cumulative Change

Alpine CP 00
HDD East Site
Subsidence Monitor - Seawater Line

Baseline	Point	Subsidence Monitor - Cross-Section D								Description
Station	Description	See Drawing CE-CP00-134 for Survey Cross-Section Locations								
		7/15/2012	7/20/2013	8/12/2014	Future	Future	Future	Future	Future	Date
0+38	Tundra	14.6	14.7	14.7						Elevation (In Feet)
		-0.3	0.1	0.1						Incremental Change
		-3.0	-2.9	-2.9						Cumulative Change
0+50	Tundra	15.0	15.3	14.9						Elevation (In Feet)
		0.3	0.3	-0.4						Incremental Change
		-2.8	-2.4	-2.8						Cumulative Change
***Note: Baseline Stationing Runs from North to South along Cross-Sections.										
***Note: Vertical Datum Adjusted Down Approximately 0.5 feet to reflet Actual Elevation per Differential Levels from CD-1, ran August 2007										

Alpine CP 00
HDD East Site
Subsidence Monitor - Seawater Line

Baseline Station	Point Description	Subsidence Monitor - Cross-Section E										Description
		See Drawing CE-CP00-134 for Survey Cross-Section Locations										
		7/20/2013	8/12/2014	Future	Future	Future	Future	Future	Future	Future	Future	Date
0+00	**Tundra**	16.7	16.9									Elevation (In Feet)
		0.0	0.2									Incremental Change
		-0.8	-0.6									Cumulative Change
0+9	**Tundra**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Elevation (In Feet)
												Incremental Change
												Cumulative Change
0+12	**Gradebreak**	17.2	17.3									Elevation (In Feet)
		0.0	0.1									Incremental Change
		-0.6	-0.6									Cumulative Change
0+20	**Top Bank**	15.0	15.2									Elevation (In Feet)
		-0.1	0.2									Incremental Change
		-2.3	-2.1									Cumulative Change
0+21	**Toe Bank**	13.1	14.2									Elevation (In Feet)
		-0.3	1.1									Incremental Change
		-3.4	-2.3									Cumulative Change
0+23	**CL Swale**	13.1	13.2									Elevation (In Feet)
		0.2	0.1									Incremental Change
		-2.9	-2.8									Cumulative Change
0+24	**Toe Bank**	13.2	13.2									Elevation (In Feet)
		0.2	0.1									Incremental Change
		-3.0	-3.0									Cumulative Change
0+27	**Top Bank**	14.7	14.8									Elevation (In Feet)
		0.3	0.1									Incremental Change
		-2.6	-2.6									Cumulative Change

Alpine CP 00
HDD East Site
Subsidence Monitor - Seawater Line

Baseline	Point	Subsidence Monitor - Cross-Section E										Description
Station	Description	See Drawing CE-CP00-134 for Survey Cross-Section Locations										
		7/20/2013	8/12/2014	Future	Future	Future	Future	Future	Future	Future	Future	Date
0+38	**Tundra**	16.7	16.8									Elevation (In Feet)
		-0.1	0.1									Incremental Change
		-0.7	-0.6									Cumulative Change
0+49	**Tundra**	16.5	16.8									Elevation (In Feet)
		-0.2	0.2									Incremental Change
		-0.9	-0.6									Cumulative Change
*****Note: Baseline Stationing Runs from North to South along Cross-Sections.**												
*****Note: Vertical Datum Adjusted Down Approximately 0.5 feet to reflet Actual Elevation per Differential Levels from CD-1, ran August 2007**												

Alpine CP 00
HDD East Site
Subsidence Monitor - Seawater Line

Baseline Station	Point Description	Subsidence Monitor - Cross-Section F										Description
		See Drawing CE-CP00-134 for Survey Cross-Section Locations										
		9/20/2013	8/12/2014	Future	Future	Future	Future	Future	Future	Future	Future	Date
0+00	**Tundra**	17.3	17.5									Elevation (In Feet)
		0.0	0.2									Incremental Change
		-0.6	-0.4									Cumulative Change
0+10	**Tundra**	16.6	16.9									Elevation (In Feet)
		-0.1	0.2									Incremental Change
		-0.7	-0.4									Cumulative Change
0+14	**Gradebreak**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Elevation (In Feet)
												Incremental Change
												Cumulative Change
0+20	**Top Bank**	15.8	16.1									Elevation (In Feet)
		-0.3	0.3									Incremental Change
		-1.7	-1.4									Cumulative Change
0+21	**Toe Bank**	13.9	15.5									Elevation (In Feet)
		-0.3	1.7									Incremental Change
		-2.6	-1.0									Cumulative Change
0+24	**CL Swale**	13.6	13.7									Elevation (In Feet)
		-0.1	0.2									Incremental Change
		-1.4	-1.3									Cumulative Change
0+26	**Toe Bank**	14.4	14.6									Elevation (In Feet)
		1.0	0.2									Incremental Change
		-1.7	-1.5									Cumulative Change
0+28	**Top Bank**	15.7	15.9									Elevation (In Feet)
		0.1	0.2									Incremental Change
		-2.1	-1.9									Cumulative Change

