HOMESTEAD AT STERLING RANCH FILING NO. 2
AND
BRANDING IRON AT STERLING RANCH FILING NO. 2

BANK STABILIZATION DESIGN SUMMARY

EL PASO COUNTY, COLORADO

January 2020

Prepared for:
SR Land, LLC
20 Boulder Crescent, Suite 210
Colorado Springs, CO 80903

Prepared by:

CIVIL CONSULTANTS, INC.
102 E. Pikes Peak, Suite 500
Colorado Springs, CO 80903
(719) 955-5485

Project #09-007
SF -19-004

HOMESTEAD AT STERLING RANCH FILING NO. 2 AND BRANDING IRON AT STERLING RANCH FILING NO. 2 BANK STABILIZATION DESIGN SUMMARY

TABLE OF CONTENTS

Appendix

Vicinity Map
Soils Map
FEMA FIRM Map
Hydraulic Calculations
Photographs of Channel/N Value Assessment
North American Green Specification - SC150
North American Green Specification - SC250
Construction Drawings

HOMESTEAD AT STERLING RANCH FILING NO. 2 AND BRANDING IRON AT STERLING RANCH FILING NO. 2 BANK STABILIZATION DESIGN SUMMARY

PURPOSE

This document in support of development for Branding Iron at Sterling Ranch Filing No. 2 and the Homestead at Sterling Ranch Filing No. 2 subdivisions. . This report provides data to determine the interim improvements to the Sand Creek Channel adjacent to the two single family subdivisions. The purpose of this document is to identify and analyze areas where the flow in the channel require "stabilization" prior to the full construction of the Sand Creek Channel Improvements and is consistent with the Subdivision Improvements Agreement for Sterling Ranch Filing No. 1.

GENERAL SITE DESCRIPTION

The proposed improvements are located within Section 33, Township 12 South Range 65 West of the Sixth Principle Median, City of Colorado Springs, El Paso County. The study is bounded at the upstream end at Future Briargate Parkway and to the downstream end by Future Sterling Ranch Road. Improvements are to the West bank of the Main Stem of the Sand Creek Channel within the Sterling Ranch Development adjacent to Branding Iron at Sterling Ranch Filing No. 2 and Sterling Ranch Filing No. 2.

SOILS

The site and surrounding areas consist of well to excessively drained soils that average an annual precipitation of 15 inches and the average frost-free period of about 135 days. Existing Soil tributary to the area are hydrologic Groups A and B as mapped by the Soils Conservation Service.

To the east of the Sand Creek drainage drainageway, the site is generally underlain by the Blakeland (8) and Columbine (19) loamy soil series, Hydrologic Group A. To the north and east the site is underlain by the Pring soil series (71), Hydrologic Group B. To the west of Sand Creek the site is underlain by the prior mentioned soil series with the addition of the Blakeland Complex (9), Hydrologic Group A.

FLOODPLAIN STATEMENT

The Sterling Ranch development contains a floodplain, according to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel No. 08041C0533 G, effective date December, 7, 2018. A copy is provided in the appendix

EXISTING DRAINAGE CONDITIONS

The Existing Sand Creek Channel analyzed by this project flows through the Proposed Sterling Ranch Subdivision from Project Station 12+600 (at Future Briargate Parkway) to Project Station 68+00 (at Future Sterling Ranch Road) from north to south. In the existing condition the main branch of the Sand Creek Channel ranges in slope between 0.5 and 4% with an average slope of 1.6% With the exception of a few segments the typical Sand Creek channel bed often lacks a defined low flow and is heavily vegetated with native grasses and willows. The existing side slopes typically range from 1:1 to 10:1, and are composed of, some willows, but largely native grasses and with some areas of exposed hard sand and

sand stone. The locations of bank erosion appear to the result of both concentrated offsite drainage and some spot channel degradation most notably occurring in the sinuous reach segments. The channel reach possess an existing stock pond. Existing Soil tributary to the area are hydrologic Groups A and B as mapped by the Soils Conservation Service.

CHANNEL ANALYSIS/HEC-RAS MODELING

HEC-RAS version 5.0.3 was used to perform a one dimensional, steady flow hydraulic model of the studied reach. Cross Sections for the Model were taken every 100' across the reach. Topography information exported from AutoCAD and into HEC-RAS was derived from LIDAR data was obtained for the Sterling Ranch Development and processed into 2' Contour mapping by Sandborn in 2006. The selected Mannings 'n' values were reflective of early springs vegetation which was assumed from a Winter Field visit was performed in Early January 2020 by MSCivil to inspect the condition of the channel and assess channel vegetation. A photo study showing the various cross sections in winter conditions and the existing conditions assumed 'n' values at the given channel sections is provided in the appendix of the manual. Values were cross referenced against photo case information provided within "Guide for Selecting Roughness Coefficient "n" values for Channels, by the Soil Conservation Service, 'N'values selected ranged from 0.028-0.06. The HEC-RAS model was run using a mixed flow regime.

CHANNEL FLOW RATES

Sand Creek Channel Flow rates utilized in the HEC-RAS study were taken from the approved Master Development Drainage Plan for Sterling Ranch and range between 1776cfs and 2204cfs.

MODELING RESULTS

The HEC-RAS hydraulic models ran yielded 100-year maximum depths associated with the existing channel section ranged from 1.56' to 9.20'.

The west overbank channel velocities associated within the 100-year event ranged from 1.25 to 18.36 feet per second.

The west overbank channel shear associated with the 100-year event ranged from 0.07 to 11.06 pounds per square foot.

Froude numbers for the channel in the 100-year event ranged from 0.14 to 3.85 along the existing channel section.

HEC-RAS input and output associated with the open channel analysis is contained in the appendix of this report. The output data includes various channel information for all analyzed cross sections for the existing conditions at the MDDP, 100-year, flow rates.

SLOPE STABILITY DESIGN CONCEPTS AND ASSUMPTIONS

Refer to the attached "Homestead at Sterling Ranch Filing 2" – Sand Creek Bank Stabilization Plan dated January 2020 and Branding Iron at Sterling Ranch Filing 2" – Sand Creek Bank Stabilization Plan dated January 2020, in the appendix for specific construction details.

- **Grading** - Proposed grading within the 100-year floodplain was kept to a minimum. The proposed grading was compared to the preliminary design for the Sand Creek Channel Improvements by Kiowa Engineering. The comparison shows minimal overlap of grading and loss of the proposed improvements shown at this time. The overlap of grading in some areas will require re-blanketing of the slopes. The proposed buried rip-rap can remain.

- **Slopes** - The proposed grading of the slopes are shown at a maximum slope at 3H : 1V. The slope grading is not only to create a consistent slope, but also to prevent future erosion and sediment runoff into the Sand Creek Channel. Additionally, the slopes adjacent to the single family lots and Sand Creek will be stabilized concurrently with the subdivision construction.

- **Trail** - The grading of the regional trail will be constructed in all areas possible with this design. The future design of the regional trail and maintenance trails for the channel improvements will be completed with the final Sand Creek Channel construction drawings. The final channel drawings are anticipated to be submitted to EPC in the Springs of 2020.

- **Buried Rip-Rap** - A maximum of 6 feet per second was used as the cut-off for the determination of providing Type M buried rip-rap where grading occurs within the 100-year floodplain. This only occurs in a few locations.

- **100-year Floodplain Slope Protection** - In the areas where grading and rock are placed within the 100-year Floodplain, North American Green SC250 blankets shall be installed. This blanket was chosen for the following specification in areas with greater than 6 fps;
  - Un-vegetative Shear Stress - 2.5 - 8.0 psf.
  - Un-vegetative Velocity - 8.0 fps

- **Slope Protection -** In the areas outside the 100-year floodplain, North American Green SC150 blankets shall be installed. This blanket was chosen for the following specification in all areas where the proposed slopes are 3H : 1V.
  - Un-vegetative Shear Stress - 2.0 psf.
  - Un-vegetative Velocity - 8.0 fps

- **Seeding.** The contractor shall seed all blanketed slopes with the El Paso County specified seeding mix.

- **FEMA** - As no "channel improvements" are being constructed with out significant impacts to the floodplain and are shown to result in a no rise condition a CLOMR submittal to FEMA is not necessary.

- **Floodplain Administrator** - A "no rise" letter will be submitted to the EPC floodplain administrator upon consensus of these design drawings.

TIMING

It is the intent of the developer to construct the proposed Sand Creek Bank Stabilization as soon as possible. This timeline being the Spring of 2020. The design of the final Sand Creek Channel Improvement Plan is underway. It is anticipated that a submittal of these plans to EPC also be the Spring of 2020. Construction of the final channel improvements will occur following an approval of a CLOMR. This timeline being the Spring-Summer of 2021. The purpose to construct the channel improvements sooner than later is consistent with plans to begin development of the east side of the Sand Creek Channel in 2021.

SUMMARY AND RECOMMENDATIONS

The proposed bank stabilization provided by the Homestead at Sterling Ranch Filing 2 and Branding Iron at Sterling Ranch Filing 2, consists of slope grading and bank stabilization using both buried riprap and erosion control matting with seeding between Briagate Parkway and Sterling Ranch Road. The installation of the various improvements will function to allow for increased stability of the channel slopes by reducing the potential for erosion in the channel overbank areas immediately adjacent to the to residential subdivisions. It is anticipated that Sterling Ranch Metro District will be responsible for observation and maintenance of the channel adjacent to the proposed development

REFERENCES

1.) "El Paso County and City of Colorado Springs Drainage Criteria Manual, Vol I & II".

2.) "Urban Storm Drainage Criteria Manuals, Volumes 1-3"

3.) NRSC Web Soil Survey Map for El Paso County. http://websoilsurvey.nrcs.usda.gov

4.) Flood Insurance Rate Map (FIRM), Federal Emergency Management Agency, Effective date March 17, 1997.

5.) "Sand Creek Drainage Basin Planning Study" (DBPS) prepared by Kiowa Corporation, revised March 1996

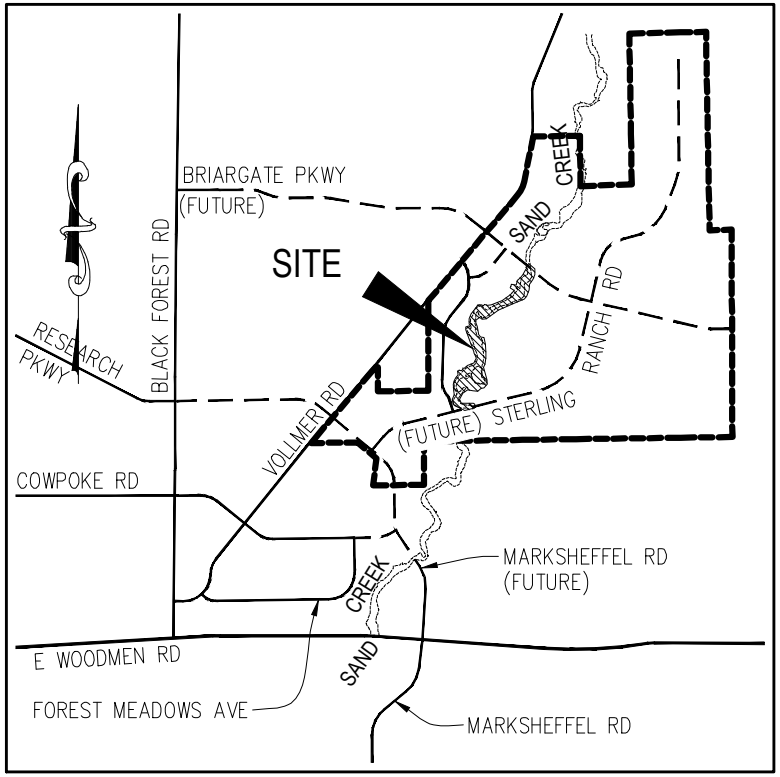
6.) "Sterling Ranch-Phase 1 Offsite Grading, Early Grading & Erosion Control Plans", prepared by M&S Civil Consultants, Inc., dated November 2015

7.) "Sterling Ranch-Phase 1 Onsite Grading, Early Grading & Erosion Control Plans", prepared by M&S Civil Consultants, Inc., dated November 2015

8.) "Master Development Drainage Report for Sterling Ranch Filing Nos. 1&2 and Final Drainage Report for Sterling Ranch Filing No. 1", prepared by M&S Civil Consultants, Inc., dated April 2017

APPENDIX

VICINITY MAP

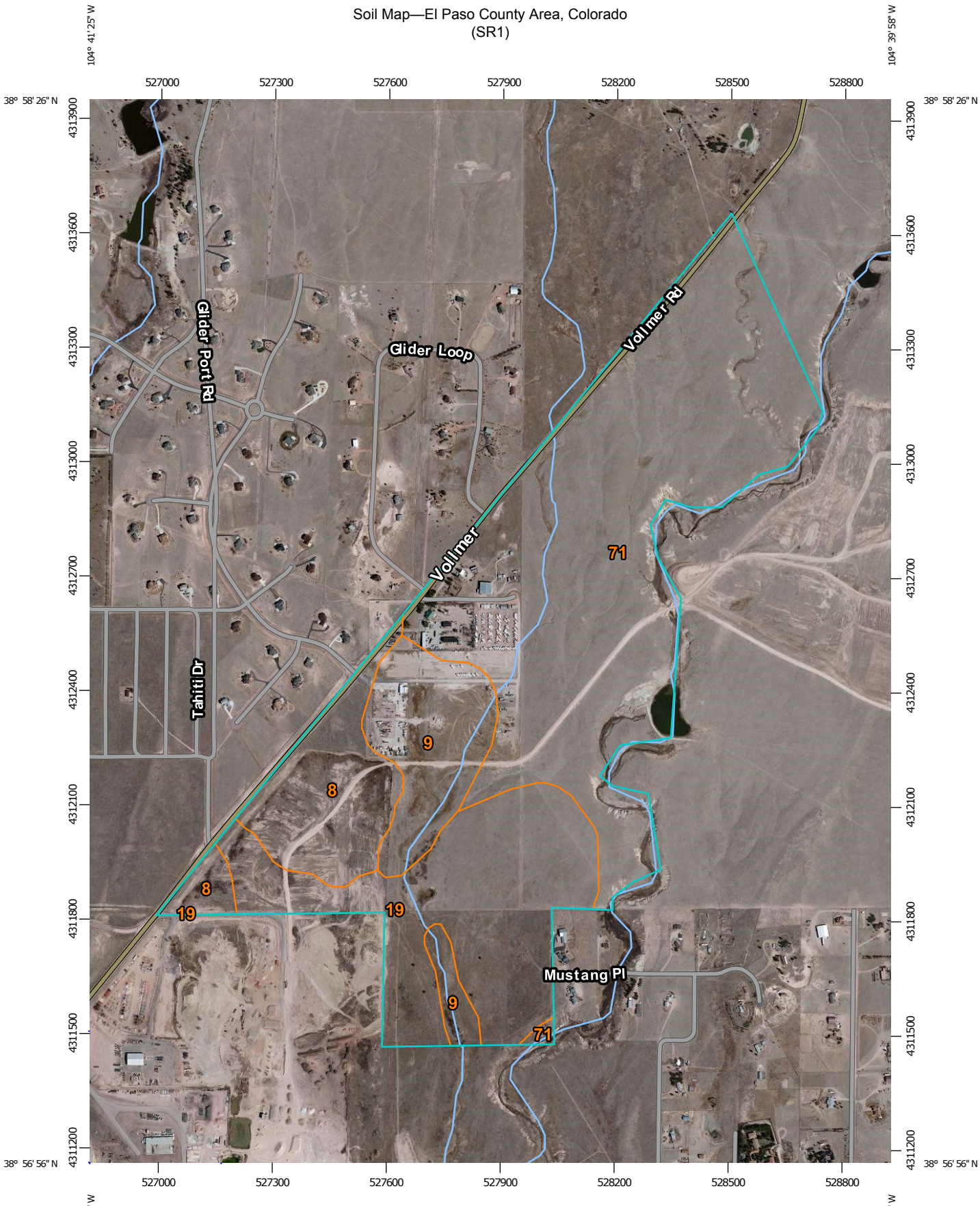


VICINITY MAP

N.T.S.

SOILS MAP

Soil Map—El Paso County Area, Colorado
(SR1)



Map Scale: 1:13,600 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 200 400 800 1200

Feet
0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 13, Sep 22, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

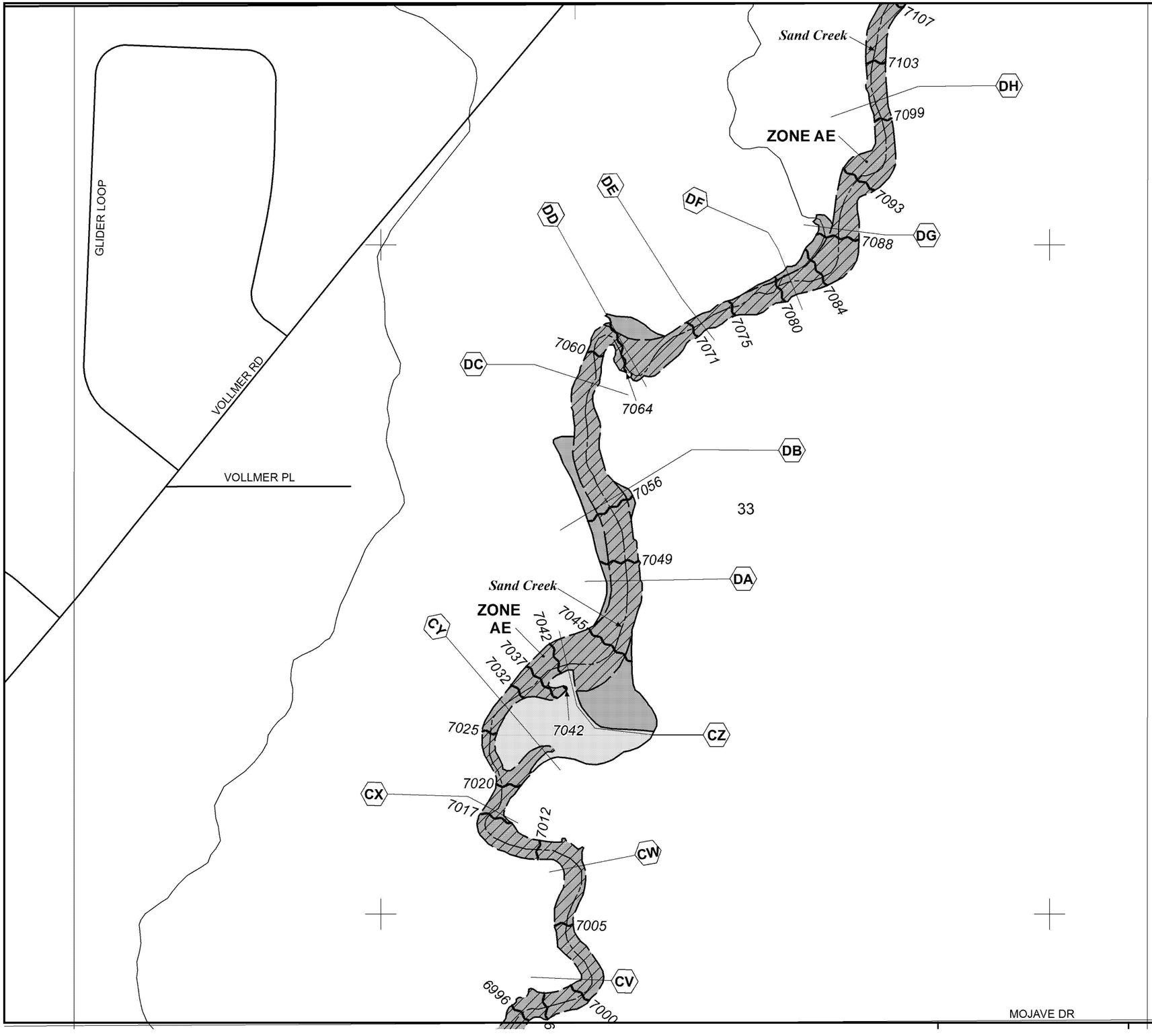
Date(s) aerial images were photographed: Apr 15, 2011—Sep 22, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

El Paso County Area, Colorado (CO625)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
8	Blakeland loamy sand, 1 to 9 percent slopes	40.1	11.4%
9	Blakeland-Fluvaquentic Haplaquolls	39.0	11.1%
19	Columbine gravelly sandy loam, 0 to 3 percent slopes	80.3	22.8%
71	Pring coarse sandy loam, 3 to 8 percent slopes	193.1	54.8%
Totals for Area of Interest		**352.5**	**100.0%**

FEMA FIRM PANEL



MAP SCALE 1" = 500'

0 500 1000 FEET

EL
UNINC

NFIP

PANEL 0533G

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

EL PASO COUNTY, COLORADO AND INCORPORATED AREAS

PANEL 533 OF 1300

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
COLORADO SPRINGS, CITY OF	080060	0533	G
EL PASO COUNTY	080059	0533	G

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
08041C0533G

MAP REVISED
DECEMBER 7, 2018

Federal Emergency Management Agency


Vollmer Rd
Glider Loop
Vollmer Rd
Vollmer Pl
7103 Ft
7099 Ft
7093 Ft
7088 Ft
7084 Ft
7080 Ft
7076 Ft
7071 Ft
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7056 Ft
7049 Ft
7046 Ft
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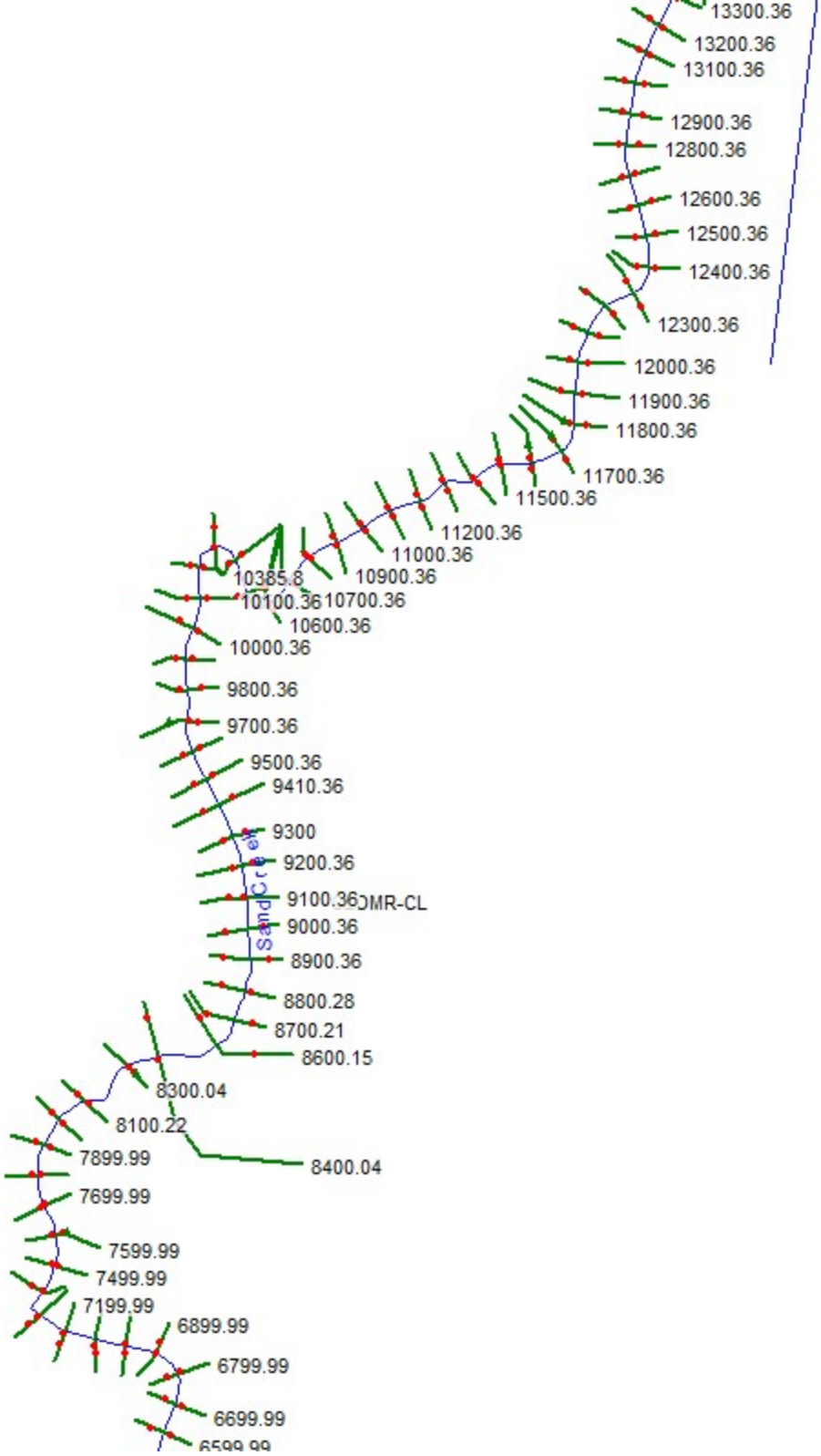
7020 Ft
7017 Ft

HYDRAULIC CALCULATIONS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10700.36
10600.36
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9700.36
9500.36
9410.36
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OMR-CL
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8900.36
8800.28
8700.21
8600.15
8300.04
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8400.04
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7599.99
7499.99
7199.99
6899.99
6799.99
6699.99
6599.99
Sand Creek

Sterling Ranch Model - Changed N values - Used MDDP Flows

Xsection	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Max Chl Dpth (ft)	Crit W.S. (ft)	E.G. Slope (ft/ft)	Vel Left (ft/s)	Vel Chnl (ft/s)	Vel Right (ft/s)	Shear LOB (lb/sq ft)	Shear Chan (lb/sq ft)	Shear ROB (lb/sq ft)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl	
SL-153	6800	PF 2	2204	7000	7005.11	5.11	7005.11	0.007218	3.96	10.66	4.09	0.63	1.82	0.67	242.69	83.83	0.93	
SL-154	6900	PF 2	2204	7001.99	7006.64	4.65	7005.85	0.006074	2.77	7.64	6.48	0.42	1.62	1.04	316.49	97.92	0.65	
SL-155	7000	PF 2	1906	7002	7007.35	5.35	7007.39	0.009313	5.45	10.98	5.26	1.09	2.55	0.85	214.01	74.04	0.92	
SL-156	7100	PF 2	1906	7003.82	7007.92	4.1	7008.65	0.019024	5.94	14.41	3.61	1.77	4.58	0.7	186.41	85.36	1.28	
SL-157	7200	PF 2	1906	7005.93	7010.69	4.76	7010.69	0.008559	4.62	9.69	2.01	0.83	2.07	0.2	263.95	115.47	0.85	
SL-158	7300	PF 2	1906	7005.9	7011.74	5.84	7011.37	0.006548	3.11	8.38	3.59	0.6	1.9	0.44	323.16	138.94	0.67	
SL-159	7400	PF 2	1906	7008	7012.53	4.53	7012.34	0.011088	4.01	8.63	4.3	1	2.71	0.95	274.35	114.61	0.77	
SL-160	7500	PF 2	1906	7010.07	7013.17	3.1	7013.8	0.030787	11.65	13.51	9.54	4.59	5.73	2.79	163.64	76.28	1.38	
SL-161	7600	PF 2	1906	7011.9	7015.69	3.79	7016.51	0.036854	6.47	15.3	6.65	1.99	7.23	1.7	131.08	118.44	1.51	
SL-162	7700	PF 2	1906	7013.04	7019.23	6.19	7019.68	0.015226	8.02	14.34	8.29	2.2	5.26	2.31	171.52	50.87	1.06	
SL-163	7800	PF 2	1906	7016.91	7021.39	4.47	7021.39	0.012723	6.79	10.95	9.44	1.64	3.35	1.74	189.64	57.77	0.94	
SL-164	7900	PF 2	1906	7018.37	7023.27	4.9		0.008428	5	7.91	5.23	0.94	2.22	0.82	261.5	79.43	0.68	
SL-165	8000	PF 2	1906	7019.99	7023.99	4	7023.43	0.008872	5.53	8.8	4.7	1.31	2.21	1.03	239.29	70.12	0.78	
SL-166	8100	PF 2	1906	7021.38	7023.06	1.68	7024.93	0.233181	18.36	26.46	8.91	9.79	21.35	5.1	76.7	66.67	3.85	
SL-167	8300	PF 2	1906	7035.4	7038.66	5.85	7038.66	0.009627	4.51	9.8	6.31	0.83	1.72	1.12	263.87	184.1	1.02	
SL-168	8400	PF 2	1906	7037.23	7039.81	2.58	7039.27	0.00381	2.42	5.77	2.79	0.21	0.56	0.21	338.35	154.45	0.67	
SL-169	8600	PF 2	1906	7037.98	7040.56	2.57		0.000944	1.25	3.06	1.57	0.07	0.15	0.08	643.32	265.01	0.34	
SL-170	8700	PF 2	1906	7037.99	7040.57	2.58		0.002512	2.03	4.66	2.23	0.18	0.4	0.21	430.55	183.06	0.51	
SL-171	8800	PF 2	1906	7038	7040.72	2.72		0.006655	3.01	6.73	3.7	0.41	1.13	0.56	303.82	132.23	0.72	
SL-172	8900	PF 2	1906	7038	7041.66	3.66		0.005108	2.06	4.67	2.03	0.26	0.89	0.26	414.28	157.92	0.49	
SL-173	9000	PF 2	1906	7038.44	7042.25	3.81		0.007006	3.52	4.81	2.88	0.53	1.36	0.46	407.31	150.26	0.48	
SL-174	9100	PF 2	1906	7039.93	7043	3.07	7042.99	0.023404	6.15	8.93	4	2.57	4.02	1.21	258.97	132.9	0.95	
SL-175	9200	PF 2	1906	7041.69	7044.98	3.29	7044.38	0.012479	8.25	6.59	4.42	1.42	2.51	1.02	298.84	123.76	0.65	
SL-176	9300	PF 2	1906	7043.26	7044.82	1.56	7046.12	0.378378	12.25	18.56	10.47	11.06	31.77	10.24	104.22	82.92	2.82	
SL-177	9410	PF 2	1906	7050.66	7052.64	1.98	7052.64	0.00857	4.03	7.68	3.54	0.56	1.05	0.46	294.63	199.1	0.97	
SL-178	9500	PF 2	1906	7044.3	7053.5	9.2		0.000368	1.37	2.48	1.24	0.07	0.21	0.05	893.21	162.93	0.14	
SL-179	9600	PF 2	1906	7044.9	7053.5	8.6		0.000467	1.46	3.33	1.58	0.09	0.25	0.08	695.61	132.34	0.2	
SL-180	9700	PF 2	1906	7045.8	7053.46	7.66	7051.16	0.00154	1.98	5.19	3.64	0.18	0.65	0.31	456.93	175.65	0.35	
SL-285	9800	PF 2	1776	7046.5	7053.67	7.17		0.001898	2.37	4.37	2.69	0.21	0.63	0.21	430.07	101.38	0.33	
SL-181	9900	PF 2	1776	7048	7053.77	5.77		0.002585	2.94	5.53	4.71	0.31	0.81	0.37	343.51	86.6	0.43	
SL-182	10000	PF 2	1776	7050	7053.93	3.93		0.008319	3.19	7.57	3.2	0.31	1.73	0.48	253.82	101.71	0.73	
SL-183	10100	PF 2	1776	7051	7054.75	3.75	7054.21	0.007766	4.44	7.53	3.54	0.5	1.69	0.65	259.44	95.63	0.71	
SL-184	10204	PF 2	1776	7052	7056.42	4.42	7056.42	0.015517	5.5	9.77	6.36	1.26	3.54	0.91	198.09	72.7	0.9	
SL-185	10300	PF 2	1776	7053.3	7058.19	4.89	7057.09	0.004537	3.38	5.57	3.53	0.53	1.12	0.31	370.41	130.98	0.49	
SL-186	10386	PF 2	1776	7055.77	7059.07	3.3	7059.07	0.010591	4.81	9.45	5.03	0.93	2.1	1	228.81	101.99	0.93	
SL-187	10500	PF 2	1776	7056.67	7060.69	4.02	7060.49	0.010277	2.58	7.22	2.43	0.21	1.7	0.4	268.59	143.71	0.78	
SL-188	10600	PF 2	1776	7058	7061.2	3.2	7061.69	0.019579	3.64	11.86	5.51	0.42	3.45	1.59	223.37	134.73	1.21	
SL-189	10700	PF 2	1776	7058.14	7061.55	3.41	7063.42	0.033144	5.64	17.14	5.32	1.58	5.42	1.44	107.96	46.51	1.86	
SL-190	10800	PF 2	1776	7059.99	7065.37	5.37	7066.04	0.007334	3.79	13	3.93	0.6	2.21	0.63	188.73	77.94	1.02	
SL-191	10900	PF 2	1776	7061.91	7066.54	4.63	7066.54	0.007188	2.26	11.07	3.36	0.27	1.92	0.49	177.74	61.15	0.93	
SL-192	11000	PF 2	1776	7062	7066.08	4.08	7067.05	0.013882	4.16	14.3	5.65	0.66	3	0.82	128.99	41.87	1.35	
SL-193	11100	PF 2	1776	7063.98	7069	5.02	7069	0.019204	3.75	11.29	3.8	0.89	5.44	0.91	165.44	47.07	0.92	
SL-194	11200	PF 2	1776	7065.98	7071.52	5.53	7069.93	0.006226	3.9	6.31	3.87	0.71	1.98	0.59	303.69	81.81	0.49	
SL-195	11300	PF 2	1776	7067.97	7071.13	3.16	7071.68	0.040934	7.45	12.27	8.05	3.01	7	3.38	165.74	84.88	1.3	
SL-196	11400	PF 2	1776	7069.57	7073.76	4.19	7074.52	0.020562	7.41	13.51	4.62	1.72	5.18	1.04	165.85	86.28	1.18	
SL-197	11500	PF 2	1776	7071.93	7076.66	4.72	7076.79	0.011904	6.48	10.74	4.75	1.32	3.2	1.04	237.67	115.63	0.9	
SL-198	11600	PF 2	1776	7074	7077.55	3.55	7078.35	0.032101	7.29	13.06	5.65	1.49	6.57	1.57	145.63	78.74	1.25	

Branding Iron #2

Homestead #2

SL-199	11700	PF 2	1776	7078.09	7081.51	3.42	7081.51	0.020013	6.74	8.88	4.28	1.18	3.28	0.92	204.67	159.7	0.97	Homestead #2
SL-200	11800	PF 2	1776	7079.98	7083.5	3.52	7083.07	0.009377	5.56	6.93	3.56	1.05	1.87	0.58	278.61	231.99	0.68	
SL-201	11900	PF 2	1776	7080	7084.4	4.39	7084.17	0.006413	4.04	6.64	2.3	0.62	1.12	0.27	337.62	199.34	0.7	
SL-202	12000	PF 2	1776	7081.48	7085.65	4.17	7085.67	0.01367	4.69	8.69	5.13	0.96	2.42	0.64	229.59	111.06	0.91	
SL-203	12100	PF 2	1776	7084.54	7087.58	3.04	7087.58	0.031083	5.4	8.52	5.49	1.45	4.64	1.49	212.28	97.67	0.97	
SL-204	12200	PF 2	1776	7086	7089.55	3.55	7088.57	0.005855	4.55	4.64	2.98	0.61	1.07	0.39	387.14	152.24	0.48	
SL-205	12300	PF 2	1776	7088.42	7091.33	2.91	7091.33	0.020165	5.43	8.06	4.46	0.85	2.84	0.8	227.68	119.56	0.95	
SL-206	12400	PF 2	1776	7089.96	7093.02	3.06	7092.88	0.01476	6.6	8.43	3.89	1.33	2.81	0.88	232.19	106.29	0.85	
SL-207	12500	PF 2	1776	7091.14	7094.35	3.21	7094.26	0.013028	6.38	8.64	4.48	0.98	2.37	0.88	216.41	90.39	0.89	
SL-208	12600	PF 2	1776	7092	7095.94	3.93		0.011722	3.81	7.15	3.24	0.67	2.42	0.63	254.37	85.35	0.69	
SL-209	12700	PF 2	1776	7093.09	7097.2	4.11		0.013006	6.02	7.41	5.99	1.64	3.03	1.36	258.71	92.7	0.68	
SL-210	12800	PF 2	1776	7094	7098.37	4.37		0.01181	4.75	7.48	5.01	0.94	2.6	0.84	251.63	90.53	0.7	
SL-211	12900	PF 2	1638	7095.97	7099.48	3.51		0.008511	4.64	6.9	6.49	0.68	1.81	0.9	245	84.82	0.66	
SL-212	13000	PF 2	1638	7096.23	7100.38	4.15	7099.71	0.008499	3.54	6.75	4.41	0.67	1.75	0.63	256.31	93.39	0.65	
SL-213	13100	PF 2	1638	7097.83	7101.46	3.63	7101.46	0.01977	5.91	9.45	7.77	1.48	4.2	1.83	184.79	73.37	0.9	
SL-214	13200	PF 2	1638	7099.41	7103.55	4.13	7102.7	0.009933	5.03	6.68	4.53	1.17	2.42	0.84	266.7	93.18	0.6	

HEC-RAS HEC-RAS 5.0.3 September 2016
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X      X   X     X  X    X
X     X  X        X           X   X     X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X           X  X      X    X        X
X     X  X        X    X      X   X     X    X        X
X     X  XXXXXX    XXXX       X    X    X    X   XXXXX
```

PROJECT DATA
Project Title: SandCreekStabil
Project File : SCS2020.prj
Run Date and Time: 1/16/2020 9:25:50 AM

Project in English units

PLAN DATA

Plan Title: Existing Conditions-MS-Trial2
Plan File : o:\09002A\Sterling Ranch District\Documents\Reports\Drainage\2020 CHSTBL\SCS2020.p07

Geometry Title: Sand Creek-Exist-Walk
Geometry File : o:\09002A\Sterling Ranch District\Documents\Reports\Drainage\2020 CHSTBL\SCS2020.g01

Flow Title : MDDP Flows
Flow File : o:\09002A\Sterling Ranch District\Documents\Reports\Drainage\2020 CHSTBL\SCS2020.f02

Plan Summary Information:
Number of: Cross Sections = 152 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 0 Lateral Structures = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Mixed Flow

FLOW DATA

Flow Title: MDDP Flows
Flow File : o:\09002A\Sterling Ranch District\Documents\Reports\Drainage\2020 CHSTBL\SCS2020.f02

Flow Data (cfs)

River	Reach	RS	PF 1	PF 2	PF 3
SandCreek	CLOMR-CL	20301.24	380	1582	2600
SandCreek	CLOMR-CL	15501.24	389	1638	2600
SandCreek	CLOMR-CL	12800.36	350	1776	2600
SandCreek	CLOMR-CL	9700.36	375	1906	2600
SandCreek	CLOMR-CL	6899.99	385	2204	2600

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
SandCreek	CLOMR-CL	PF 1	Normal S = 0.015	Normal S = 0.015
SandCreek	CLOMR-CL	PF 2	Normal S = 0.015	Normal S = 0.015

GEOMETRY DATA

Geometry Title: Sand Creek-Exist-Walk
Geometry File : o:\09002A\Sterling Ranch District\Documents\Reports\Drainage\2020 CHSTBL\SCS2020.g01

CROSS SECTION

RIVER: SandCreek
REACH: CLOMR-CL   RS: 20301.24

INPUT
Description:
Station Elevation Data   num=   64
     Sta   Elev   Sta   Elev   Sta   Elev   Sta   Elev   Sta   Elev
       0 7239.482.220001 7239.47.229996 7239.2219.24001 7238.721.99001 7238.69
   30.95 7238.6634.14999 7238.6842.17999 7238.72   44.08 7238.72   45.95 7238.68
   48.72 7238.666.21001 7238.0467.32001   723868.28999 7237.9568.99001 7237.89
   83.45 7236.87   91.08   723696.89999 7234.1697.57001   7234 102.34 7232.7
  104.87 7232.66 107.99 7232.56 109.02 7232.46 110.33 7232.4 112.54 7232.38
  114.35 7232.37 126.27 7232.12 126.59 7232.11 131.41 7232.15 136.31   7232
  136.58   7232 146.18 7231.94 149.98 7231.92 153.12 7231.89 153.76 7231.9
  160.03 7231.81 161.34 7231.82 163.05 7231.82 166.84 7231.71 172.91 7231.44
  174.24 7231.39 175.59 7231.33 176.32 7231.31 177.57 7231.28 179.18 7231.28
  186.81 7231.23 190.39 7231.21 191.19 7231.21 192.45 7231.2 193.86 7231.18
  194.87 7231.17 195.45 7231.16 196.88 7231.21 196.99 7231.22 197.76 7231.25
  199.87 7231.37   202.9 7231.62 205.69 7231.83 208.33   7232 224.34 7233.83
  225.78   7234 228.21 7234.25 244.86   7236   250 7236.75

Manning's n Values   num=   3
     Sta   n Val   Sta   n Val   Sta   n Val
       0   .04   0   .03   250   .04

Bank Sta: Left   Right   Lengths: Left Channel   Right   Coeff Contr.   Expan.
             0   250   100   100   100   .1   .3

CROSS SECTION

RIVER: SandCreek
REACH: CLOMR-CL   RS: 20201.24

INPUT
Description:
Station Elevation Data   num=   67
     Sta   Elev   Sta   Elev   Sta   Elev   Sta   Elev   Sta   Elev
       0 7235.74   20.5   7234   23.66 7233.58   37.22   723239.25999 7231.17
   42.12   723045.49001 7228.4846.67999   7228   59.09 7226.76   61.59 7226.59
   62.69 7226.5   64.41 7226.36   64.75 7226.33   65.38 7226.24   66 7226.21
   66.28 7226.1966.67999 7226.18   66.97 7226.1767.35001 7226.1767.53999 7226.18
   67.64 7226.1968.03999 7226.26   69.69 7226.58   75.87   7228   77.36 7228.07
   81.76 7228.27   84.33 7228.34   85.97 7228.3   89.64 7228.25   93.01 7228.22
   96.38 7228.21   99.98 7228.24 101.18 7228.25 102.06 7228.22 103.11 7228.16
  104.65 7228.11 107.57 7228.12 108.06 7228.13 110.18 7228.13 111.18 7228.16
  113.01 7228.23 114.46 7228.28 124.06 7228.58 138.41 7229.03 140.76 7229.11
   149.7 7229.43 150.43 7229.44 153.15 7229.48 154.73 7229.5 156.04 7229.52
  158.72 7229.57 160.42 7229.56 162.15 7229.54 166.42 7229.82 166.94 7229.81
  168.85   7230 171.82 7231.47 172.86   7232 174.63 7232.89   177 7233.73
  177.89   7234 178.97 7234.21 187.38   7236 193.46 7237.13 195.65 7237.52
   198.3   7238   200 7238.3

Manning's n Values   num=   3
     Sta   n Val   Sta   n Val   Sta   n Val
       0   .04   0   .03   200   .04

Bank Sta: Left   Right   Lengths: Left Channel   Right   Coeff Contr.   Expan.
             0   200   100   100   100   .1   .3

CROSS SECTION

RIVER: SandCreek
REACH: CLOMR-CL   RS: 20101.24

INPUT
Description:
Station Elevation Data   num=   51
     Sta   Elev   Sta   Elev   Sta   Elev   Sta   Elev   Sta   Elev
       0 7235.012.610001 7234.78.449997   7234   19.87 7232.67   25.55   7232
    26.8 7231.88   32.25 7231.34   45.81   7230   52.95 7229.06   61.37   7228
   65.84 7226.567.60001   7226   68.31 7225.9268.39999 7225.58   75.45 7225.44
   81.39 7225.34   83.18 7225.56   83.6 7225.59   86.05 7225.94   86.52   7226
   94.73 7226.23   99.98 7226.37 103.23 7226.47 104.25 7226.41 105.34 7226.35
  106.38 7226.22 108.07 7226.19   110.6 7226.13 115.88 7226.06 121.82   7226
  123.98 7225.97 132.13 7225.9   142.4 7225.84 144.66   7226   146.8 7226.95
     149   7228 151.22 7229.25 152.81   7230 155.22 7231.74 155.58   7232
  157.55 7233.47 158.31   7234 158.61 7234.21 161.16   7236 165.09 7237.48
  166.57   7238 168.99 7238.6 174.66   7240 178.58 7240.89 183.86   7242
     200 7242.73

Manning's n Values   num=   3
     Sta   n Val   Sta   n Val   Sta   n Val
       0   .04   0   .03   200   .04

Bank Sta: Left   Right   Lengths: Left Channel   Right   Coeff Contr.   Expan.