Alpine CP 00
HDD East Site
Subsidence Monitor - Seawater Line

Baseline Station	Point Description	Subsidence Monitor - Cross-Section F										Description
		See Drawing CE-CP00-134 for Survey Cross-Section Locations										
		9/20/2013	8/12/2014	Future	Future	Future	Future	Future	Future	Future	Future	Date
0+34	**Gradebreak**	17.4	17.5									Elevation (In Feet)
		0.0	0.1									Incremental Change
		-0.5	-0.4									Cumulative Change
0+43	**Gradebreak**	16.7	17.1									Elevation (In Feet)
		-0.2	0.3									Incremental Change
		-0.5	-0.1									Cumulative Change
0+46	**Gradebreak**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Elevation (In Feet)
												Incremental Change
												Cumulative Change
0+52	**Tundra**	17.2	17.4									Elevation (In Feet)
		0.0	0.1									Incremental Change
		-0.6	-0.4									Cumulative Change
*****Note: Baseline Stationing Runs from North to South along Cross-Sections.**												
*****Note: Vertical Datum Adjusted Down Approximately 0.5 feet to reflet Actual Elevation per Differential Levels from CD-1, ran August 2007**												

Alpine CP 00
HDD East Site
Subsidence Monitor - Seawater Line

Baseline Station	Point Description	Subsidence Monitor - Cross-Section G See Drawing CE-CP00-134 for Survey Cross-Section Locations									
		9/20/2013	8/12/2014	Future	Future	Future	Future	Future	Future	Future	Future
0+00	Tundra	16.4	16.6								
		-0.1	0.2								
		-0.7	-0.5								
0+09	Tundra	16.5	16.6								
		0.0	0.1								
		-0.7	-0.6								
0+16	Gradebreak	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
0+22	Top Bank	16.8	17.0								
		-0.2	0.3								
		-0.8	-0.6								
0+24	Toe Bank	16.3	16.4								
		-0.1	0.1								
		-0.6	-0.5								
0+26	CL Swale	16.4	16.4								
		0.4	0.0								
		-0.1	-0.1								
0+28	Toe Bank	16.4	16.3								
		0.1	0.0								
		-0.4	-0.5								
0+30	Top Bank	17.2	17.4								
		0.0	0.1								
		-0.5	-0.3								

Alpine CP 00
HDD East Site
Subsidence Monitor - Seawater Line

Baseline Station	Point Description	Subsidence Monitor - Cross-Section G									
		See Drawing CE-CP00-134 for Survey Cross-Section Locations									
		9/20/2013	8/12/2014	Future	Future	Future	Future	Future	Future	Future	Future
0+37	**Tundra**	17.0	17.3								
		-0.1	0.3								
		-0.6	-0.3								
0+46	**Tundra**	16.7	16.8								
		0.0	0.1								
		-0.6	-0.5								
*****Note: Baseline Stationing Runs from North to South along Cross-Sections.**											
*****Note: Vertical Datum Adjusted Down Approximately 0.5 feet to reflet Actual Elevation per Differential Levels from CD-1, ran August 2007**											

Alpine CP 00

HDD East Site

Subsidence Monitor - Seawater Line

Description
Date
Elevation (In Feet)
Incremental Change
Cumulative Change
Elevation (In Feet)
Incremental Change
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Elevation (In Feet)
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Cumulative Change

Alpine CP 00

HDD East Site

Subsidence Monitor - Seawater Line

Description
Date
Elevation (In Feet)
Incremental Change
Cumulative Change
Elevation (In Feet)
Incremental Change
Cumulative Change

Alpine CP 00
HDD East Site
Subsidence Monitor - Seawater Line

Baseline Station	Point Description	Subsidence Monitor - Cross-Section H										Description
		See Drawing CE-CP00-134 for Survey Cross-Section Locations										
		9/20/2013	8/12/2014	Future	Future	Future	Future	Future	Future	Future	Future	Date
0+00	**Tundra**	16.0	16.2									Elevation (In Feet)
		-0.1	0.2									Incremental Change
		-1.0	-0.8									Cumulative Change
0+09	**Tundra**	16.3	16.5									Elevation (In Feet)
		-0.1	0.1									Incremental Change
		-0.8	-0.6									Cumulative Change
0+18	**Gradebreak**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Elevation (In Feet)
												Incremental Change
												Cumulative Change
0+24	**Top Bank**	16.4	15.9									Elevation (In Feet)
		-0.1	-0.5									Incremental Change
		-0.9	-1.5									Cumulative Change
0+25	**Toe Bank**	14.3	14.9									Elevation (In Feet)
		-0.5	0.5									Incremental Change
		-2.5	-2.0									Cumulative Change
0+28	**CL Swale**	14.1	14.3									Elevation (In Feet)
		-0.6	0.2									Incremental Change
		-2.2	-2.0									Cumulative Change
0+30	**Toe Bank**	14.0	14.3									Elevation (In Feet)
		-0.9	0.3									Incremental Change
		-2.7	-2.3									Cumulative Change
0+32	**Top Bank**	15.8	15.8									Elevation (In Feet)
		-0.4	0.0									Incremental Change
		-1.8	-1.8									Cumulative Change

Alpine CP 00
HDD East Site
Subsidence Monitor - Seawater Line

Baseline Station	Point Description	Subsidence Monitor - Cross-Section H										Description
		See Drawing CE-CP00-134 for Survey Cross-Section Locations										
		9/20/2013	8/12/2014	Future	Future	Future	Future	Future	Future	Future	Future	Date
0+40	**Gradebreak**	17.5	17.7									Elevation (In Feet)
		-0.1	0.1									Incremental Change
		-0.7	-0.5									Cumulative Change
0+42	**Gradebreak**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Elevation (In Feet)
												Incremental Change
												Cumulative Change
0+50	**Tundra**	16.6	16.8									Elevation (In Feet)
		-0.1	0.2									Incremental Change
		-0.6	-0.4									Cumulative Change
*****Note: Baseline Stationing Runs from North to South along Cross-Sections.**												
*****Note: Vertical Datum Adjusted Down Approximately 0.5 feet to reflet Actual Elevation per Differential Levels from CD-1, ran August 2007**												

2014 Alpine Pipeline River Crossing Monitoring