```
            0     200              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 20001.24

INPUT
Description:
Station Elevation Data    num=      41
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  7232.82.270004 7232.516.229996    7232    13.2 7231.18   23.17    7230
   26.12 7229.72   32.72 7229.1741.74001 7228.4146.78999    7228   57.34 7226.62
   60.19    722661.39999 7225.49   65.89    7224   71.77    7224   72.03 7224.14
   85.65 7224.07   94.21 7224.11   98.81 7224.13   99.98 7224.12  104.55  7224.1
  115.09 7224.05  126.29    7224   136.4    7224  139.33 7224.61  147.93    7226
  149.45 7226.74  152.07    7228  154.43 7229.14   156.2    7230  158.13 7230.95
  160.31    7232  163.06 7233.33  164.42    7234     174 7234.48  176.16 7234.59
  176.85  7234.6  180.83 7234.63  184.93 7234.65  193.08 7234.66  193.88 7234.67
     200 7234.67

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     200     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            0     200              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 19901.24

INPUT
Description:
Station Elevation Data    num=      63
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7231.342.089996 7231.07   10.23    7230   22.95 7228.59   28.64    7228
   36.53 7227.25   49.08    722654.49001 7225.14   61.05    7224   61.88 7223.82
   62.95 7223.65      66 7223.33    67.5  7223.1   68.63 7222.94   72.86    7223
   77.73 7223.08   79.07  7223.2   83.84 7223.49   89.42 7223.83    92.8    7224
   97.15 7224.01   101.4 7224.01  105.84    7224  109.15    7224  110.88 7223.96
  111.09 7223.95  112.15 7223.92  119.88  7223.7  126.32 7223.51  142.28 7223.06
  151.44  7222.8  155.24  7222.7  158.13 7222.62     162 7222.51  162.19  7222.5
  162.88 7222.43  163.29 7222.38  164.38 7222.36  165.35 7222.34   165.6 7222.35
  166.46 7222.38  166.57 7222.39  167.03 7222.46  167.56 7222.53  167.95 7222.63
  168.15 7222.67  168.68 7222.89  169.65 7223.33   171.2    7224  173.23 7225.49
  173.85    7226  174.23 7226.26  176.78    7228  178.89 7229.37  179.84    7230
  182.11 7231.47  183.32 7231.48  184.87  7231.4  185.52 7231.53  186.46 7231.66
  195.81 7231.36  199.28  7231.3     200 7231.35

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     200     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            0     200              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 19801.24

INPUT
Description:
Station Elevation Data    num=      34
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7237.122.949997 7236.717.779999    7236   11.58 7235.37    19.8    7234
   28.02 7232.62   31.59    723234.46001 7231.53    43.7    723053.64999 7228.38
   56.02    7228   60.75 7227.2368.28999    722670.39999 7225.61      80    7224
   83.37 7222.44    84.4    7222   87.59    7222   91.19 7221.99   94.67    7222
  118.66    7222  121.71 7221.99  124.72 7221.99  125.87    7222  143.94    7222
  153.51  7223.6  155.59    7224   165.4 7224.72  179.82    7226  183.73 7226.28
  185.84  7226.4  191.64 7226.76  196.34 7227.02     200  7227.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     200     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            0     200              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 19701.24
```

INPUT
Description:
Station Elevation Data   num=   39
     Sta   Elev   Sta   Elev   Sta   Elev   Sta   Elev   Sta   Elev
       0 7235.19.559998 7234.43   11.75 7234.27   15.22   7234   29.2 7232.91
38.96001   723244.50999 7231.25   53.83   7230   58.2 7229.3265.50999   7228
   69.14 7226.2669.67999   722670.99001 7225.36   74.16   7224   75.46 7223.44
   78.85   7222   81.05 7221.78   82.51 7221.62   84.36 7221.34   86.29 7221.13
   87.61 7220.99   94.33 7221.06   99.98 7221.13 102.26 7221.16 102.37 7221.19
  104.12 7221.31 107.08 7221.43 111.96 7221.56   117 7221.67 124.56 7221.82
  129.94 7221.87 135.51   7222 142.07 7222.3 142.19 7222.31 149.32 7222.68
  163.25 7223.37 175.27   7224 186.54 7224.71   200 7225.63

Manning's n Values   num=   3
     Sta   n Val   Sta   n Val   Sta   n Val
       0   .04   0   .03   200   .04

Bank Sta: Left   Right   Lengths: Left Channel   Right   Coeff Contr.   Expan.
             0   200   100   100   100   .1   .3

CROSS SECTION

RIVER: SandCreek
REACH: CLOMR-CL   RS: 19601.24

INPUT
Description:
Station Elevation Data   num=   42
     Sta   Elev   Sta   Elev   Sta   Elev   Sta   Elev   Sta   Elev
       0 7227.26.9199982 7227.254.509995 7227.0611.49001 7226.94   17.11 7226.76
   26.83 7226.6629.03999 7226.5931.74001 7226.4740.00999   7226   50.92 7225.19
      54   7225   60.66 7224.63   63.44 7224.4   65.61 7224.22   68.78   7224
76.10001 7222.47   77.52   7222   79.73 7221.26   83.52   722083.89999 7219.96
   86.12 7219.78   89.75 7219.81   93.52 7219.85   95.93 7219.88   98.8 7219.9
   99.98 7219.9 104.87 7219.91 106.86 7219.93 109.86 7219.95 111.39 7219.97
     113   7220 128.83 7220.45 133.75 7220.74 155.03   7222 167.65 7223.1
  178.05   7224 190.85 7225.08 201.16   7226 211.85 7226.59 215.15 7226.75
  216.47 7226.78   220 7226.81

Manning's n Values   num=   3
     Sta   n Val   Sta   n Val   Sta   n Val
       0   .04   0   .03   220   .04

Bank Sta: Left   Right   Lengths: Left Channel   Right   Coeff Contr.   Expan.
             0   220   100   100   100   .1   .3

CROSS SECTION

RIVER: SandCreek
REACH: CLOMR-CL   RS: 19501.24

INPUT
Description:
Station Elevation Data   num=   40
     Sta   Elev   Sta   Elev   Sta   Elev   Sta   Elev   Sta   Elev
       0 7223.072.369995 7223.036.740005 7222.913.00999 7222.6914.14999 7222.65
   19.73 7222.59   22.83 7222.5   32.25 7222.31   33.06 7222.29   33.36 7222.29
   43.12   7222   43.97 7221.97   44.08 7221.9744.17999 7221.96   44.33 7221.96
44.42999 7221.95   44.66 7221.9455.74001 7221.3657.85001 7221.24   64.45 7220.89
   81.61   7220   81.98 7219.95   82.11 7219.94   88.02 7219.17   90.14 7218.92
   99.98 7218.12 101.48   7218 104.97 7217.96 115.07 7217.87 125.56 7217.78
   128.2   7218 130.21 7218.52 133.42   7220 141.68 7221.06 148.48   7222
   156.8 7222.79 169.52   7224 193.24 7225.68 197.65   7226   200 7226.06

Manning's n Values   num=   3
     Sta   n Val   Sta   n Val   Sta   n Val
       0   .04   0   .03   200   .04

Bank Sta: Left   Right   Lengths: Left Channel   Right   Coeff Contr.   Expan.
             0   200   100   100   100   .1   .3

CROSS SECTION

RIVER: SandCreek
REACH: CLOMR-CL   RS: 19401.24

INPUT
Description:
Station Elevation Data   num=   55
     Sta   Elev   Sta   Elev   Sta   Elev   Sta   Elev   Sta   Elev
       0 7219.133.770004 7219.117.789993 7219.118.720001 7219.089.770004 7219.05
14.42999 7219.01   16.63 7219.04   18.69 7219.0521.10001 7219.0524.53999 7219.02
   26.67   7219   33.23 7218.88   37.75 7218.76   43.39 7218.6   48.09 7218.52
   51.94 7218.48   60.08 7218.3   62.47 7218.22   69.45   721871.03999 7217.48
   74.94   7216   75.97 7215.9   76.61 7215.85   78.84 7215.74   80.47 7215.69
   82.19 7215.78   84.08 7215.89   85.1   7216   87.52 7216.02   89.11 7216.24

```
   91.41 7216.48   99.98 7216.46  102.84 7216.45  107.41 7216.43  117.06 7216.32
  121.25 7216.24  127.02 7216.12  130.21 7216.04   131.4    7216  133.08    7216
  139.39 7215.99  142.93    7216   147.7    7216  150.23 7217.74  150.62    7218
  151.81 7218.82  153.52    7220  156.12 7221.78  156.43    7222  174.04 7223.12
  179.83 7223.27  185.06 7223.56  195.11 7223.72  196.45 7223.78     200 7223.82

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     200     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     200              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 19301.24

INPUT
Description:
Station Elevation Data    num=      58
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7216.57     .08 7216.56.5500031 7216.541.360001 7216.512.309998  7216.5
4.360001 7216.477.289993 7216.428.110001 7216.418.619995  7216.49.360001 7216.38
10.21001 7216.38   11.03 7216.37   13.36 7216.3414.10001 7216.34   16.14 7216.31
   17.64 7216.29   18.37 7216.2921.21001 7216.28   25.09 7216.27   32.19 7216.18
   35.66 7216.1238.99001 7216.0441.14999    7216   51.48 7215.19   58.11    7214
67.28999 7213.99   74.14 7213.99   78.81    7214   96.29 7214.35   99.98 7214.43
  108.97 7214.61  133.78 7215.13  151.03 7215.53  151.75 7215.55  156.89 7215.67
   157.6 7215.69  158.45 7215.71  161.44 7215.77   163.3 7215.81  164.52 7215.82
  165.59 7215.83  167.28 7215.83  167.48 7215.82  167.63 7215.82  168.14 7215.81
  168.73 7215.81  169.41  7215.8  169.48 7215.79  169.57 7215.76  170.04 7215.76
  174.89    7216  177.98 7217.37  179.38    7218  181.93 7219.16  183.77    7220
  195.88 7220.52  198.97 7220.56     200 7220.59

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     200     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     200              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 19201.24

INPUT
Description:
Station Elevation Data    num=      68
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7214.48.3600006 7214.489.100006    7214   12.78 7213.7514.92999  7213.6
   37.13    721239.49001 7211.99   42.69 7211.9948.32001    721250.78999  7212.2
   55.31 7212.43   57.41 7212.56   59.42 7212.6662.75999 7212.79    65.5 7212.88
   68.81 7212.91   71.97 7213.01   73.09 7213.04   74.68  7213.1   77.13 7213.18
   78.09  7213.2   79.37 7213.22   80.66 7213.23   81.08 7213.23   85.15 7213.24
   85.95 7213.23    87.4 7213.22   90.37 7213.23   92.94 7213.23   93.84 7213.22
   94.57  7213.2   94.93 7213.16   95.02 7213.14   96.45 7213.02   99.98 7212.88
  100.45 7212.86  101.67 7212.81  103.67  7212.7  106.48 7212.71  107.02 7212.69
  107.99 7212.67  108.27 7212.79   109.9  7212.9  111.27 7212.98  113.79  7212.9
  115.66 7212.82  124.96 7212.35  131.42 7212.04  132.27    7212  138.46    7212
   140.1  7212.1   142.8  7212.3  158.65 7213.36  160.56 7213.48   166.8    7214
  170.11 7214.11  174.12 7214.21  179.15 7214.06  181.12    7214  182.05    7214
  182.07 7214.01  185.08    7216  187.72  7217.7  188.17    7218  188.62 7218.02
  192.42 7218.21  193.08 7218.24     200 7218.51

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     200     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     200              200     200     200             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 19001.24

INPUT
Description:
Station Elevation Data    num=      89
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7227.966.200012  7227.214.48001    722623.20999 7224.85   29.58    7224
   40.66 7222.88   49.34    7222   60.06 7220.19   60.97    7220   62.55 7219.16
   63.58 7218.7164.68001 7218.2365.35001    7218   66.27  7217.6   68.86    7216
   72.12 7214.06    72.2    721472.26001 7213.95   74.91    7212   78.62 7210.25
79.18001    7210   80.12 7209.89   82.08 7209.63   84.58 7209.47   86.52 7209.36
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   92.25 7209.13   93.64 7209.07   96.47    7209   97.64 7208.96   99.13 7208.97
   99.98    7209   105.4 7209.15  114.94 7209.48  115.88 7209.57     119 7209.82
  121.48    7210  137.45 7210.64     152  7211.2  157.14  7211.4  157.61 7211.41
  158.26 7211.43  159.72 7211.48   161.4 7211.52  163.95 7211.57  170.71  7211.9
  171.06 7211.91  171.72 7211.93  173.68    7212  179.25 7212.28  187.27 7212.52
  189.24 7212.57  191.58  7212.7  197.21 7212.99  201.34 7213.09  212.32 7213.44
  213.59 7213.48  214.06 7213.49  214.34 7213.49  217.96 7213.57  218.18 7213.58
  221.17 7213.58   226.6 7213.73  228.16 7213.79  228.97  7213.8  233.22 7213.86
  236.37 7213.87  238.96    7214  239.95    7214  241.21 7214.01  242.61    7214
  243.39    7214  243.88 7213.92  243.98 7213.92  245.74    7214  247.32 7214.19
  251.09 7214.72  253.87 7215.36   255.4 7215.77  256.09    7216   256.2 7216.05
  258.89 7216.25  261.07 7216.41  264.36  7216.5  270.76 7216.62  273.09  7216.7
  275.35  7216.7  280.69  7216.8  283.69 7216.82  285.19 7216.82

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03  285.19     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0  285.19              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 18901.24

INPUT
Description:
Station Elevation Data    num=      69
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7223.279.899994    722220.42999  7220.422.99001    722023.39999 7219.86
   24.42 7219.49   28.89    7218   30.34  7217.3   33.17    7216   35.28 7215.04
37.49001    7214   39.53    721341.78999    721244.64999 7211.03   47.73    7210
49.39999 7209.68   53.88 7208.7856.49001 7208.27   57.61    7208   63.03 7207.26
   64.05 7207.1566.24001 7206.99   68.45 7206.78   70.19 7206.6471.57001 7206.52
      72  7206.5   72.78 7206.48   73.42 7206.46   73.91 7206.4774.42999 7206.49
   74.78 7206.5175.07001 7206.53   75.53 7206.57   76.11  7206.6   77.47 7206.73
   78.34  7206.879.49001 7206.8679.85001 7206.88   81.95 7207.0584.74001 7207.59
   87.02    720898.00999 7208.36   99.98 7208.42  101.52 7208.47  114.51 7208.65
  128.02 7208.88  138.15 7209.04  141.44  7209.1  142.85 7209.12  143.05 7209.13
   144.2 7209.14  145.71 7209.15  148.74 7209.17  151.08  7209.2  154.08 7209.22
  159.53 7209.25  166.45 7209.27  169.96 7209.29   179.9  7209.5  187.41 7209.65
     193 7209.78  202.17 7209.98  202.95    7210  205.81 7210.42     217    7212
  219.61  7212.4  229.43    7214   233.3 7214.33     240 7214.79

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     240     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     240              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 18801.24

INPUT
Description:
Station Elevation Data    num=      54
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7219.461.899994 7218.51       3    72183.669998 7217.656.789993    7216
8.720001 7214.99   10.58    721412.92999 7212.76   14.36    7212   15.58 7211.52
   19.16    721023.64999  7208.625.46001    7208   38.34 7206.01   38.41    7206
    38.5    720643.57001 7205.99   45.41 7205.99   48.72    720650.25999    7206
51.64999 7206.01   57.05  7206.2   68.61 7206.44   79.16 7206.67   82.33 7206.73
   84.55 7206.7587.89999 7206.7793.17999 7206.81   99.98 7206.93  104.06 7207.01
  111.86 7207.14  115.78 7207.15  123.03 7207.16  129.19 7207.18  137.18 7207.21
  142.03 7207.26  145.07 7207.29  154.29 7207.38  160.81 7207.43  166.27 7207.48
  178.91 7207.61  187.96 7207.68  189.76  7207.7  193.73 7207.73   204.8 7207.79
  218.91 7207.98  220.44    7208   220.6 7208.15  222.68    7210   223.9 7210.74
  226.47    7212   231.2 7213.55  232.45    7214     250 7214.58

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     250     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     250              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 18701.24

INPUT
Description:
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Station Elevation Data    num=      53
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7218.321.600006  7218.12.289993    72182.539993 7217.899.889999    7216
   11.53 7214.26   11.77    721413.67999 7212.04   13.72    7212   14.17 7211.82
   19.05    7210   22.94 7208.48   24.16    7208    28.5 7207.15   34.45    7206
    39.7 7205.83   59.42  7205.7   77.97 7205.72   78.03    7206   83.36 7206.09
   99.98 7206.35  101.74 7206.38  115.75 7206.58   120.1 7206.64  121.93 7206.67
   127.7 7206.71  128.63 7206.72  134.48 7206.77  142.43 7206.87  153.23 7207.05
  158.09 7207.15  163.52 7207.18  168.68  7207.2  169.63  7207.1  171.06    7207
  176.24 7207.45  178.12 7207.37  180.41 7207.06  182.43    7208  188.97 7209.85
  189.43    7210  189.86 7210.11  190.17 7210.16  191.95 7210.46  199.01 7211.76
  201.44    7212  206.28 7212.12  206.72 7212.13  207.09 7212.14  207.88 7212.18
  212.98 7212.43  223.52 7212.89     225 7212.97

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     225     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     225             100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 18601.24

INPUT
Description:
Station Elevation Data    num=      64
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  7218.21.029999    72188.940002 7216.42   10.88    7216   11.59 7215.85
14.10001 7215.3520.74001    721424.74001 7212.76   26.98    721228.00999 7211.48
    30.8    721033.82001 7208.43   34.67    720839.46001 7207.19   45.67 7206.09
   46.14    7206   46.25    7206   48.83 7205.86   51.11 7205.8353.74001 7205.78
   59.53 7205.66   59.78 7205.66   65.02 7205.52   65.58 7205.52   72.45 7205.31
   73.22 7205.32   73.66 7205.35   74.06 7205.38   76.33  7205.4   78.13 7205.38
   78.88 7205.35   79.78  7205.3   82.31 7205.26   83.36 7205.22   84.23  7205.2
   85.93 7205.18   87.93 7205.12   94.35 7204.99   96.18 7204.95   97.37 7204.91
   99.48 7204.83  109.14 7204.31  109.61 7204.28  109.97 7204.26   115.2    7204
  141.08    7204  142.09 7204.21  146.61 7205.18  148.49    7206     150 7206.67
  152.94    7208  157.09 7209.88  157.25 7209.94  157.29 7209.96  157.37    7210
  157.59 7210.02  157.68 7210.03  160.75 7210.24   176.8 7211.35  182.39 7211.74
  184.12 7211.85  184.61 7211.88  186.57    7212     200 7212.34

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     200     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     200             100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 18501.24

INPUT
Description:
Station Elevation Data    num=      30
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  7213.82.289993  7213.38.100006    7212   11.13 7211.23   14.95    7210
17.39999 7208.85    20.2 7207.82   24.97    7206   37.83 7204.76    47.1    7204
   49.22 7203.88   50.79 7203.81   59.31 7203.93   62.08 7203.98   65.31 7203.99
   66.92 7203.99   68.03    7204  150.89    7204  152.04 7204.65  154.42    7206
   157.8 7207.87     158    7208  158.09 7208.05   161.2    7210  168.03 7210.28
  172.56 7210.49  174.46 7210.62  174.51 7210.63   174.6 7210.67     175 7210.67

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     175     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     175             100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 18401.24

INPUT
Description:
Station Elevation Data    num=      47
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7208.811.630005 7208.969.830002  7209.413.75999 7209.69      14 7209.71
14.96001 7209.7925.21001 7209.57   26.47 7209.61   32.92 7209.61   42.45 7209.81
   43.17 7209.82   48.97    7210   54.87 7210.17   54.89 7210.17   58.86 7210.35
60.92999 7210.34   61.97 7210.3163.03999 7210.1964.39999    7210      66 7209.65
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   72.91    7208   75.91 7207.25   77.48    7206   78.65 7205.19   80.19    7204
   83.77 7202.12   84.01    7202   84.38 7201.95   93.56  7201.7   99.98 7201.61
  101.15 7201.63  101.59    7202  111.03    7202   113.1 7201.99  117.32 7201.94
  123.29 7201.94  124.79    7202   128.9 7202.38  140.57    7204  143.69 7204.86
  147.66    7206  154.82 7207.11  161.05    7208  183.37  7209.9   184.9    7210
  193.03 7210.13     200 7210.24

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     200     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     200              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 18301.24

INPUT
Description:
Station Elevation Data    num=      42
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7214.04.4199982    72147.570007 7213.4411.74001 7213.18   17.28 7212.76
26.89999    721239.71001 7210.3742.39999    7210   45.75 7209.47   55.67    7208
57.78999 7207.71   69.69    7206   72.15 7204.06   72.25    7204   72.36 7203.96
   76.66    7202    95.6 7200.14   96.29 7200.07    96.9    7200    97.2    7200
   98.86 7199.99   99.98    7200   100.9    7200  132.49 7201.68  138.19    7202
  141.59 7203.63  142.15  7203.9  142.39    7204  142.51 7204.05  142.63  7204.1
  148.13    7206  150.29 7206.25  152.69  7206.5  154.58 7206.69     157 7206.87
  167.22    7208  175.73 7208.27   177.2  7208.3  183.68  7208.5   185.7 7208.56
  195.92 7208.93     200 7209.08

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     200     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     200              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 18201.24

INPUT
Description:
Station Elevation Data    num=      72
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7213.441.039993 7213.466.809998 7213.649.619995 7213.73   11.62 7213.74
   13.53 7213.7514.25999 7213.74   16.02 7213.72   16.73 7213.72   17.12 7213.73
   17.55 7213.66   19.03 7213.57   19.27 7213.56   21.92 7213.26   23.31 7213.09
   33.03    7212   36.13 7211.54   47.17    7210    49.2 7209.48   52.84 7208.68
56.07001    720857.17999  7207.6   61.69    7206   64.69 7204.88   67.27    7204
   69.37 7203.22   72.81    7202   77.26  7201.1   80.56    7200   81.11 7199.99
   82.74 7199.99   95.61 7199.97   99.98 7199.96  102.27 7199.96  123.22    7200
  123.44    7200  123.65 7200.05  129.58 7201.28  132.74    7202  133.96 7202.24
  135.45 7202.58  138.92 7202.76  145.99    7204  147.37 7204.16  148.94 7204.17
  149.64 7204.26  159.87 7204.42  161.03  7204.6  162.43 7204.86  165.97 7205.07
  167.48 7205.17  168.86 7205.13  169.77 7205.11  171.51 7204.97  172.75 7204.86
  174.68 7204.59  179.39    7204  184.87  7203.3  185.28 7203.26  189.21 7202.82
  191.03 7203.04  194.18 7203.42  194.26 7203.96   194.4    7204  194.51 7204.04
  194.57 7204.05  194.58 7204.05  198.15 7204.67  199.15 7204.69  199.34 7204.69
  199.53  7204.7     200 7204.75

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     200     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     200              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 18101.24

INPUT
Description:
Station Elevation Data    num=      56
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7207.151.190002  7207.23.470001  7207.3   21.83    720824.57001 7208.12
   25.09 7208.14   34.61 7208.57   41.22 7208.86   45.09 7209.03   46.48 7208.95
   48.14 7208.8448.24001 7208.27   48.37    7208   48.56 7207.78   50.66    7206
51.35001 7205.41   52.83    7204   54.33 7202.6155.07001    7202   57.17  7201.1
   59.61    7200   69.25 7198.95   78.27    7198   79.04 7197.94      84 7197.78
   90.49 7197.64    97.2 7197.53   99.98 7197.49  105.95 7197.41  109.02 7197.37
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  112.76 7197.38  114.24 7197.43   116.7 7197.69  119.02 7197.88  120.16    7198
  133.15 7199.52  137.12    7200  138.88 7200.45  143.93 7201.73  146.43 7202.46
   151.1 7203.12  152.71 7203.41  154.64 7203.75  155.33 7203.77  155.73 7203.77
  156.22 7203.74  156.97 7203.78  158.49    7204  161.75  7204.2  182.77    7206
  188.61 7206.26  198.03 7206.71   198.7 7206.74  199.24 7206.73   199.3 7206.73
     200 7206.71

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     200     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     200              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 18001.24

INPUT
Description:
Station Elevation Data    num=      76
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7206.026.669998 7206.0311.46001 7206.04   20.87 7206.02   28.13 7206.01
    36.8    7206   41.86  7204.643.96001    7204   46.36 7203.3450.89999    7202
50.99001 7201.97   52.84 7201.39   53.06 7201.32   57.11 7200.0557.24001    7200
   57.48 7199.91   62.97    7198   65.67 7197.1868.57001    7196   70.91 7194.41
   71.55    7194   72.21 7193.91   73.91 7193.92   75.64 7193.94   76.01    7194
   78.61 7194.27   80.62 7194.43   81.37 7194.48   82.73 7194.54   83.72 7194.59
    84.4 7194.66   84.76 7194.73   84.89 7194.83   86.05 7194.86   87.15 7194.89
   88.15 7194.81   89.51 7194.77   91.56  7194.6   93.62 7194.41   97.43 7194.02
   97.59    7194      99 7193.47   99.09 7193.32   99.45 7193.15   99.98 7193.01
   100.1 7192.98  101.27 7192.76  103.14 7192.75     105 7192.75  105.14 7192.77
  106.45 7193.03  108.93    7194  110.78 7194.27  111.91 7194.43  115.45 7194.96
  119.39 7195.44  124.64    7196  128.25 7196.31  135.23 7196.75  138.38 7197.19
  139.04 7197.29  140.05 7197.44  140.29 7197.48  143.12    7198  145.74 7198.83
  150.43    7200  153.87 7201.25  154.58 7201.46  156.25    7202  159.19 7202.89
   162.3    7204  167.52 7204.61  177.41    7206  189.09 7206.73  195.29 7207.11
     200  7207.4

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     200     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     200              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 17901.24

INPUT
Description:
Station Elevation Data    num=      76
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7206.014.979996    72069.220001 7204.159.559998    7204   10.27 7203.68
14.28999    7202   18.34 7200.36    19.2    7200   20.39 7199.5424.64999    7198
25.85001 7197.52   29.73    7196   36.87 7195.02   44.92  7194.8   48.56 7194.53
54.21001 7194.47   57.72 7194.46   63.72 7194.49   64.13 7194.56   72.35 7194.37
   80.45 7194.22   88.27    7194   92.56 7192.37   93.58    7192    93.7 7191.99
   94.69 7191.92   99.98 7191.93  101.08 7191.93  107.53 7191.94  107.72 7191.98
  107.74    7192  109.29 7193.11   110.4    7194  111.52 7194.14   114.6 7194.45
  115.55  7194.5  118.12 7194.68  118.71 7194.71  121.03 7194.77  121.27 7194.77
  127.17 7194.66  127.54 7194.68  128.38 7194.71  129.47  7194.7  130.66 7194.79
  131.61 7194.84  134.12 7194.89  135.67 7194.84  135.76 7194.83   137.2 7194.81
  137.99 7194.83  139.25 7194.88  141.72 7194.99   149.1 7195.07  156.94 7195.12
  160.14 7195.38  161.62 7195.62  162.48 7195.71  164.89    7196  169.67 7196.43
  169.95 7196.47  173.51 7196.84   175.1    7197  178.69 7197.32  182.73  7197.8
   184.3    7198  184.92 7198.08   186.7 7198.32  188.64 7198.62  188.94 7198.66
  190.57 7198.74  193.86 7198.89  195.54 7198.99  197.09 7199.03  198.37 7199.04
     200 7199.09

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     200     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     200              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 17801.24

INPUT
Description:
```

```
Station Elevation Data    num=     118
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  7203.35.320007 7203.279.070007 7203.1510.92999 7203.08   16.28 7202.99
   19.64 7202.98   21.47 7202.95   22.91 7202.9123.57001 7202.88   26.11 7202.75
   27.11 7202.77   28.94 7202.73   30.87 7202.73   33.19 7202.66   36.34    7202
39.25999 7200.76   41.06    720044.78999 7198.48   44.94 7198.41    45.7    7198
   46.42 7197.73   48.23 7197.1451.82001    7196   53.92 7195.21    57.2    7194
    59.3 7192.7560.67999    7192   61.81 7191.72   62.53 7191.43   63.25  7190.8
63.78999 7190.59   64.05  7190.564.92999 7190.44   65.62 7190.39   66.19 7190.42
67.39999 7190.55      68 7190.6368.28999  7190.7   68.63 7190.75   68.87 7190.79
69.35001 7190.8169.60001 7190.8169.85001 7190.8270.03999 7190.81   70.72 7190.85
   72.43 7190.98   72.77 7191.02   73.09 7191.05   73.95 7191.09   74.26  7191.1
   75.17 7191.12   76.36 7191.15   78.67 7191.17   79.08 7191.16    79.1 7191.16
   81.11 7191.05   81.14 7191.05   83.73 7190.95   83.98 7190.94   85.13 7190.87
    85.4 7190.81   87.15 7190.72   90.02 7190.61   93.43 7190.45   93.79 7190.44
   94.41 7190.41    94.9 7190.38   95.35 7190.34   96.55 7190.24   96.82 7190.22
      97 7190.21   97.05 7190.19   97.36 7190.17   97.48 7190.16    97.7 7190.14
   97.79 7190.13   97.89 7190.13   98.04 7190.12   98.29 7190.11   98.34  7190.1
   99.02  7190.1    99.1 7190.11   99.27 7190.11    99.4 7190.12   99.53 7190.12
   99.53 7190.13   99.55 7190.13   99.62 7190.14   99.68 7190.14   99.83 7190.15
   99.95 7190.16   99.99 7190.16  100.12  7190.2  100.13 7190.23  100.22 7190.25
  100.38 7190.35  100.43  7190.4  100.97 7190.58  106.38 7191.92  106.68    7192
  116.63  7192.4  156.14    7194   158.8 7195.12  160.96    7196  162.68 7196.75
  165.74    7198   168.7 7199.23  170.52    7200   173.4  7201.2  175.28    7202
   180.8 7203.55  182.71    7204  186.03 7205.01  189.28    7206  190.79 7206.35
   193.5  7206.9  199.71    7208     200 7208.05

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     200     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     200              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 17701.24

INPUT
Description:
Station Elevation Data    num=      76
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7202.7314.39999    7202   15.19 7201.91   16.25 7201.81   35.67    7200
   36.48 7199.68   41.23    7198   41.64 7197.86   45.84    7196   46.69 7195.79
47.49001 7195.68   55.66 7194.71   60.08    7194   60.84 7193.83    61.2 7193.69
   61.48  7193.663.64999 7193.3364.28999 7193.29   72.73 7192.17   73.13    7192
   74.11 7191.58   78.02    7190   78.99 7189.72   79.56 7189.76   79.74 7189.76
   79.87 7189.75   81.73 7189.38   88.49 7188.81    90.3 7188.61   95.52    7188
    95.8 7187.95   99.98 7187.18   106.3    7186     110    7186   110.1 7186.04
  116.05    7188  117.69 7188.59  120.99 7188.89  121.54 7188.98  124.65 7189.33
  124.74 7189.34  126.62 7189.61  128.12 7189.83  129.28    7190  130.76 7190.06
   131.7 7190.16  135.15 7190.26  138.26 7190.35  145.28 7190.15  149.02    7190
  150.15 7189.74  153.38 7189.31  153.78 7189.24  155.01 7189.11  156.51    7189
  157.26 7188.96  158.65 7188.93  160.25  7188.9  160.73 7188.95  161.95 7189.03
  163.51  7189.2   164.5 7189.39   165.3 7189.68  167.37    7190  178.17 7191.34
   180.9 7191.65  181.76 7191.76  182.93    7192  186.87 7193.81  187.23    7194
  188.07 7194.47  191.36    7196  192.44 7196.54  195.65    7198  196.51  7198.4
     200  7199.9

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     200     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     200              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 17601.24

INPUT
Description:
Station Elevation Data    num=      84
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7196.511.020004    71964.570007 7194.295.220001    71946.300003 7193.48
9.279999    7192   12.34  7190.4   13.17    7190   15.87 7189.35   17.39 7189.44
   23.34 7188.72   26.39 7188.7629.74001 7188.75   33.47 7188.7237.28999 7188.48
42.50999 7188.48   44.33 7188.39   50.47 7188.45   61.52  7188.4      65  7188.4
    67.5 7188.43   68.77 7188.4571.82001 7188.5572.67999 7188.59   73.77 7188.62
   74.13 7188.6275.50999 7188.67   79.12 7188.61   82.74 7188.52   93.42 7188.17
   98.15    7188  100.28 7187.06   102.6    7186  108.45 7185.99  109.98 7185.98
  110.69 7185.98  114.39 7185.99  119.95    7186  124.91 7187.24  126.84    7188
  128.99 7188.92  131.87    7190  135.81 7191.85  136.13    7192  136.42 7192.15
  140.21    7194  140.72 7194.26  141.36 7194.52  144.84    7196  147.85 7197.16
  149.84    7198  152.46 7198.41   157.1 7199.01  159.51 7199.42  161.82 7199.52
  162.45  7199.6  162.57 7199.64  163.14 7199.74  163.22 7199.75  163.97 7199.68
```

```
  164.92 7199.62  165.39 7199.58   168.7    7200  174.47 7200.17  175.08 7200.13
  175.27 7200.13  178.03    7200  179.07 7199.78  179.54 7199.75  182.32 7199.46
  182.35 7199.46  186.59 7199.47  189.74 7199.37  191.32 7199.33  193.79 7199.17
  195.29 7199.06  197.17  7198.9  198.51 7198.86  200.22 7198.89  200.68  7198.9
  203.13 7199.03  207.46    7200  207.56 7200.02     210 7200.68

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     210     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     210              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 17501.24

INPUT
Description:
Station Elevation Data    num=      71
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7193.641.119995 7193.113.789993    71927.509995  7190.79.589996    7190
12.85001 7188.8315.25999    718816.82001  7187.521.64999    7186   28.89 7185.71
   39.05 7185.31   40.94 7185.24   42.83 7185.2245.96001 7185.23   52.56 7185.23
   57.47 7185.1663.50999 7185.12   63.77 7185.1365.50999 7185.2568.82001 7185.21
   72.58 7185.15    74.2 7184.9475.00999 7184.85   77.63 7184.66   80.16  7184.5
   83.73 7184.31   85.53 7184.28   86.42 7184.3588.35001 7184.6189.85001    7184
   94.03 7183.9997.96001 7183.98  103.99 7183.97  110.79 7183.97  116.09 7183.98
  119.79 7183.99  121.25 7183.99  121.73    7184  124.44    7184   136.4 7184.06
  136.87 7184.06  141.07 7184.04  147.63    7184  154.18    7184  157.12 7184.38
  160.71  7184.8  161.17 7184.86  164.58 7185.28  166.98 7185.56   170.3    7186
  182.46 7186.86  189.04 7187.17   189.7 7187.21  189.92 7187.22  191.96 7187.32
  193.99  7187.4  198.14 7187.57  207.78    7188   212.8 7188.24  215.87  7188.4
  227.02  7188.9     229 7189.05  231.39 7189.25  233.33 7189.53  236.93    7190
  240.27 7191.38  241.83    7192  246.55 7193.94  246.69    7194  247.16 7194.18
     250 7195.34

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     250     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     250              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 17401.24

INPUT
Description:
Station Elevation Data    num=     105
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7188.791.770004    7188     4.5 7186.997.229996    718612.92999 7184.47
   14.14    7184   17.48    7184   18.16 7183.99   18.77    7184    22.2    7184
   27.64 7184.0330.49001 7184.0435.60001 7184.0137.49001    718438.64999    7184
39.39999 7183.96   43.37 7183.74   49.84 7183.32   51.45 7183.21   54.95 7183.06
   58.64 7182.91   59.83 7182.87   60.13 7182.85   61.87 7182.79   63.25 7182.73
   63.72 7182.72   65.31 7182.69   66.45 7182.6767.10001 7182.6668.60001 7182.63
   69.69 7182.62   72.98  7182.6   73.22  7182.6   75.67 7182.66   75.73 7182.67
   76.75  7182.7   77.41 7182.74   81.12 7182.8781.96001  7182.9   83.92 7182.95
   91.55 7182.9592.74001 7182.9797.57001 7182.95  100.28 7182.99  102.49 7182.99
  108.18 7183.01  114.06 7183.06  116.55 7183.09  118.56 7183.13  119.18 7183.15
  119.43 7183.21  119.68 7183.24  119.82 7183.25  119.96 7183.25  120.25 7183.24
  120.39 7183.24  122.89 7183.15  127.18 7182.95  132.55 7182.65  135.76 7182.46
  138.06 7182.24  139.84    7182  141.88 7181.26  142.84 7180.71  142.92 7180.61
  144.09 7180.49  144.89 7180.41  146.15 7180.37  146.55 7180.34  146.98 7180.32
  148.06 7180.32  148.66 7180.33  149.62 7180.35  149.98 7180.36  151.24 7180.39
   154.2 7180.53  155.48 7180.57  161.47 7180.78   164.6 7180.87   166.6 7181.06
  174.18 7181.79  176.51    7182  177.03 7182.21  180.44    7184  181.48 7184.56
  184.08    7186   199.1    7186  202.57 7185.61  204.04 7185.41  206.14 7185.06
   206.8 7185.13  208.32 7184.85   210.1 7184.93  211.89 7184.91  213.41 7184.87
  223.15 7184.33  224.17 7184.23  232.29    7184  232.74 7183.99  236.87 7183.97
  240.97 7183.96  241.95    7184  242.66 7184.26  247.26    7186     250 7187.06

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     250     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     250              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 17301.24
```

INPUT
Description:
Station Elevation Data   num=   100
     Sta   Elev   Sta   Elev   Sta   Elev   Sta   Elev   Sta   Elev
       0 7198.01   11.69 7198.0119.71001   719824.46001   7198   28.61 7196.32
29.37001   719632.60001 7194.68   34.22   719434.78001 7193.77   38.8   7192
   40.11 7191.44   43.25   719045.39001 7189.0647.68001   7188   51.97 7186.66
53.99001   7186   58.97 7184.7661.98001   718464.26001 7183.471.18001 7181.26
71.95001 7181.2372.98001 7181.1774.64001 7181.0575.31001 7180.9979.45001 7180.56
84.42001   718087.53001 7179.7490.40001 7179.4590.71001 7179.4   91.09 7179.29
93.64001 7179.12   95.59 7178.99   96.02 7178.97   96.34 7178.9696.71001 7178.95
98.21001 7178.8999.86001 7178.84 101.34 7178.79 102.63 7178.75 103.59 7178.7
  104.53 7178.64 104.72 7178.63 104.91 7178.63 105.97 7178.66 106.84 7178.74
  107.46 7178.74 108.45 7178.75 110.04 7178.73 110.71 7178.73   111.7 7178.71
  112.66 7178.7 114.15 7178.69 114.53 7178.68 114.65 7178.67 114.75 7178.66
  115.45 7178.61 116.31 7178.49 116.64 7178.46 116.95 7178.44 117.25 7178.41
  118.55 7178.39   119.6 7178.38   121.7 7178.37 121.74 7178.38 121.75 7178.41
  121.82 7178.43 122.11 7178.48   122.6 7178.53 122.65 7178.55 122.88 7178.66
  122.99 7178.68 123.87 7178.82 124.33 7178.9 128.53   7180 128.62 7180.04
  133.38   7182 135.01 7182.75 138.03   7184 140.47 7185.48 141.33   7186
  142.09 7186.52 144.34   7188 147.09 7189.83 147.34   7190 147.76 7190.28
  150.24   7192 152.64 7193.71 153.08   7194 155.94 7194.8 159.52   7196
  162.07 7196.3 167.63 7196.86 177.44   7198 181.17 7198.4 182.15 7198.49
  197.21   7200 200.62 7200.29 206.64 7200.82 215.01 7201.54 218.57 7201.88

Manning's n Values   num=   3
     Sta   n Val   Sta   n Val   Sta   n Val
       0   .04   0   .03 218.57   .04

Bank Sta: Left   Right   Lengths: Left Channel   Right   Coeff Contr.   Expan.
             0 218.57   100   100   100   .1   .3

CROSS SECTION

RIVER: SandCreek
REACH: CLOMR-CL   RS: 17201.24

INPUT
Description:
Station Elevation Data   num=   61
     Sta   Elev   Sta   Elev   Sta   Elev   Sta   Elev   Sta   Elev
       0 7193.995.440002 7193.975.470001 7193.97   9 7193.96   13.09 7193.58
   16.12 7193.14   30.36 7191.85   32.02 7191.81   36.39 7190.64   37.7 7190.53
38.89999   719040.75999 7189.0443.25999 7187.85   47.58 7185.76   50.17 7184.55
   51.81   7184   54.62 7183.23   56.02 7182.84   57.06 7182.62   60.12   7182
   61.92 7181.61   62.12 7181.51   62.19 7181.49   63.28 7181.2665.42999 7180.78
   67.81 7180.3669.46001   7180   82.95 7179.1   85.06 7179.01   88.12   7178
   90.09 7177.92   94.63 7177.8 107.94 7177.8   110.6 7177.81 113.32 7177.92
  115.25   7178 116.98   7178 119.66 7178.25 125.09 7178.69 135.16   7180
  138.84 7181.04 142.97   7182 147.22 7183.39 148.99   7184 153.84 7185.9
  154.09   7186 154.26 7186.08 157.83 7187.95 157.92   7188 157.94   7188
  161.69   7190 162.01 7190.17 165.39   7192 169.13 7193.96   169.2   7194
  169.28 7194.02 174.61   7196 177.38 7196.43 187.24   7198 194.11 7198.94
     200 7199.75

Manning's n Values   num=   3
     Sta   n Val   Sta   n Val   Sta   n Val
       0   .04   0   .03   200   .04

Bank Sta: Left   Right   Lengths: Left Channel   Right   Coeff Contr.   Expan.
             0   200   100   100   100   .1   .3

CROSS SECTION

RIVER: SandCreek
REACH: CLOMR-CL   RS: 17101.24

INPUT
Description:
Station Elevation Data   num=   87
     Sta   Elev   Sta   Elev   Sta   Elev   Sta   Elev   Sta   Elev
       0 7190.585.699997 7190.828.339996 7190.93   20.67 7191.28   22.88 7191.34
25.60001 7191.4226.82001 7191.46   28.28 7191.52   31 7191.62   31.44 7191.64
   31.98 7191.6233.74001 7191.58   34.91 7191.5534.99001 7191.55   36.08 7191.47
   36.34 7191.4437.99001 7191.23   40.34 7190.9445.53999 7191.9   49.87   7190
   49.89 7189.99   54.36   7188   56.12 7187.2458.92999   7186   61.78 7184.75
   63.44   7184   67.44 7182.1867.75999   7182   69.58 7181.41   74.03   7180
   76.27 7179.48   78 7179.04   79.88 7178.58   81.83   7178   92.51   7176
   92.53   7176   93.75 7175.85   96.22 7175.97   98.43   7176   99.98 7176.04
  101.83 7176.08 104.64 7176.16 107.24 7176.32   107.8 7176.36   111.7 7176.53
  118.62 7176.76   130.2   7178 134.15 7179.25 136.53   7180 138.47 7180.64
  142.06   7182 142.99 7182.46   146.1   7184 147.14 7184.5 150.14   7186
  152.57 7187.27 154.09   7188 157.51 7189.76 157.96   7190 158.47 7190.26
  161.78   7192 165.05 7193.78 165.45   7194 166.47 7194.48   169.3   7196
  173.27 7197.85 173.59   7198 174.89 7198.12 175.33 7198.17 175.93 7198.23
  179.73 7198.52 181.39 7198.61 184.18 7198.64 187.22 7198.81 188.89 7198.93
  190.36 7199.18 191.02 7199.27   191.2 7199.28 193.52 7199.39 193.75 7199.41

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  194.76  7199.5   194.9 7199.52  195.82 7199.55  196.65 7199.57  197.25 7199.55
  198.04 7199.56     200 7199.55

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     200     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     200              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 17001.24

INPUT
Description:
Station Elevation Data    num=      66
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7189.632.929993    71907.899994 7190.139.850006 7190.18   12.34 7190.05
   13.59    7190   15.39 7189.32   19.06    7188   24.14 7186.0824.35001    7186
   26.25 7185.29    29.7    7184      30 7183.8930.14999 7183.83   34.55    7182
36.39999 7181.33   40.22    718045.92999  7178.547.78999    7178   54.31 7176.27
    55.3    7176   56.17 7175.96   56.33 7175.95   93.41    7174   94.71    7174
   97.61 7173.99   99.55 7173.99   99.98    7174  102.93    7174  105.83 7175.12
  106.73 7175.49  107.96    7176  111.14 7177.26  112.85    7178  114.67 7178.93
   116.8    7180  119.12 7181.92  119.21    7182  121.49 7183.97  121.53    7184
  121.72 7184.16  123.88    7186  125.01 7187.02  126.15    7188  126.86 7188.64
  128.34    7190  129.68 7191.21  130.46    7192  130.98 7192.54  132.61    7194
  133.02 7194.43  134.74    7196  135.98    7196  137.83 7196.01  138.23 7196.01
   143.7 7196.02  149.23 7196.02  159.21    7196   159.7    7196     160 7196.01
  160.45    7196  175.39 7195.65  177.98 7195.61  186.94  7195.4  196.93 7195.21
     200 7195.18

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     200     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     200              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 16901.24

INPUT
Description:
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7188.084.880005 7188.12   10.77 7188.1216.67999 7188.11   16.69 7188.11
   17.63    718820.50999 7186.57   21.88    718622.50999 7185.73      27    7184
   31.22 7182.25   31.83    718232.49001 7181.73   36.22    718037.46001 7179.66
   40.22 7178.77   42.61    717850.24001 7176.26   51.19    717652.35001 7175.71
   54.53 7175.54   56.67 7175.3462.10001  7174.869.53999    7174   72.27 7173.76
   78.75 7173.16   80.51 7173.01   84.33 7172.75   85.11 7172.88   86.13 7172.93
   87.92 7172.99   88.13 7173.06   90.79 7172.42   92.88    7172    95.1  7171.8
   95.76 7171.72   96.18 7171.65   96.95 7171.56   98.32 7171.25   98.52 7171.18
   99.98  7171.3  100.32 7171.33   102.2 7171.62  104.98 7171.75  105.97 7171.83
  106.21    7172  111.41 7173.53  113.13    7174  115.18 7174.73  118.58    7176
  119.16 7176.29  122.59    7178  123.54 7178.68  125.56    7180  126.79 7180.91
  128.31    7182  129.45 7183.15  130.48    7184  131.49 7185.14  132.35    7186
  133.79 7187.46  134.31    7188  135.09 7188.79  136.32    7190   137.4 7191.11
  138.32    7192  140.85 7192.25  141.23 7192.29     145 7192.64  145.37 7192.67
  148.79 7192.92  153.87  7193.2  154.28 7193.23  157.21  7193.4  159.84 7193.53
  162.81 7193.27  165.47  7193.4  166.23 7193.44  167.22 7193.47  168.46 7193.52
  169.35 7193.54  170.27 7193.57  171.64  7193.6  172.89 7193.64  173.54 7193.66
  174.64 7193.68  174.93 7193.69  175.68 7193.69  178.36 7193.68  178.82 7193.68
   182.3 7193.63  186.45 7193.56  187.82 7193.54  188.84 7193.52  192.59 7193.46
     200 7193.33

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     200     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     200              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 16801.24

INPUT
Description:
Station Elevation Data    num=      69
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
```

```
       0 7184.881.300003 7184.864.729996 7184.797.279999 7184.75   10.19  7184.7
   14.55 7184.71   16.56 7184.7318.39999 7184.76   21.34 7184.78   22.81 7184.81
   23.55 7184.83   24.81 7184.87   25.59 7184.91   26.63 7184.94   32.48 7185.09
34.89999 7185.15   40.36 7185.26   44.84 7185.0753.39999 7184.59   53.62 7184.46
   55.83    718456.89999 7183.31   58.67    7182    60.7 7180.67   61.69    7180
   62.91 7179.16   64.69    7178   67.02 7176.39   67.58    7176   68.12 7175.78
   71.77    7174   73.32 7173.39   76.88    7172   87.44 7170.43   90.39    7170
  111.88    7170  117.64 7171.67  118.68    7172  119.57 7172.29  120.71 7172.58
  124.34  7173.6  124.55 7173.66   125.6 7173.94  125.89    7174  127.24 7174.63
  130.56    7176  132.32 7176.82  134.87    7178   136.4 7178.75  138.92    7180
  141.59 7181.46  142.65    7182  143.26 7182.32  145.26 7183.46     146 7183.84
  146.33    7184  146.48 7184.04  152.59    7186  154.01 7186.19  155.34 7186.32
  158.45 7186.56  160.14 7186.63  172.97    7188   174.3 7188.14  175.61 7188.26
  185.21 7189.18  194.23 7189.92  195.14    7190     200 7190.37

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     200     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            0     200              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 16701.24

INPUT
Description:
Station Elevation Data    num=      67
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7181.884.910004 7181.955.080002 7181.958.029999    718219.96001 7182.18
   29.14 7182.32   39.81  7182.5   43.61 7182.55   53.09 7182.65   56.09 7182.68
   59.31  7182.7   59.39  7182.7   60.12 7182.53   62.72 7182.24   66.17    7182
   68.27 7180.9569.99001    7180   72.01 7178.85   73.73    7178    75.1 7177.29
   77.33    7176   79.88 7174.46   80.75    7174   84.86 7172.04   84.96    7172
   85.23 7171.91   85.41 7171.85   87.57 7170.97   89.74    7170   91.02 7169.34
   91.38 7169.22   91.56 7169.08   92.23 7168.78   92.31 7168.71    92.7 7168.61
   93.08 7168.57   94.27 7168.46   96.64 7168.48   99.24 7168.51   99.33 7168.56
   99.76 7168.64   99.98 7168.67  100.19 7168.69  100.76 7168.75  105.27 7169.12
  115.25 7169.96  115.41 7169.97  115.73    7170  116.68 7170.08  140.92    7172
  141.76 7172.44  144.71    7174  145.69 7174.52  148.42    7176  150.39 7177.08
  151.94    7178  153.91 7179.21  155.72    7180  157.27 7180.66  160.59    7182
  176.67 7183.94  177.02    7184  177.64 7184.09   184.5 7185.11  190.28    7186
  198.54 7187.27     200 7187.49

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     200     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            0     200              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 16601.24

INPUT
Description:
Station Elevation Data    num=      67
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7179.356.910004 7179.52   10.73  7179.6   11.56 7179.62   25.55    7180
29.50999 7180.01   34.92 7180.01   41.22 7180.0250.46001 7180.02   65.63    7180
    67.8 7178.0767.89999    7178   68.34 7177.6169.82001    717670.39999 7175.29
71.60001    7174   72.41 7173.01   73.43    7172   75.92 7170.82   77.18    7170
   78.74  7169.5   82.72    7168   87.12 7167.83   99.98 7167.95  100.39 7167.96
  100.48 7167.96   117.4    7168  132.03 7169.15  138.55 7169.61  142.73    7170
  145.54 7171.06  146.48 7171.44  147.39 7171.74  149.25 7172.43  151.08  7173.1
  152.16 7173.47  153.91    7174  155.42 7174.51  160.39    7176  165.33 7177.64
   165.4 7177.66  166.24 7177.92  166.54    7178  168.24 7178.22  171.53 7178.69
  173.74 7178.96  175.97 7179.13  177.56  7179.3  178.01 7179.33  178.46 7179.37
  179.46 7179.36  181.63 7179.27  184.09 7179.37  185.12  7179.3  186.42  7179.4
  187.07 7179.29  188.04  7179.2  189.72 7178.99  191.26 7178.89  192.62  7178.8
  194.07 7178.83  194.42 7178.82  195.69 7179.12  198.76 7179.92  199.03    7180
  199.59 7180.15     200 7180.26

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     200     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            0     200              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
```

REACH: CLOMR-CL RS: 16501.24

INPUT
Description:
Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	7177.13	6.299896	7177.14	1.470001	7177.17	2	7177.15	3.679993	7177.17
4.949997	7177.26	.440002	7177.07	8.660004	7176.81	8.73999	7176.49	.190002	7176
11.37999	7174.21	11.61	7174	12.34999	7173.42	14.16	7172	16.48	7170.01
16.5	7170	16.60999	7169.96	21.78999	7168	27	7166.11	27.34	7166
27.5	7165.99	27.60999	7165.98	29.27	7165.68	29.7	7165.6	30.05	7165.46
35.85	7165.51	40.82	7165.54	3.39999	7165.49	48.46	7165.48	51.57	7165.74
54.85999	7166	56.10999	7166.14	56.55	7166.16	66.27	7167.05	71.27	7167.08
77.09	7167.12	80.81	7167.23	89.39999	7167.54	102.76	7168	104	7168.13
115.49	7170	117.35	7170.49	123.12	7172	130.01	7173.81	130.74	7174
130.91	7174.08	136.21	7176	139.86	7177.77	140.33	7178	140.84	7178.28

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	0	.03	140.84	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	140.84	100	100	100	.1	.3

CROSS SECTION

RIVER: SandCreek
REACH: CLOMR-CL RS: 16401.24

INPUT
Description:
Station Elevation Data num= 58

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	7175.32	3.529999	7175.12	9.699997	7174.94	17.16	7174.44	20.74001	7174.33
24.14	7174	24.19	7174	30.71001	7171.63	35.03	7170	42.87	7167.96
49.84	7166	52.42	7165.84	61.8	7165.31	64.85001	7165.17	66.58	7165.07
68.11	7165	70.10001	7164.93	76.61	7164.65	80.22	7164.47	81.2	7164.43
89.69	7164	90.36	7163.94	90.51	7163.94	93	7163.78	93.41	7163.73
99.98	7163.69	100.74	7163.68	107.72	7163.65	111.92	7163.89	112.69	7163.93
113.94	7164	116.77	7164.88	117.45	7165.1	119.91	7166	121	7166.62
123.22	7168	125.01	7169.06	126.51	7170	128.67	7171.59	129.22	7172
129.6	7172.43	131.72	7174	132.34	7175.08	133.13	7176	134.07	7177.35
134.41	7178	135.19	7179.26	135.73	7180	138.97	7180.85	144.46	7182
149.72	7182.63	159.99	7184	169.31	7184.99	183.48	7186	187.24	7186.1
191.36	7186.19	196.67	7186.3	200	7186.32				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	0	.03	200	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	200	100	100	100	.1	.3

CROSS SECTION

RIVER: SandCreek
REACH: CLOMR-CL RS: 16301.24

INPUT
Description:
Station Elevation Data num= 67

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	7172.57	3.380005	7172.35	3.130005	7172.17	7.449997	7172	9.830002	7171.61
10.84	7171.48	12.95	7171.18	16.71001	7170.78	18.5	7170.59	19.14	7170.54
19.99001	7170.47	20	7170.47	22.31	7170.35	22.89	7170.33	23.45	7170.33
25.23	7170.27	26.09	7170.31	28.17	7170.35	31.17	7170.48	32.75999	7170.44
35.59	7170.58	36.72	7170.58	41.71001	7170.9	43.22	7170.92	45.11	7171.08
49.42999	7171.25	49.64	7171.2	52.47	7170.29	53.39	7170	57.17	7168.61
58.81	7168	60.86	7167.26	64.25	7166	66.44	7165.21	69.72	7164
72.25	7163.46	74.22	7162.91	77.75	7162	78.92	7161.88	81.43	7161.66
83.82	7161.58	85.93	7161.52	89.39	7161.46	99.98	7161.35	100.52	7161.34
102.31	7161.35	106.17	7161.39	113.1	7161.45	115.5	7161.55	123.98	7161.96
124.79	7162	132.59	7162.53	136.2	7162.83	144.55	7163.41	150.89	7164
155.4	7165.12	158.81	7166	166.41	7167.95	171.6	7169.29	174.54	7170
182.33	7173.28	184.11	7174	185.01	7174.38	188.64	7176	190.91	7177.02
193.24	7178	200	7179.1						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	0	.03	200	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	200	100	100	100	.1	.3

CROSS SECTION

RIVER: SandCreek

```
REACH: CLOMR-CL           RS: 16201.24

INPUT
Description:
Station Elevation Data    num=      73
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7168.031.979996 7168.045.889999 7168.0413.82999    716814.75999 7167.73
20.98999    7166   21.28 7165.9223.12999 7165.82   42.11 7164.2460.59999 7161.08
   62.06 7161.0562.65999 7161.03   63.78 7161.02   66.11 7161.02   66.78 7160.96
   72.73  7160.3   75.48    7160   76.17 7159.96   77.47 7159.8781.34999 7159.54
83.13999 7159.4487.16999 7159.4489.07999  7159.4   89.37 7159.4190.63999 7159.43
91.03999 7159.4393.16999 7159.4495.92999 7159.4297.20999  7159.499.10999 7159.38
  100.15 7159.35   101.8 7159.31  102.45 7159.29  103.52 7159.26  106.13 7159.19
  108.62 7159.11  111.86    7159  114.14 7158.92  117.89 7158.94   119.2 7158.95
  120.47 7158.96   122.8 7159.01  125.39 7159.07  126.33 7159.09  126.62 7159.12
  127.61 7159.18  130.44  7159.3  133.68 7159.43  136.51 7159.74  138.58 7159.92
  140.15    7160  146.81 7160.04  149.16 7160.06  154.92 7160.02   157.7    7160
  159.08    7160  165.57 7159.99   166.4 7159.99  172.81    7160  174.27 7160.55
  178.03    7162  181.65  7163.4  183.21    7164  186.76 7165.38  188.41    7166
  190.16  7166.7  193.64    7168  195.38 7168.59  198.92    7170  202.97 7171.57
  204.02    7172  205.52 7172.37  206.15  7172.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03  206.15     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0  206.15              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 16101.24

INPUT
Description:
Station Elevation Data    num=      61
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7166.271.710007 7166.333.600006 7166.386.440002 7166.39   14.59 7166.65
16.14999 7166.69   17.62  7166.717.89999 7166.67   24.28 7166.16   26.33    7166
   30.84  7164.431.99001    716433.10001 7163.59   37.48    7162   41.66 7160.36
   42.72    716046.28999 7158.98   49.72    715854.64999 7157.62   56.16 7157.48
58.03999 7157.3367.99001 7156.54   69.17 7156.4469.60001 7156.44   70.05 7156.45
   70.95 7156.46   71.47 7156.48   72.81  7156.6   73.64 7156.72   73.89 7156.69
   74.47 7156.64   75.15 7156.66   78.34 7156.56   81.42 7156.37      82 7156.32
   83.79 7156.17   85.02 7156.04   85.22    7156   93.36 7155.97   96.87 7155.96
   99.14 7155.95   99.98 7155.95  101.56 7155.96  110.77    7156  113.12 7156.87
  116.16    7158  122.05 7158.22  123.21 7158.25  131.28 7158.53  135.17 7158.68
  168.86    7160  174.04 7161.23  176.58    7162  182.15 7163.45  183.94    7164
  185.29 7164.41  192.15    7166  193.66 7166.45  198.86  7167.8  199.67    7168
     200 7168.12

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     200     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     200              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 16001.24

INPUT
Description:
Station Elevation Data    num=      89
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7161.736.109985 7161.667.130005 7161.72   15.91 7161.66   22.31 7161.73
   25.87    716230.49001    7162   32.66  7161.539.24001    7160   47.17 7158.14
47.75999    7158   48.22  7157.9      49 7157.71   53.78 7156.5355.85001    7156
   58.02 7155.72   61.06 7155.32   63.55 7154.85   64.09 7154.63    64.2 7154.59
   64.98 7154.61   66.02 7154.63   67.27 7154.64   68.87 7154.65   69.91 7154.84
      70 7154.86   72.03 7155.22   76.77    715681.99001 7157.0487.24001    7158
92.50999 7158.85   98.03 7159.09  104.15  7159.4  107.52 7159.67  108.77 7159.79
  108.99 7159.82  109.03 7159.82  109.78 7159.86  109.98 7159.87  110.12 7159.89
  110.35 7159.87  110.39 7159.86  110.43 7159.85  110.52 7159.83  111.19 7159.77
  111.45 7159.73  111.65  7159.7  111.82 7159.67  111.91 7159.63  112.83 7159.09
   114.5 7158.31  115.29    7158  133.44 7156.49  137.89 7156.28   142.9    7156
  155.23 7154.51   159.9    7154  161.58    7154  168.01 7153.99  169.98 7153.99
  172.88    7154  176.74    7154  180.27 7155.65     181    7156  187.83 7156.35
  197.59 7156.83  200.48 7156.96  202.13 7157.02  205.06 7157.12  209.92 7157.26
  212.38 7157.34  213.91  7157.4  226.79    7158  229.19 7158.48  237.28    7160
  238.83 7160.32  239.11 7160.38   239.2 7160.41  240.65 7160.73  246.47    7162
  251.39 7163.11  254.01    7164  257.78 7165.33  259.89    7166  265.61 7167.86
  265.72 7167.88  265.96 7167.92  266.82    7168     270 7168.34

Manning's n Values        num=       3
```

```
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     270     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     270              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 15901.24

INPUT
Description:
Station Elevation Data    num=      73
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7159.95 9.01001 7158.579.839996 7158.45   14.31 7158.03   14.38 7158.02
14.60001 7158.02   25.53 7158.69   30.37 7159.07   31.52 7159.16   36.89 7159.72
   38.36 7159.88   38.44 7159.8938.60001  7159.939.89999 7159.57   45.98    7158
   49.94 7156.97   53.66    715656.85001 7155.16   61.31    7154   65.22 7153.64
    68.7 7153.3369.24001 7153.29   71.33 7153.2774.74001  7153.2   76.25 7153.17
   81.17 7153.33   88.89 7153.58   90.77 7153.6693.07001  7153.8   95.58    7154
  104.85 7155.81  105.78    7156   110.8 7156.54  116.58 7157.22  118.38 7157.39
  120.55 7157.56  121.94  7157.6  122.94 7157.63  123.69 7157.55  123.93 7157.48
  124.04 7157.43  125.74 7156.98  130.53    7156  140.45 7154.87  147.66    7154
  156.12 7152.93  162.83    7152  175.47    7152     177 7152.47  182.06    7154
  191.22  7155.9  191.73    7156  192.48 7156.12  203.84    7158  209.37 7158.84
   217.2    7160  231.38  7161.8  232.89    7162  238.38 7163.21  241.58    7164
   242.6 7164.62  245.31    7166  249.78 7167.73  250.16 7167.83  250.69    7168
  253.17 7168.79  255.57 7169.56  255.91 7169.69  256.19  7169.8  256.56    7170
  260.68 7171.74   261.3    7172     270 7172.88

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     270     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     270              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 15801.24

INPUT
Description:
Station Elevation Data    num=      76
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7159.988.980011 7158.83   16.41    7158   19.47 7157.6119.85001 7157.56
   21.95 7157.34   25.12 7156.9932.49001    7156   33.95 7155.74   36.64 7155.16
    40.5 7154.36   41.59 7154.1442.14999    715443.92999 7153.69   46.14 7153.46
   51.98 7152.71   59.89    715282.85001    7152   101.7 7153.91  101.86 7153.93
  102.41    7154  102.51 7154.03  104.96 7154.47  105.61 7154.57  106.73 7154.69
  107.77 7154.77  111.61 7154.73  115.55  7154.6   117.4 7154.51  119.76 7154.47
  126.78 7154.47  128.74 7154.48   131.3 7154.53  133.73 7154.56  134.09 7154.32
   134.3 7154.29  138.57    7154  151.42 7152.65  158.35    7152  162.06 7150.95
     165    7150  167.89    7150  168.65 7150.05  169.98 7150.15  176.47 7150.66
   179.6    7152   180.8  7152.8  183.63  7153.6  184.67    7154  192.02 7155.36
  193.66 7155.65  195.63    7156  200.73 7156.85  203.26 7157.31  207.32    7158
  219.09 7158.91  222.07  7159.1  224.02  7159.2  225.76 7159.31  226.18 7159.33
  227.64 7159.39  233.34 7159.84  235.21    7160  237.19 7160.69  241.61    7162
     244 7163.25  245.83    7164  247.78  7164.3  248.18 7164.36  251.21 7164.46
  254.81  7164.6  255.13 7164.61  255.42 7164.63  259.69 7164.83  264.61 7165.12
     270  7165.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     270     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     270              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 15701.24

INPUT
Description:
Station Elevation Data    num=      57
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7154.232.050003    71542.110001 7153.992.139999 7153.985.190002 7153.44
6.320007 7153.25   10.27 7152.53   11.56 7152.29      13    7152   17.91 7151.98
   21.41 7151.97   28.58 7151.99   28.95 7151.99   29.52    7152   31.31    7152
   35.11 7152.13   37.22 7152.1339.39999 7152.12   45.78 7152.23   49.52 7152.42
   50.75  7152.5   53.08 7152.53   55.33 7152.49   57.69 7152.45   60.63 7152.42
66.57001 7152.33    72.1  7152.1   73.16 7152.06   74.58    7152   75.75 7151.52
   81.06    7150   81.52 7149.84   89.18 7149.81   89.99  7149.8   95.35 7149.79
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    98.3  7149.8    98.6    7150  119.27 7151.52  125.09    7152  133.29 7152.64
  141.87 7153.17  148.57 7153.64   155.1    7154  158.87 7154.91  163.58    7156
  166.96 7156.59  167.01 7156.59  167.05  7156.6   175.8    7158  178.74 7158.47
  186.54 7159.75  188.04    7160  193.04 7160.47  196.82 7160.78  197.81 7160.86
  199.86 7161.02     200 7161.03

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     200     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     200              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 15601.24

INPUT
Description:
Station Elevation Data    num=      56
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7159.8213.49001 7158.66   21.58    7158   29.03 7157.01   38.38    7156
   43.45 7155.1948.53999 7154.5349.17999 7154.43   50.38 7154.2852.07001 7154.09
   52.45 7154.05   53.36    7154   57.89 7153.4458.49001 7153.29   59.81 7153.08
    60.3 7152.98   61.16 7152.7862.25999 7152.43   63.58    7152   75.62 7150.87
   76.45 7150.92   76.97 7150.8881.46001 7150.43   85.75    7150      96 7148.34
   98.11    7148  102.79    7148  116.05 7148.97     128    7150  130.76 7150.33
  132.95 7150.48  134.01 7150.54  136.12 7150.63  142.77 7150.66  144.83 7150.65
  147.59 7150.67  156.94 7150.69  163.46 7150.71  167.71 7150.69  169.67 7150.68
  175.01 7150.68  178.09 7150.81  183.24 7151.03  185.65 7151.13  186.61 7151.17
  190.91 7151.18  201.77  7151.7   203.2 7151.71  206.28 7151.89  207.86    7152
  210.66 7152.72  215.66    7154  218.66 7154.76  220.38 7155.12  224.83    7156
     225 7156.02

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     225     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     225              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 15501.24

INPUT
Description:
Station Elevation Data    num=      63
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7155.554.710007  7155.36.779999 7155.188.580002 7155.16   11.89 7155.04
    18.2  7154.825.60001 7154.49   26.14 7154.46   27.09 7154.42   27.73 7154.41
   27.89 7154.42   35.84 7154.17   40.92    7154   45.63 7153.53   57.17    7152
58.82001  7151.6   59.58 7151.48    62.5 7150.9865.03999  7150.565.25999 7150.45
   67.58    7150   75.19 7149.0583.71001    7148    85.2 7147.98   88.78 7147.89
   89.66 7147.87   92.33 7147.76   92.87 7147.73    93.5 7147.69   94.22 7147.62
95.32001 7147.58    98.5 7147.52   99.06 7147.51   99.98 7147.51  102.15 7147.52
  105.31 7147.54  105.51 7147.56  105.99 7147.57  107.25  7147.6  108.02 7147.61
  110.02 7147.62  110.53 7147.65  110.67 7147.69  112.04 7147.79  113.65 7147.87
  116.01 7147.89  125.09 7147.99  125.62    7148   137.6 7148.32  139.76 7148.35
  142.13 7148.38  146.09 7148.43  149.12 7148.47  157.74 7148.73  187.87 7149.64
  200.27    7150  202.71 7150.77  206.82    7152   210.9 7152.91  214.44 7153.67
  215.94    7154  218.33 7154.29     225 7155.09

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     225     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     225              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 15401.24

INPUT
Description:
Station Elevation Data    num=      73
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7152.942.229996 7152.846.350006 7152.7630.39999    7152   34.92  7151.6
   37.84 7151.4538.92999 7151.26    41.3    7151    45.2    715050.24001 7148.78
53.46001    7148   54.52 7147.9457.57001 7147.7559.71001 7147.55   60.17 7147.53
63.75999 7147.4265.82001 7147.38   67.72 7147.3671.57001 7147.31   75.12 7147.25
   76.23 7147.23   79.11 7147.16   80.59 7147.13      84 7147.08   84.97 7147.06
   87.83 7147.01   91.75 7146.94   93.48  7146.9   93.91 7146.88   95.19 7146.83
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   95.45 7146.82   95.75  7146.896.10001 7146.76   96.62 7146.75   98.13 7146.71
   99.98 7146.71  101.35 7146.72  101.44 7146.73  101.67 7146.74  102.26 7146.75
  103.55 7146.75  103.79 7146.77  103.85 7146.78  104.48 7146.83  105.23 7146.87
  106.32 7146.87  110.47 7146.92  114.11 7146.96  118.07 7147.03   120.3 7147.07
  122.24 7147.12  123.49 7147.15  126.48 7147.19  130.32 7147.23  132.83 7147.24
  137.86 7147.25  140.41 7147.26  149.09 7147.31  152.07 7147.33   153.4 7147.35
  154.27 7147.37  158.41 7147.44  160.78 7147.49  167.49 7147.67  171.99  7147.8
  178.38    7148  186.53 7149.68  188.77    7150  195.92 7150.83   206.6    7152
  210.66 7152.47   222.7    7154     225 7154.21

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     225     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     225              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 15301.24

INPUT
Description:
Station Elevation Data    num=      47
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7151.2823.49001    715038.89999 7148.61   45.48    7148   52.31 7147.26
   57.67 7146.71   60.23 7146.4461.78999 7146.29   63.84  7146.1   64.36 7146.05
64.99001    7146    65.7    7146   68.09 7145.99   76.88 7145.99   80.41 7145.98
88.21001 7145.95    93.2 7145.9695.28999 7145.95   99.25 7145.95   99.98 7145.91
  104.16 7145.65   112.8 7145.61  121.82 7145.61  133.33 7145.64  138.77 7145.65
  140.98 7145.65  146.73 7145.63  147.05 7145.62  147.75 7145.62  154.18 7145.59
  154.52  7145.6   159.8 7145.69  159.96 7145.69  177.52 7145.93  178.15 7145.94
  180.57 7145.98  181.67    7146  183.49 7146.41  186.07 7147.01  190.31    7148
  202.09 7148.92  212.92 7149.74  216.41    7150  227.33    7151  238.67    7152
   248.6 7152.84     250 7152.95

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     250     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     250              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 15201.24

INPUT
Description:
Station Elevation Data    num=      28
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7152.934.959991 7152.297.220001    7152   12.56  7151.322.51001    7150
   48.12 7148.95   70.52    7148   73.27 7147.31   78.47    7146   82.55 7144.96
   86.52    714491.85001    7144  106.13 7144.24  203.67 7145.84  209.23 7145.93
  210.66 7145.96  211.13 7145.96  211.21 7145.97  212.14 7145.97  212.35 7145.98
  212.55 7145.98  213.47    7146  230.79 7146.56  256.54 7147.32  275.24    7148
  292.81 7149.19  304.96    7150     320 7150.65

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     320     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     320              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 15101.24

INPUT
Description:
Station Elevation Data    num=      66
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7147.548.890015 7147.22   10.25 7147.18   13.37 7147.06   14.38 7147.05
   14.59 7147.0516.82001    714719.86002 7146.8923.29001 7146.7528.60001 7146.52
30.48999 7146.42   31.91 7146.3639.57999    714649.67999 7145.62   70.67  7144.5
   72.25 7144.43   73.36 7144.3879.99001    7144   80.58 7143.6781.00999 7143.05
   81.39  7142.9   82.81 7142.55   83.17 7142.4983.25999 7142.47   83.59 7142.44
    83.8 7142.4183.96001 7142.3884.32001 7142.3684.46001 7142.36   84.73 7142.34
   85.06 7142.33   85.42 7142.32   87.31 7142.29   87.91 7142.27   88.47 7142.24
   88.77 7142.23      89 7142.2489.25999 7142.25   89.34 7142.26   89.36 7142.27
   89.75 7142.2890.71001 7142.3392.21001  7142.4   94.16 7142.49   98.89 7142.69
   99.98 7142.73  110.74 7143.17  118.66  7143.5  131.22    7144  176.88 7145.12
     200 7145.71  211.14    7146  260.06 7147.46  263.79 7147.57  265.34 7147.62
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  270.35 7147.71  270.81 7147.72  273.89 7147.78  274.96  7147.8  275.77 7147.81
  276.01 7147.81  276.25  7147.8  281.82    7148  306.27 7149.64  311.71    7150
  324.22 7150.51

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03  324.22     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0  324.22              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 15001.24

INPUT
Description:
Station Elevation Data    num=     101
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7143.28     .75 7143.231.889984 7143.192.279999 7143.162.339996 7143.16
2.649994 7143.142.899994 7143.113.699982 7143.074.459991 7143.044.799988 7143.02
6.339996 7142.95 7.22998 7142.938.519989 7142.919.579987 7142.889.599976 7142.88
10.26999 7142.8710.40997 7142.85   12.34 7142.8413.32999 7142.8414.13998 7142.83
14.95999 7142.8417.39999 7142.8418.89999 7142.8322.50998  7142.926.91998 7143.01
27.40997 7143.0328.18997 7143.0329.26999 7143.0631.20999 7143.05   32.28 7143.06
33.48999 7143.0539.89999    714341.73999 7142.9846.73999 7142.94   47.56  7142.9
48.18997 7142.8648.71997 7142.8749.26999 7142.8849.57999 7142.8649.84999 7142.82
50.71999 7142.7951.46999 7142.7652.43999 7142.7454.11998 7142.7654.48999  7142.8
55.37999 7142.8559.91998 7142.8361.79999 7142.9861.94998 7143.0166.65999 7142.98
71.66998 7142.9572.41998 7142.9275.05998 7142.8376.40999 7142.7783.84999 7142.44
94.60999    714297.01999 7140.9699.29999    714099.81999    714099.97998 7140.06
  102.64 7141.12  104.99    7142  108.03 7142.15  108.11 7142.15  115.39 7142.28
  128.68 7142.47   139.4 7142.57  142.49 7142.57  144.06 7142.58  144.35 7142.58
  144.47 7142.57  145.03 7142.58  145.62  7142.6  146.34 7142.67  146.54 7142.68
  146.92  7142.7  149.69 7142.79  151.26 7142.85  151.63 7142.87  152.02 7142.89
  154.25 7143.03  156.23 7143.17  164.41 7143.61  168.29  7143.9  169.34    7144
  174.86 7144.29  180.61 7144.49  189.03 7144.77     192 7144.88  194.28 7144.88
  196.32  7144.9     200 7144.99  200.69    7145  215.23 7145.31  228.34 7145.63
  229.86 7145.67  243.17    7146  269.18 7147.32  275.09 7147.61  281.08    7148
  305.36    7150

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03  305.36     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0  305.36              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 14901.24

INPUT
Description:
Station Elevation Data    num=      78
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7148.914.149994 7148.265.940002    7148   10.06 7147.14   12.28 7146.65
13.14001 7146.4715.32001    7146   19.66 7144.8322.79999    714427.48001 7143.68
   31.38 7143.4533.57001 7143.3338.35999 7143.04   42.47 7142.76   53.06    7142
   66.33 7141.39   71.45 7141.15   75.92 7140.89   75.97 7140.89   76.37 7140.88
   76.77 7140.88   77.78  7140.982.89999 7140.98   93.75 7140.59  108.66 7140.13
  113.17    7140  134.51    7140  134.71 7140.02  137.69 7140.19  140.99 7140.32
  145.11 7140.27   149.5  7140.2  149.75    7140  150.73    7140  151.73 7139.99
  157.32 7139.98  159.98 7139.98  163.06 7139.99  165.99    7140  178.73    7140
  182.28 7139.99  182.43 7139.99  184.01    7140  187.17    7140  190.96 7140.21
  191.05 7140.21   192.1 7140.22   192.4 7140.21  192.52 7140.21  193.29 7140.25
  193.84 7140.27  194.58 7140.31  195.68 7140.37  196.86 7140.44  196.89 7140.44
  198.02 7140.51  205.48 7141.04  206.13 7141.08  212.31 7141.58  214.07 7141.69
  214.16  7141.7  218.02    7142  224.59 7142.32  226.96 7142.43  229.06 7142.51
  231.97 7142.57  242.26 7142.69  245.14 7142.73  247.62 7142.76  255.78  7142.8
  258.38 7142.77  260.05 7142.73  263.52 7142.69  267.55 7142.75  271.99 7142.82
  277.44 7142.94  285.33 7143.14     300 7143.65

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     300     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     300              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 14801.24
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INPUT
Description:
Station Elevation Data    num=      36
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7143.683.720001 7143.357.420013 7143.02   10.78 7142.66   16.63    7142
18.95999 7141.53   22.37 7141.1324.60001 7140.7725.98999 7140.47   34.09    7140
   45.05    7140   47.03 7139.99   48.33 7139.99   60.78 7139.98  114.81 7139.94
   129.5 7139.95  167.07 7139.98  170.08 7139.98  178.74 7139.99   183.9 7139.99
  184.43    7140  184.62    7140  233.42 7141.05  234.99 7141.06  235.34 7141.05
  238.59  7141.1  246.85 7141.26  253.52 7141.39  260.33 7141.48  262.14 7141.51
  263.95 7141.53  266.23 7141.53  270.99 7141.71   279.2    7142  290.53 7142.72
     300 7143.29

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     300     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     300              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 14701.24

INPUT
Description:
Station Elevation Data    num=      56
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7144.635.140015    714414.70001 7142.3316.42999    714221.39001 7141.61
   26.13 7141.26   36.47 7140.5537.70999 7140.48   40.41 7140.4147.51001 7140.09
49.82999    714060.92001 7139.9963.48001 7139.9965.70001 7139.98   72.88 7139.98
  119.98 7139.92  123.37 7139.92  125.82 7139.91  156.05 7139.87  196.39 7139.94
   199.1 7139.94  208.87 7139.64  211.87 7139.71  215.11 7139.77  217.91 7139.84
  218.32 7139.85  221.07 7139.95  222.11    7140  232.43    7140  233.88 7139.93
   238.4 7139.74   240.3 7139.64  241.02  7139.6  241.83 7139.49  242.81 7139.41
  252.77  7139.1  259.47 7138.95  261.75 7138.94  263.93 7138.94  265.94 7138.95
  271.52 7139.01  275.25 7139.07   279.2 7139.13  287.67 7139.27  298.18 7139.46
   311.7  7139.7     313 7139.73   316.1 7139.75  323.29 7139.73  325.72 7139.77
  335.46    7140  349.28 7141.04  354.52 7141.49     358 7141.76  360.73    7142
     370 7142.76

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     370     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     370            51.22   51.22   51.22             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 14650.02

INPUT
Description:
Station Elevation Data    num=      70
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7142.42    5.54    7142   19.63 7140.91   31.78    7140    92.4 7138.03
   92.89 7138.01   93.24    7138  100.08 7137.74  105.27 7137.55  111.78 7137.52
  121.09 7137.54  123.24 7137.52  126.71 7137.61  130.63 7137.72   131.5 7137.72
     137    7138  138.32 7138.13  141.93 7138.42  143.93 7138.52  145.54 7138.58
  146.37 7138.59  146.97 7138.59  150.01 7138.55  151.99 7138.53  153.71 7138.53
  156.19 7138.56  157.13 7138.56  159.77 7138.55  162.39 7138.55  164.83 7138.53
     166  7138.5  169.49 7138.45  179.24    7138   182.1 7138.74  182.57 7138.85
  184.01 7138.68  185.27  7138.5  186.54 7138.25  188.43    7138  192.81 7137.46
  195.53 7137.32  197.37 7137.29  198.15  7137.3  198.19  7137.3  198.28 7137.31
  198.37 7137.36   198.8  7137.5  198.84  7137.5  200.32 7137.47   201.2 7137.43
  202.28 7137.41  205.96    7136  341.96    7136   343.8 7136.68  345.83    7138
  347.41  7138.2   348.2 7138.23  348.47 7138.25  352.95 7138.74  363.26  7139.8
  363.43 7139.82  364.61    7140  364.96 7140.08  372.28 7141.75  373.11 7141.95
  373.34    7142  381.02 7143.63   383.1    7144  387.75  7144.6  393.25 7145.39

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03  393.25     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0  393.25            20.11   20.11   20.11             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 14629.91

INPUT
Description:
```

Station Elevation Data num= 81

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	7142.5	2.84	7142.31	7.15	7142	22.24	7140.82	32.89	7140
49.55	7138.87	65.28	7138.44	66.28	7138.38	67.25	7138.33	67.95	7138.29
73.54	7138.2	80.19	7138.05	82.05	7138	84.88	7137.91	85.39	7137.9
89.26	7137.77	91.8	7137.65	93.83	7137.65	97.96	7137.44	99.69	7137.42
101.31	7137.33	102.48	7137.25	104.93	7137.11	108.78	7136.97	111.67	7136.86
115.28	7136.84	120.44	7136.86	121.64	7136.84	123.57	7136.89	125.74	7136.95
126.23	7136.96	130.46	7137.17	135.04	7137.36	137.94	7137.39	138.83	7137.39
141.56	7137.5	144.08	7137.58	146.61	7137.57	147.6	7137.58	150.05	7137.56
150.39	7137.56	150.72	7137.55	151.82	7137.53	155.03	7137.47	156.94	7137.44
158.63	7137.44	161.39	7137.48	162.94	7137.46	163.92	7137.47	166.45	7137.45
167.34	7137.46	169.15	7137.46	171.13	7137.43	171.53	7137.38	173.57	7137.47
173.62	7137.49	174.94	7137.71	177.27	7138	180.46	7138.92	184.44	7140
265.64	7140	275.04	7140.17	327.18	7141.13	332.95	7141.12	337.37	7141.1
342.29	7141.09	348.51	7141.11	354.58	7141.13	360.98	7141.14	361.87	7141.14
363.19	7141.17	366.65	7141.13	369.08	7141.15	374.57	7141.77	376.3	7142
378.97	7142.32	384.46	7143.06	386.39	7143.17	389.98	7143.4	395.38	7144
397.94	7144.31								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	0	.03	397.94	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	397.94	28.67	28.67	.1	.3

CROSS SECTION

RIVER: SandCreek
REACH: CLOMR-CL RS: 14601.24

INPUT
Description:
Station Elevation Data num= 133

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	7139.873.890015	7139.356.559998		7139.026.869995		7138.9814.35001		7138	
17.67999	7137.317.79999	7137.26	18.06	7137.2424.95001		7136.627.23001		7136.56	
28.25	7136.4730.35001	7136.46	31.94	7136.3632.76001		7136.3544.26001		7136.09	
47.16	713647.26999	7136	50.78	7135.9651.10999		7135.9651.23001		7135.95	
61.67001	7135.5564.70001	7135.3564.89999		7135.33	72.63	7134.4174.79999		7134.25	
76.32001	7134	77.94	7133.71	82.06	7133.0783.23001		7132.8584.82999		7132.63
85.34	7132.5685.89001	7132.5488.42001		713290.67001		7131.6692.92001		7131.1	
95.09	7130.7	96.27	7130.43	97.23	7130.2897.39999		7130.27	98.25	7130
104.13	7130	104.17	7130.02	105.48	7130.88	108.56	7131.58	109	7131.75
110.19	7132	110.49	7132.06	110.72	7132.12	113.25	7132.8	114.58	7133.23
118.34	7134	124.65	7135.32	126.66	7135.7	128.83	7136	129.82	7136.14
137.66	7136.99	142.23	7137.08	143.68	7137.14	147.09	7137.4	156.66	7137.68
156.78	7137.69	158.1	7137.71	169.24	7138	170.44	7138.05	170.73	7138.06
182.99	7138.58	183.94	7138.58	184.96	7138.53	186.28	7138.5	186.78	7138.45
190.34	7138.06	190.39	7138.06	190.74	7138	194.87	7137.7	195.66	7137.65
198.96	7137.33	200.67	7137.27	204.4	7136.86	205.9	7136.67	206.44	7136.58
206.45	7136.58	206.88	7136.56	207.27	7136.54	207.43	7136.56	208.21	7136.57
208.92	7136.56	210.61	7136.56	214.81	7136.59	215.91	7136.57	216.58	7136.57
217.32	7136.58	218.57	7136.6	221.85	7136.65	222.13	7136.65	229.68	7136.69
230.12	7136.69	237.97	7136.71	239.13	7136.67	240.37	7136.62	242.41	7136.62
249.2	7136.54	251.07	7136.46	252.77	7136.38	252.96	7136.37	253.82	7136.35
254.57	7136.33	255.04	7136.33	257.03	7136.32	258.39	7136.33	259.47	7136.37
260.89	7136.42	261.78	7136.47	262.21	7136.5	262.79	7136.53	267.07	7136.56
268.61	7136.63	276.31	7136.64	277.27	7136.68	278.71	7136.73	285.31	7136.85
286.93	7136.9	288.73	7136.94	290.72	7136.99	293.31	7137.04	295.56	7137.07
304.41	7137.24	306.1	7137.35	308.4	7137.47	310.7	7137.53	316.76	7138
341.93	7139.73	345.86	7140	350	7140.3				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	0	.03	350	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	350	100	100	.1	.3

CROSS SECTION

RIVER: SandCreek
REACH: CLOMR-CL RS: 14501.24

INPUT
Description:
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	7136.291.690002	7136	7.26001	7134.87	11.31	7134	15.53	7132.91	
19.13	713223.17001	713223.60001		7132.2328.57999		7132.2733.54001		7132.24	
37.89001	7132	56.84	7131.3174.03999		7130.6	79.7	7130.39	80.77	7130.35
82.08	7130.31	82.63	7130.29	82.91	7130.29	84.42	7130.25	85.3	7130.24
88.55	7130	93.62	7128.3194.49001		7128	94.62	7127.98	94.64	7127.92
95.37	7127.85	99.38	7127.81	99.98	7127.8	103.24	7127.77	105.79	7128
109.7	7129.66	110.47	7130	115.04	7130.56	127.45	7131.74	129.69	7131.96
130.08	7132	151.57	7133.04	164.46	7133.47	170.18	7133.72	180.54	7134

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  185.75  7134.1  187.82 7134.14  198.73  7134.1  211.32 7134.06   223.6 7134.03
  223.69 7134.03  223.73 7134.02   224.1 7134.02  232.47    7134  236.16 7133.99
  238.35    7134  251.15 7134.09   254.2 7134.12  254.71 7134.14  255.03 7134.15
  255.84 7134.18  262.32 7134.25  275.55 7134.35   277.7 7134.45  282.82  7134.5
  283.97  7134.5  286.11 7134.61  296.95 7135.16  298.23 7135.22     300  7135.3

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     300     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     300             100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 14401.24

INPUT
Description:
Station Elevation Data    num=      66
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7135.02.3500061 7134.961.720001 7134.72     2.5 7134.564.919998    7134
8.600006  7133.6   10.69 7133.36   13.58 7133.09   15.94 7132.8816.42999 7132.83
   16.59 7132.8218.24001 7132.67   23.61    713235.07001 7130.9936.32001 7130.88
   36.48 7130.8649.10001    713060.24001 7129.3564.07001 7129.33    65.8  7129.2
67.60001 7129.04   70.05 7128.99   72.42 7128.93   72.56 7128.92   77.28 7128.61
   77.39 7128.61   82.44  7128.2   84.65    7128   88.99 7127.33   93.13 7126.67
   96.6    7126   107.4    7126   111.5 7126.59  113.98    7127   120.4    7128
  126.43 7129.05  132.87 7129.87  133.13 7129.91  133.23 7129.92  134.51    7130
  136.57 7130.02  139.19 7130.04  140.72    7130  140.95 7129.98  140.98 7129.99
  144.56 7129.77  151.66 7129.71  156.29 7129.75  159.84 7129.81  160.16 7129.82
  160.39 7129.83  164.54 7129.87  169.17 7129.96  169.26 7129.97  169.41 7129.97
  169.52 7129.98  169.88 7129.98  171.76    7130  180.76 7130.16  183.66 7130.22
  184.53 7130.24  187.95 7130.35  188.32 7130.35  197.64 7130.75  198.92 7130.74
     200 7130.74

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     200     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     200             100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 14301.24

INPUT
Description:
Station Elevation Data    num=      81
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7135.644.880005 7134.535.729996 7134.266.369995 7134.196.720001 7134.13
6.899994  7134.17.449997    71347.690002 7133.95   18.94    713230.67999 7130.04
   30.89    713031.25999 7129.9448.78999    7128   49.75 7127.85   52.86 7127.44
   54.88 7127.07    59.7    7126   60.02 7125.9860.71001 7125.98   60.97 7125.95
   63.38 7125.67   63.81 7125.65   64.48 7125.6366.71001  7125.5   69.47 7125.36
   70.11 7125.16   70.62 7125.11   70.86 7125.1172.21001 7125.12   75.19 7125.12
   76.28  7125.186.50999 7125.14   97.59  7125.2   99.95 7125.32   99.98 7125.32
  100.54 7125.34  107.36 7125.61  119.23 7125.97  119.25 7125.97  119.41 7125.98
  119.44 7125.98   120.2    7126  121.64 7126.03  121.82 7126.03  126.11  7126.1
  127.35 7126.13   131.4  7126.2   132.4 7126.18  141.38    7126  141.57 7125.77
  142.16 7125.54  142.78 7125.43  143.34 7125.37  144.19  7125.3  145.15 7125.26
  146.47 7125.23  147.04 7125.22  148.74 7125.21   149.3 7125.21  149.78 7125.22
  151.34 7125.26  151.52 7125.26  152.45  7125.3  152.57 7125.31   154.3 7125.49
  157.86 7125.92  158.47    7126  158.82 7126.13  158.97 7126.17  163.66 7127.56
  167.12    7128  167.15    7128  167.45 7127.86  167.72 7127.75  169.11    7128
  176.27 7128.26  215.94    7130   221.6 7130.22   222.6 7130.25  223.79 7130.28
     225 7130.32

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .03     225     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0     225             100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 14201.24

INPUT
Description:
Station Elevation Data    num=      87
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
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       0    7142.4199982    71422.539993 7141.712.929993 7141.653.820007 7141.54
6.020004 7141.226.529999 7141.17   14.08 7140.0614.25999 7140.0314.46001    7140
20.64999 7138.31   21.88    7138   22.08 7137.89   22.23 7137.8225.28999 7136.36
   26.59 7136.01   26.62    7136   29.86 7135.1631.82001 7134.77   33.87 7134.28
   34.09  7134.2   34.77    713436.53999  7133.4    37.5 7133.05   40.13    7132
42.50999 7130.76   43.87    7130   44.17 7129.82   47.22    7128   47.95 7127.73
48.92999 7127.3352.78999    7126   54.75 7125.45   59.42    7124   62.52 7123.81
   68.16  7123.5   71.11  7123.371.75999 7123.27   72.69 7123.22   77.14 7123.04
   83.45 7123.1391.10001 7123.27   91.62 7123.3591.89999 7123.36   94.05 7123.43
   94.45 7123.45   96.36 7123.51   97.73 7123.57   98.83 7123.64   99.98  7123.7
  103.87 7123.89  107.66    7124  107.86    7124  110.69 7123.95   110.7 7123.85
  118.98  7123.7  126.23 7123.61  126.34 7123.56  126.45 7123.51  126.72 7123.43
  137.05 7123.48  148.26 7123.55  165.76 7123.94   168.3    7124  170.06 7124.57
  173.26  7125.6  174.53    7126  182.49 7126.87  183.85 7127.03  184.62  7127.1
  185.17 7127.16  187.28 7127.36  187.65 7127.39  188.56 7127.45  188.96 7127.47
  189.39 7127.49   190.2 7127.51  191.95 7127.58  192.62 7127.61  194.48 7127.67
  198.92 7127.99  198.98    7128  214.38 7128.63  228.07 7129.27  235.94 7129.62
  243.96    7130     250 7130.17

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   59.42     .03   168.3     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         59.42   168.3              100     100     128             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 14101.24

INPUT
Description: SL-223
Station Elevation Data    num=      52
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  7128.71.100006 7128.575.470001    712811.24001 7127.18   21.02    7126
26.46001 7125.45   29.69 7125.3731.14999 7125.33   32.13 7125.22    33.5 7125.07
   36.27 7124.7336.35001 7124.72   36.41 7124.72   38.95 7124.69   41.11 7124.65
   43.44 7124.59   49.42  7124.1   50.55    712451.14999 7123.85    51.4 7123.79
   54.31 7123.01   57.88    7122   95.37    7122   99.98 7122.12  121.19 7122.65
   178.2    7124  181.07 7124.78  181.12 7124.79  183.42 7125.36  183.59 7125.41
  184.42 7125.66  185.74    7126  187.38 7126.63  188.87 7127.08  189.01 7127.13
   192.2    7128  194.53 7128.08  196.33 7128.13  196.72 7128.15  202.76 7128.34
  204.05 7128.37  205.54 7128.41  225.91 7128.88  229.53 7128.95   230.3 7128.96
  232.05 7128.96  235.73 7128.93  239.78 7128.84  245.69 7128.53  246.11  7128.6
  249.97 7129.25     250 7129.25

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04    51.4     .03   178.2     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          51.4   178.2            41.33     100   128.4             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 14001.24

INPUT
Description: SL-222
Station Elevation Data    num=      43
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    71403.490021 7139.72 4.77002 7139.647.029999 7139.438.790009  7139.3
12.55002 7138.94   21.56    7138   26.13 7137.35   33.84    713633.87003 7135.99
43.79001    713454.01001 7132.4557.07001    713269.83002 7130.4272.94002    7130
76.45001 7129.2381.87001    712887.01001 7126.9491.62001    712696.44002 7125.51
  110.81    7124   110.9 7123.86  116.82 7123.78  122.31 7123.73  127.51 7123.93
   129.7    7124  159.38    7124  162.62 7123.98  164.94 7123.96  165.51 7123.93
  175.78 7123.46  176.93 7123.71  179.79 7123.99  180.04 7123.94  184.04 7123.11
  189.34    7122  241.23    7122  246.01 7123.39  248.07    7124  253.15 7124.26
  285.88    7126  297.38 7126.54  311.73 7127.22

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  110.81     .03   129.7     .04  179.79     .03  248.07     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        110.81  248.07            55.87  100.07   131.1             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 13901.17

INPUT
Description: SL-221
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Station Elevation Data    num=      61
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7128.38    3.72    7128    4.81 7127.75   10.41 7126.33   11.04 7126.16
   11.49 7126.04   11.71    7126   19.24  7125.2   19.39 7125.19   27.23 7124.36
   29.18 7124.14   30.78    7124   37.85 7123.23   39.35 7123.06   40.35    7123
   43.06 7122.68   47.83    7122    72.7    7122    73.2 7122.03   73.21 7122.02
   73.45 7122.02   82.96 7122.39    91.5 7122.69   98.09 7122.88  102.29    7123
   106.2 7123.12  109.16 7123.21  110.28 7123.23  112.89 7123.25  115.48 7123.26
  118.09 7123.26  119.32 7123.25  121.47 7123.23  124.18 7123.21   129.8 7123.14
  136.14 7123.08  138.86 7123.06   141.6 7123.02   143.3 7123.01  151.77 7122.93
  152.68 7122.92  152.83 7122.91  157.13  7122.8   157.5 7122.79  164.53 7122.55
  167.77 7122.43  173.05  7122.2  173.72 7122.16  177.53    7122  237.78    7122
  237.85 7122.01   238.5 7122.08  245.477122.841  253.07 7123.67  253.31 7123.69
  256.76    7124  260.58 7124.36  272.77    7126  277.21 7126.76  284.18    7128
  286.65 7128.34

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   43.06     .03    91.5     .04  164.53     .03  245.47     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         43.06  245.47               11  100.33     137             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 13800.84

INPUT
Description: SL-220
Station Elevation Data    num=      41
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7128.94     .49 7128.88    1.34 7128.78    7.55    7128    9.63 7127.54
   17.83    7126   18.67 7125.91   18.95 7125.88   19.05 7125.87   19.15 7125.87
   19.77 7125.81   20.61 7125.73   35.73    7124   36.06 7123.95   45.41 7122.54
   46.56  7122.4   48.68    7122  104.82    7122  108.34 7122.02  117.61 7122.09
  127.85 7122.17  136.87 7122.25  140.63 7122.23  150.25 7122.15  161.19 7122.05
  165.64    7122  189.07    7122  204.34 7121.99   252.8 7121.99  253.77    7122
  283.36    7122  285.05 7122.55  288.77 7123.76   289.5    7124  295.34 7125.96
  295.47    7126  295.49    7126  306.05    7128  313.73 7129.11  319.71    7130
     325 7130.46

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   46.56     .03  285.05     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         46.56  285.05              105     100      91             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 13700.84

INPUT
Description: SL-219
Station Elevation Data    num=      26
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7126.866.380005    712611.26001 7124.83   14.31    712415.51001 7123.69
    22.4    712240.10999    712247.35999 7121.99   60.97 7121.9986.85001 7121.98
  111.93 7121.98   145.9 7121.97  155.79 7121.97  162.66 7121.98   197.2 7121.98
   214.9 7121.99  280.93 7121.99  286.87    7122   298.8    7122  299.98 7122.45
  303.87    7124  307.17 7125.31  308.91    7126  312.59 7126.44  327.11    7128
     340 7129.46

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04    22.4     .03   298.8     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          22.4   298.8              101     100     179             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 13600.84

INPUT
Description: SL-218
Station Elevation Data    num=      65
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    7128     .03    7128   13.21 7126.44      16    7126   20.94 7124.78
   24.11    7124   29.65 7122.64   34.82    7122   37.88 7121.95   45.15 7121.82
   45.56 7121.82   46.34 7121.83   47.17 7121.83   48.77 7121.81    51.8 7121.73
   56.89 7121.56   60.86 7121.44    69.5 7121.28   77.82 7121.14   82.67 7121.07
   85.14 7121.03    87.1 7121.01   89.99 7120.98  118.57  7121.3   169.2 7121.95
  173.28    7122  179.25    7122  179.82 7122.05  180.36 7122.08  183.42 7122.13
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   186.3 7122.09   186.6 7122.14  188.19 7122.35  195.86 7123.29  196.72 7123.38
  200.18 7123.43  203.95 7123.43  211.82 7123.73  211.94 7123.74  213.37 7123.82
  217.29    7124  224.69 7123.99  225.54 7123.98  227.07 7123.98  238.08 7123.96
  240.73 7123.95  243.99 7123.94  250.07 7123.92  254.31 7123.91   259.9 7123.89
   263.2 7123.88  269.21 7123.86  275.81 7123.83  277.32 7123.83  277.51 7123.77
   283.3 7122.34  287.76 7122.29  294.66 7122.28  299.95  7122.2  304.31 7122.13
  311.09 7122.01  313.017122.499  315.53 7123.14  318.91    7124     325 7124.27

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   34.82     .03   186.3     .04   283.3     .03  315.53     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         34.82  313.01              172  100.06     200             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 13500.78

INPUT
Description: SL-217
Station Elevation Data    num=     114
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7119.62      .6 7119.61    3.94 7119.44    4.28 7119.42    7.05 7119.28
   10.68 7119.26   12.82 7119.25   19.87 7119.13   30.05 7118.78   35.71  7118.7
   37.36 7118.65   39.99 7118.57   43.72 7118.45   44.34 7118.44   45.02 7118.42
   47.13 7118.38   47.79 7118.37   49.92 7118.34   50.78 7118.33   51.43 7118.34
   52.94 7118.36   54.48 7118.38   58.02 7118.38   59.77 7118.39   61.69  7118.4
   63.76 7118.42   68.29 7118.38   70.53 7118.33   76.24 7118.13   77.91 7118.08
   80.93    7118   82.09 7117.93   86.79 7117.73   90.87 7117.58   97.72 7117.39
   99.97 7117.35  101.01 7117.35  101.31 7117.42  101.48 7117.48  103.65 7117.87
  104.57    7118  106.72 7118.55  108.89 7119.06  110.71 7119.49  113.02    7120
  113.51 7120.03  113.71    7120  117.13  7118.6  117.55 7118.41  118.47    7118
  120.77 7116.96  122.95    7116  126.87 7114.31  128.34    7114 133.727113.387
  138.78 7112.81   140.6  7112.6     144 7112.29  144.66 7112.22  145.04 7112.19
  146.85 7112.21  146.92 7112.21  147.21  7112.2  148.63 7112.24  148.96 7112.23
  149.62 7112.24  151.41 7112.37  151.43 7112.37   153.4 7112.56  153.79 7112.59
  158.49 7112.67  161.63 7112.85  163.44 7112.98  164.35 7113.12  166.64 7113.38
  169.08 7113.32  170.81  7113.3  174.55 7113.08  175.84 7112.97  179.08 7113.01
  183.74 7112.33  185.09 7112.15  186.14    7112  188.53  7111.1  191.29    7110
  194.39  7108.1  194.56    7108  194.67 7107.91   196.8    7106  197.53 7105.92
  198.33 7105.83  198.61 7105.78  205.69  7105.8  213.01 7105.85  213.04 7105.86
  213.76    7106  217.76 7106.81  227.99    7108  230.18 7108.17  230.81 7108.22
  231.51  7108.3  231.97 7108.36  238.92 7109.16  244.92 7109.79  246.33    7110
  246.94 7110.42  248.19 7111.14  249.82    7112  250.55 7112.56  252.43    7114
  258.15 7114.47   259.7 7114.59  264.72 7114.97  265.42 7115.01

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  133.72     .03  166.64     .04  191.29     .03  246.33     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        133.72  246.33              125  100.08      64             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  166.64  265.42 7113.38       F

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 13400.7

INPUT
Description: SL-216
Station Elevation Data    num=     103
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  7114.2    1.15 7114.19    3.53 7114.02    3.79 7114.02    5.65 7114.01
    8.37 7114.01     8.6    7114   18.81    7114    24.8 7113.14   25.42 7113.04
    26.7 7112.85   28.54 7112.54   32.39    7112   34.13 7111.54   38.67 7111.02
   46.87    7110   47.59 7109.08   48.34    7108   49.64 7106.15   49.74    7106
   49.78 7105.52    49.8 7105.52   49.83 7105.51   49.93 7105.49   51.69 7105.32
   52.21  7105.4   52.97 7105.46   54.68 7105.64   55.72 7105.69   57.18 7105.72
   59.84 7105.84   63.53 7105.92   63.65 7105.92   65.86 7105.82   66.13 7105.82
   66.33 7105.83   66.38 7105.84   66.48 7105.86    66.5 7105.89   66.54  7105.9
   66.74  7105.9   66.84 7105.89   66.88 7105.89   67.06 7105.87    67.1 7105.87
   67.83 7105.83    68.6 7105.78   69.69 7105.72   70.78 7105.64   71.56 7105.58
   72.06 7105.51   72.57 7105.46   74.95 7105.26   80.79  7104.8   88.46  7104.2
   90.18 7104.07   90.56 7104.04   90.72 7104.04   90.82 7104.03   90.86 7104.03
   91.08    7104   92.63    7104   93.48 7103.99   99.98 7103.99  102.09 7103.98
  106.01 7103.98  114.97 7103.99  115.82 7103.99  118.27    7104  119.41 7104.92
  120.45 7105.76  120.74    7106  120.87 7106.02  123.85 7106.35  125.95 7106.48
  127.62 7106.49  127.95 7106.48  128.38 7106.45  129.99 7106.26  131.37    7106
  134.37  7104.9  135.26 7104.52  136.37    7104   138.4    7104  143.14 7103.82
  148.29 7103.67  152.56 7103.87  153.91 7103.96  154.33    7104  156.55 7105.17
  157.99    7106  163.63 7107.96  163.72    7108  163.79 7108.04  167.36    7110
  168.69 7110.78  170.91    7112  171.94 7112.64  174.41    7114  190.89 7115.87
  191.05 7115.89  192.12    7116     200 7116.64
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Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   80.79     .03  119.41     .04  134.37     .03  156.55     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         80.79  119.41               65  100.34     112             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  127.62     200 7106.49       F

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 13300.36

INPUT
Description: SL-215
Station Elevation Data    num=      72
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  7113.2.1499939 7113.191.009995  7113.13.080002 7112.915.639999 7112.73
   10.16 7112.38    14.8    711216.25999 7111.29   16.84 7111.2418.49001 7111.17
20.14999 7110.77   21.53 7110.63   22.95 7110.46   25.45 7110.04   25.48 7110.03
   25.67    7110   27.92 7109.1929.46001    7109      31 7108.73   31.08 7108.71
33.00999    7108   37.63 7107.66   45.33  7106.9   50.77 7106.39   51.38 7106.34
   52.66 7106.21   54.61    7106   64.91 7104.0464.96001 7104.0465.14999    7104
   65.41 7103.96   80.82    7102   84.51 7101.77   89.03 7101.54   89.94 7101.49
   90.34 7101.42   94.14 7101.32   97.45 7101.24   99.35 7101.23   99.98 7101.22
  101.28 7101.22  102.25  7101.2  104.27 7101.17  106.01 7101.14  108.44 7101.11
   108.9  7101.1  110.73  7101.1   117.5 7101.07  119.03 7101.14  121.01 7101.29
  123.98 7101.51  125.93 7101.63  126.47 7101.68  128.34    7102  128.88 7102.39
  131.29    7104  132.52 7104.84  134.37    7106  137.09 7107.76  137.62    7108
  138.08 7108.25  140.95    7110  142.77 7110.95  144.53    7112  150.82 7112.68
  152.52 7112.83  152.95 7112.87  165.79    7114  177.18 7114.81  184.22 7115.35
  191.93    7116     200 7116.32

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   80.82     .05  128.34    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         80.82  128.34               104     100      96             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 13200.36

INPUT
Description: SL-214
Station Elevation Data    num=      56
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7111.965.729996 7111.49   12.78  7110.815.28999 7110.5520.53999    7110
28.24001 7108.06   28.48    7108   28.58 7107.9533.03999    7106   36.27  7105.3
   41.39    7104   55.69 7102.24    57.7    7102   65.67 7101.3268.92999 7101.03
   80.17    7100   81.19    7100   85.02 7099.82   88.91 7099.66   95.51 7099.56
   95.89 7099.55   96.31 7099.55    98.2 7099.51   99.98 7099.49  103.22 7099.44
  106.21 7099.42  110.26 7099.41  111.61 7099.47  112.19 7099.48  113.04 7099.51
  114.38 7099.54  115.84 7099.59  116.63 7099.63     118 7099.68   121.3 7099.74
  121.82 7099.76  126.38 7099.94  126.52 7099.95  127.36    7100  130.85  7101.7
   130.9 7101.73  131.39    7102   131.9 7102.12   140.3    7104  144.41 7105.58
  145.51    7106  147.05 7106.65  150.67    7108  153.88 7109.38  155.03 7109.75
  155.69    7110   157.2 7110.21  169.88    7112  181.75 7113.18  189.84    7114
     200 7114.76

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .045   80.17    .055  127.36     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         80.17  127.36               98     100     102             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 13100.36

INPUT
Description: SL-213
Station Elevation Data    num=      48
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  7110.8    4.83 7110.56   14.81 7110.15   17.91    7110   29.94 7109.12
   42.62    7108   46.96 7106.22   47.32    7106   48.33 7105.66   50.57    7105
   53.82    7104   58.73 7102.77    60.9    7102   69.93 7100.44   73.42    7100
   78.86 7098.96   83.38    7098   84.84    7098   85.31 7097.91   86.38 7097.85
   98.08 7097.84   99.98 7097.84  108.18 7097.83  109.25 7097.85  110.33 7097.87
  110.51  7097.9  111.66    7098  120.067098.892  126.64 7099.59  130.54    7100
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  136.59 7101.29  139.99    7102  140.58 7102.29  144.29    7104  147.46 7105.67
  148.02    7106  148.92 7106.62  150.53  7107.4  151.12 7107.71  151.71    7108
   153.3 7108.29  162.78    7110  179.63 7111.78  180.66 7111.88   181.7    7112
  182.57 7112.11  198.44    7114     200 7114.16

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   78.86     .05  120.06    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         78.86  120.06               91     100     113             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 13000.36

INPUT
Description: SL-212
Station Elevation Data    num=      84
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  7108.84.479996 7108.397.830002 7108.078.710007    7108   14.25  7107.3
    24.8    7106   26.64 7105.78   27.66 7105.67   36.36 7104.76   43.31    7104
44.10001 7103.75   49.37    7102   51.09 7101.49   54.91    710065.35001  7098.5
   68.42    7098   87.32 7097.26   97.56 7096.86   97.69 7096.86   99.98 7096.77
  100.55 7096.75  106.08 7096.57  107.35 7096.52   109.1 7096.44  109.95  7096.4
  110.21 7096.38  111.64 7096.32  111.96 7096.31  112.17  7096.3  112.31  7096.3
  112.41 7096.28   112.5 7096.26  112.66 7096.25  114.34 7096.24   115.7 7096.23
  115.84 7096.23  115.98 7096.24  116.01 7096.24  116.37 7096.27  116.59 7096.28
  117.46 7096.31  117.64 7096.32  117.94 7096.34  119.24 7096.39  120.09 7096.42
  120.73 7096.47   121.6 7096.59  123.94 7096.81  124.67 7096.88   124.7 7096.88
  124.78 7096.89  126.47 7097.05   126.9 7097.11  133.97 7097.82  134.55 7097.86
  136.28    7098  136.29    7098  138.18 7098.57  141.25 7098.98  146.21 7099.99
  146.24 7099.99  146.85    7100  147.89 7100.79  149.57    7102  150.96  7102.6
  153.52    7104  154.91 7104.66  157.55 7105.91  157.68 7105.96  157.76    7106
  161.03 7107.82  161.37    7108  168.87 7108.82  170.84 7108.98  171.67 7109.04
  171.97 7109.07  172.23 7109.11  177.02    7110  189.34 7111.39  191.82 7111.67
  192.24 7111.71  194.57    7112   198.7 7112.49     200 7112.64

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .045   68.42    .045  136.28    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         68.42  136.28              101     100      99             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 12900.36

INPUT
Description: SL-211
Station Elevation Data    num=      45
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7107.94    3.46 7107.41   12.64    7106   25.18 7104.02    25.3    7104
   25.43 7103.96   32.02    7102   35.08 7101.25   40.21 7100.13   40.73    7100
   49.88 7098.41   52.28    7098   54.82 7097.62   59.267096.986   66.17    7096
   89.22 7095.97   91.11 7095.97   99.98 7095.98  100.74 7095.98  107.66 7095.99
  112.387095.995  116.91    7096  120.947096.773  126.55 7097.85  127.15    7098
  127.33 7098.16  128.39 7099.31  128.98    7100   129.9 7101.25  130.44    7102
  131.92 7103.96  131.94 7103.99  131.95    7104  131.97    7104  132.02 7104.01
  143.21    7106  146.81 7106.51  151.06 7107.13  151.86  7107.2  157.61    7108
  165.76 7108.97  174.48    7110  194.17 7111.65  198.66    7112     200 7112.12

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .035   59.26    .045  120.94     .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         59.26  120.94               94     100     102             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 12800.36

INPUT
Description: SL-210
Station Elevation Data    num=      63
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7105.535.960007 7104.347.410004    7104    8.75 7103.65   10.62 7103.33
   17.86    7102       19 7101.38   22.06    710026.96001 7099.0231.67999    7098
    42.2 7097.14   55.72    7096   64.83 7095.54   76.49 7095.05   87.43 7094.46
   91.51 7094.26   92.35 7094.22   96.07 7094.15   96.29 7094.13   96.61  7094.1
   96.79 7094.08   96.86 7094.07    96.9 7094.06   97.59 7094.05   98.22 7094.05
   98.33 7094.06   98.51 7094.08   98.62 7094.09   98.79 7094.11   98.84 7094.11
```

```
   98.95 7094.12   99.01 7094.13   99.24 7094.17   99.77 7094.23   99.98 7094.22
  105.66 7094.05  108.38    7094  109.24    7094  109.42 7094.06   115.7    7096
  119.23 7097.61  120.12    7098  120.87 7098.73  121.99    7100  123.45 7101.65
  123.82    7102  125.65 7103.95   125.7    7104  127.01 7104.21  137.45 7105.88
  137.86 7105.95  138.75    7106  141.69  7106.1  143.76 7106.21  144.61 7106.27
  147.11 7106.42   158.5 7107.37  163.63 7107.77  165.62 7107.94  166.25    7108
  188.69 7109.53  194.79    7110     200  7110.3

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   55.72     .05   115.7    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         55.72   115.7               90     100     104             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 12700.36

INPUT
Description: SL-209
Station Elevation Data    num=      61
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7106.673.059998    71067.979996 7104.92   11.97    7104   16.44 7102.92
20.75999    7102   23.14 7100.64   24.47    7100   26.03 7099.42   29.78    7098
   33.66 7097.03   37.63    7096   53.31 7095.1559.89999 7094.84    75.9    7094
   79.03  7093.8   83.66 7093.55   86.59 7093.41   90.24 7093.33   92.35 7093.27
   92.48 7093.25   93.23 7093.18   97.54 7093.13   99.98 7093.11  101.54 7093.09
  103.02 7093.16  103.36 7093.17  105.86 7093.29  108.06 7093.39  109.23 7093.43
   109.6 7093.48  109.99 7093.53  110.18 7093.56  111.66 7093.68  113.88 7093.83
  117.45 7093.96  118.05    7094  119.24  7094.5  122.81 7095.58   123.3 7095.72
  124.22    7096  124.23    7096  126.07 7097.51  126.65    7098  128.93 7099.75
  129.22    7100  131.59 7100.37  137.85  7101.4  138.57 7101.54  138.84 7101.58
  139.59 7101.69  139.68  7101.7  140.48 7101.79  141.09 7101.84  142.24    7102
  154.96 7103.56  158.08    7104  180.55 7105.93  181.32    7106  196.14 7107.17
     200 7107.45

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .045    75.9    .055  118.05     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         75.9  118.05              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 12600.36

INPUT
Description: SL-208
Station Elevation Data    num=      46
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7108.182.039993 7108.022.389999    71083.539993 7107.835.880005 7107.86
6.190002 7107.87     7.5 7107.868.190002 7107.898.460007 7107.838.770004 7107.78
9.820007 7107.59   19.52    710622.74001  7105.330.03999    710437.57001 7102.26
   38.77    7102   39.97 7101.4743.35001    7100   47.63 7098.15   47.97    7098
   48.08 7097.96   48.31 7097.8949.24001 7097.57   53.58    7096   57.89 7094.58
   59.67    7094   63.47 7093.73   65.12 7093.6666.00999 7093.65   66.97 7093.63
   69.56  7093.5   97.93    7092  126.58    7092   129.2 7092.86  132.64    7094
  135.16 7094.88  139.38    7096  139.49 7096.01  145.52 7096.82  154.24    7098
   164.6  7099.4  169.11    7100  179.49 7101.33  184.96    7102  190.05 7102.55
     200 7103.72

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   59.67     .05  132.64    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         59.67  132.64              104     100      95             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 12500.36

INPUT
Description: SL-207
Station Elevation Data    num=      66
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7106.632.380005 7106.544.580002 7106.375.429993 7106.329.699997 7106.12
   10.98    710613.60001    710514.03999 7104.8216.10001    710417.60001 7103.09
   17.91 7102.9119.21001 7102.2620.17999 7102.02   20.27    7102   22.89 7101.05
   23.66 7100.7524.67999 7100.52   25.52 7100.38   26.61 7100.32   31.69    7100
   34.45 7099.8334.85001  7099.8   34.92 7099.79   36.72 7099.53   38.48 7099.03
39.57001  7098.7   39.73 7098.56   39.87  7098.4   40.45    709847.74001 7096.19
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   48.28    709651.14999 7095.34   52.61 7095.02   55.06 7094.4857.35001    7094
   61.41 7093.45   72.14 7092.06   72.31 7092.04   72.59    7092    72.6    7092
    73.5 7091.83   75.95 7091.52   78.01  7091.3    80.1 7091.14   83.16 7091.15
   86.31 7091.16   86.49 7091.23    90.3 7091.42    95.8 7091.35   99.52  7091.3
   99.98  7091.3  105.47 7091.24  110.91  7091.2  116.03 7091.38  121.59 7091.57
  129.58 7091.82   134.1 7091.96  135.57    7092  138.99 7092.81  143.95    7094
  151.22  7095.2  155.57    7096  165.05 7096.71  183.42    7098   195.6 7098.96
     200 7099.29

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .03   72.14     .04  135.57     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         72.14  135.57              111     100      91             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 12400.36

INPUT
Description: SL-206
Station Elevation Data    num=      59
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7107.67.4499969 7107.654.130005 7106.976.100006 7106.649.990005    7106
   14.42 7105.29   17.37 7104.86   21.31    7104   26.95 7102.31   27.78    7102
28.32001 7101.56   29.89    7100   30.12 7099.85   31.72  7098.9   32.77 7098.48
   35.36 7098.14   35.41 7098.1236.00999    7098   39.95 7097.32   40.45 7097.22
44.07001    7096    47.7 7095.42   52.47 7094.52   52.48 7094.3853.50999 7094.38
   54.19 7094.3255.24001    7094   57.48 7093.66   67.56    7092   68.69 7091.72
   77.83    7090   82.08 7089.97   87.27 7089.97   94.88 7089.96   99.98 7089.96
  106.48 7089.97  118.68 7089.96  124.77 7089.98  128.91 7089.98  136.09    7090
  141.64 7091.17  145.45 7091.99  145.51    7092  167.87 7093.03  180.81 7093.62
   184.3 7093.77  185.93 7093.84  186.08 7093.83  186.15 7093.82  186.39 7093.82
  187.96 7093.85   191.5    7094  192.92 7094.09  193.19 7094.11  195.61  7094.3
  210.23 7095.31  217.51    7096  229.44 7097.19     230 7097.25

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .035   77.83    .045  136.09    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         77.83  136.09              148     100      55             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 12300.36

INPUT
Description: SL-205
Station Elevation Data    num=      85
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7105.673.119995 7104.825.279999 7104.557.979996    7104   14.72  7102.6
16.17999 7102.5119.24001 7102.51   19.83  7102.5   20.12 7102.4520.42999  7102.4
   20.44 7102.39   21.69    710222.53999 7101.3123.53999 7100.9923.60001 7100.97
   23.92 7100.89   25.63 7100.4627.07001    7100   28.63 7099.3229.42999 7098.92
   31.36    7098   32.08 7097.68   32.67 7097.47   33.48  7097.133.99001 7096.83
   35.66    7096   37.34 7095.11   39.55    7094   40.67 7093.6347.64999 7090.54
   49.44    7090   58.58 7089.46   60.66 7089.4563.53999 7089.3165.89999  7089.3
   67.12 7089.24   68.27  7089.2   75.55 7088.9280.85001 7088.75    82.2  7088.7
   85.75  7088.6   85.83  7088.688.42999 7088.53   88.56 7088.5391.24001 7088.49
   93.13 7088.4695.00999 7088.45    95.2 7088.4496.89999 7088.43   98.13 7088.43
98.64999 7088.42   99.98 7088.45  105.02 7088.55   117.9 7088.86  118.14    7089
  118.75 7089.05   119.9 7089.11  122.44 7089.22  126.97  7089.4  130.27 7089.52
  134.42 7089.59   142.9 7089.96  143.13 7089.96  144.05    7090  151.01 7090.63
  152.21 7090.63  153.77 7090.66   166.4 7091.38  169.97 7091.58  171.38 7091.63
  173.55 7091.78  174.13 7091.81  174.61 7091.83  175.67 7091.87  177.41 7091.99
  177.44 7091.99  177.59    7092  177.96 7092.02  197.55 7092.72  200.45 7092.85
  205.75 7093.18  219.53    7094  230.08 7095.19  237.13    7096     250  7097.3

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .03   49.44    .045   142.9    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         49.44   142.9                81  100.36     158             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 12200

INPUT
Description: SL-204
Station Elevation Data    num=      49
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     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7098.386.449997 7098.096.889999    70987.190002 7097.829.910004    7096
   12.64 7094.12   12.81    7094   12.97 7093.95   13.67 7093.44   14.25 7093.05
14.64999 7092.78   15.83    7092   16.02 7091.9523.78999    709028.92999 7088.98
   32.67    708842.07001 7087.75   44.31  7087.7   59.85 7087.3267.03999 7087.14
   70.89 7087.03   76.17 7086.89   77.78 7086.85   83.99 7086.81   87.04 7086.79
   89.74 7086.77   94.39 7086.79    96.4  7086.8   98.54 7086.82  102.11 7086.82
  103.52 7086.83  112.71 7086.71  115.01  7086.7  120.35 7086.63  132.48 7086.44
   148.6 7086.15  153.05 7086.04  154.61    7086   163.2    7086  170.06 7087.46
  172.68    7088  177.53 7089.32  179.85    7090  180.49 7090.34  183.71    7092
  192.16 7093.59  193.95    7094  195.71 7094.27     200 7094.94

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .035   59.85     .05  170.06     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        59.85  170.06               78   99.64     112             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 12100.36

INPUT
Description: SL-203
Station Elevation Data    num=      57
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7095.22.6300049 7095.149.479996    7094    20.7 7092.42   23.89    7092
      26 7091.74    40.2    7090   45.64 7089.26   49.28 7088.7753.85001    7088
   57.69 7087.04   59.48 7086.64   61.86    7086   63.27 7085.92   73.07  7085.5
   75.66 7085.38   77.98 7085.35   85.45  7085.2   90.87 7085.09   97.15 7084.96
   98.36 7084.94   99.98 7084.92  101.39  7084.9  104.51 7084.85  106.76 7084.79
  107.64 7084.77  111.07 7084.69  112.56 7084.66  114.58 7084.59  115.95 7084.54
   118.7 7084.54  120.18 7084.59  121.97 7084.66   123.3 7084.72  125.44 7084.83
  127.34 7084.97  129.81 7085.13  133.65 7085.37  135.44 7085.47  143.57 7085.88
  143.66 7085.88  146.26    7086  153.24 7087.58  155.54 7088.19  155.76  7088.3
  156.53 7088.53  159.84 7089.64  161.79    7090  166.54 7090.63  174.59    7092
  174.93 7092.06  180.03 7092.86  182.34 7093.27  185.82    7094  190.81 7094.79
  198.87    7096     200 7096.15

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   61.86    .055  146.26     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        61.86  146.26               89     100     110             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 12000.36

INPUT
Description: SL-202
Station Elevation Data    num=      73
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7101.196.400009    71007.419998 7099.79    16.3    7098   17.39 7097.78
26.20001    709630.24001 7095.19   35.61    709438.70001 7093.3242.87001    7092
47.04001 7090.81   48.97    7090   52.41 7088.8754.93001    7088   55.91 7087.69
61.01001    7086   65.31 7085.5971.48001    7085   84.31 7084.63   89.36 7084.36
  103.18 7084.05  103.43 7084.04  103.53 7084.03  105.05    7084  111.03 7083.85
  120.47 7083.68  124.66 7083.48  127.55 7083.37  132.85  7083.2  146.36 7082.51
  149.37 7082.36  151.75 7082.25  153.83 7082.17  156.36    7082  158.34 7081.75
  160.55 7081.51  160.73 7081.48  161.87 7081.49     163 7081.49  163.27 7081.51
   166.2 7081.75  168.36    7082  169.13 7082.43  172.08    7084  175.49 7085.54
  176.52    7086  177.41 7086.53  178.07 7086.93  179.67    7088  181.62 7089.33
   182.6    7090  182.82 7090.24  183.12 7091.13  183.18 7091.35  184.38 7091.39
  185.45 7091.42  188.41  7091.1  192.41  7090.8  194.88 7090.67  196.04 7090.61
  196.84 7090.59  206.95    7090  209.19 7089.84  209.42 7089.82  211.64 7089.65
  221.56 7088.92  222.86 7088.83  232.81 7088.07  233.07 7088.06  233.87    7088
  235.47 7087.77  244.37 7087.27  246.38 7087.03

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  111.03     .04  172.08    .028

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        111.03  172.08              114     100     107             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 11900.36

INPUT
Description: SL-201
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```
Station Elevation Data    num=      77
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7093.985.859985 7093.05   13.84    709227.26999 7090.32   29.03 7090.12
30.07001    709037.48001  7088.741.32999    7088   41.94 7087.8342.10001 7087.78
    45.2 7087.08   47.59    708653.53999 7084.49   55.61    7084    56.8 7083.93
57.75999  7083.976.32001 7082.9979.67999 7082.9286.00999 7082.63   88.19 7082.63
   89.47 7082.6491.53999 7082.6494.96001 7082.59   98.69 7082.53  104.63 7082.41
  121.38    7082   127.9  7081.4  129.21 7081.24  130.93 7081.08  131.82 7080.97
  134.87 7080.68   139.6    7080  148.11    7080  149.17 7080.42  152.96    7082
  154.72 7082.36  155.05 7082.45  155.51 7082.69   160.6 7082.77   165.8 7082.66
  168.68    7082  170.71 7081.99  176.84 7081.98  177.65 7081.98  185.64    7082
  187.98 7082.56  190.68 7083.17  192.73 7083.63  193.06 7083.71  198.35 7083.63
  199.45 7083.77  206.09 7083.69  207.78 7083.82  211.01 7083.74  212.01 7083.81
  212.66 7083.85  213.11 7083.88  213.13 7083.88  213.22 7083.87  213.33 7083.87
  213.63 7083.86  213.89 7083.86  214.96 7083.85  228.15 7083.74  232.98 7083.69
  239.41 7083.67  245.12 7083.69  248.69  7083.8  250.83    7084  261.09 7085.65
  263.37    7086  279.55 7087.69  282.52    7088  291.73 7088.93  295.03  7089.2
  299.59 7089.14     300 7089.14

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0    .028   55.61     .04  121.38    .035  149.17    .028  152.96     .04
   165.8    .035  187.98     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        121.38  187.98              102     100     101             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 11800.36

INPUT
Description: SL-200
Station Elevation Data    num=      86
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7087.73    1.26    7087    3.32 7085.75    7.12    7084    12.3 7082.93
   15.74 7082.21    16.8    7082   20.76 7081.91   33.21 7081.63   37.25 7081.55
   43.08 7081.39   51.12 7081.22   55.35  7081.1      59 7080.98   87.29 7080.07
   87.99 7080.05   89.48    7080   99.98 7079.98   100.5 7079.98  107.76 7079.99
  111.83    7080  114.15 7080.74  115.137081.068  117.92    7082  119.81 7082.66
  120.08 7082.75  120.83  7082.7  123.33 7083.28  123.62 7083.35  124.02 7083.42
  124.31 7083.45   125.6 7083.58   125.8 7083.59  126.53 7083.63  126.61 7083.63
  127.39 7083.65  127.59 7083.66  128.12 7083.65   128.6 7083.65  129.35 7083.67
  129.98 7083.68  130.35  7083.7  131.53 7083.73  131.86 7083.71  132.75 7083.67
  133.79 7083.62  135.17 7083.57  137.19 7083.49  139.94 7083.39     143 7083.34
  147.21 7083.17  157.65 7082.62  168.98    7082   186.7 7080.13   187.9    7080
   188.4    7080  191.96 7079.99  195.29    7080  196.76    7080  200.59 7080.57
  200.68 7080.54  201.31 7080.48  201.88 7080.43  202.91 7080.43  206.07 7080.56
  208.57 7080.51  209.12 7080.49  211.89 7080.38  212.62 7080.37  213.25 7080.35
  213.96 7080.36  216.65 7080.36  218.47 7080.43  219.71 7080.49  220.84 7080.56
   224.4 7080.53  225.64 7080.52  235.45 7081.22  241.44 7081.65  246.08    7082
  248.31 7082.42  256.44    7084  262.63 7084.77  273.87    7086  280.01 7086.73
     290  7087.9

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0    .028   15.74     .04      59    .045  115.13     .04  235.45    .045
  246.08    .028  256.44    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            59  115.13              138     100      83             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  131.53     290 7083.73       F

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 11700.36

INPUT
Description: SL-199
Station Elevation Data    num=      89
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7097.321.609985 7097.113.929993 7096.794.040009 7096.767.369995 7096.24
8.619995    7096   16.16 7094.35   17.72    709418.26999 7093.86   18.69 7093.78
19.07999 7093.6920.92001 7093.3527.21001    709228.21001 7091.31    29.8  7090.9
   31.25    709031.39999 7089.81   31.98 7088.96   32.61    7088   33.22 7087.09
33.96001    7086   35.58 7085.26   37.25    7084   39.12 7082.68   40.27    7082
   41.56 7081.64   44.89 7080.77    45.5 7080.61   47.88    7080   49.85 7079.85
50.57001 7079.81   60.33 7079.11   62.36 7079.03    71.3 7078.4775.14999 7078.35
75.92999 7078.3176.25999 7078.2978.21001 7078.2179.24001 7078.16   79.28 7078.15
   79.58 7078.14   80.06 7078.12   80.47  7078.1    80.7 7078.09   80.89 7078.09
   81.38  7078.181.89999  7078.1   82.39 7078.11   82.48 7078.11   83.16 7078.13
   83.41 7078.14   84.16 7078.16    84.3 7078.18   84.63 7078.21   85.23 7078.26
   85.63 7078.2986.71001 7078.35   93.75 7078.42    94.2 7078.45  103.16 7078.91
  113.57 7079.35  118.02 7079.65  122.79    7080  130.01 7081.47  133.24    7082
```

```
  136.58 7082.13  138.63 7082.21  140.74 7082.05  141.97    7082  159.81  7081.3
  185.69    7080  186.54 7079.87  188.72 7079.49  199.32 7079.59  212.76 7079.89
  213.41    7080   215.9 7080.36   222.1 7081.05  230.09    7082  232.67 7082.22
  235.79 7082.52  239.91 7082.89  243.62 7083.25  251.12    7084  266.59 7085.75
  267.35 7085.83  268.88    7086  277.57 7087.06     280 7087.33

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .0427.21001     .03   49.85    .045  122.79     .04  235.79    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         49.85  122.79              111     100      94             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  138.63     280 7082.21       F

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 11600.36

INPUT
Description: SL-198
Station Elevation Data    num=      52
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7090.775.800003 7090.577.960007 7090.44    11.7    7090   13.63 7089.15
   16.16    7088   16.72 7087.76   17.12 7087.59   19.63 7086.4320.67999    7086
   23.14 7084.82   24.86    7084   27.56 7082.8130.07001    7082   31.45 7081.52
   36.53    7080   43.75 7078.62   46.72    7078   49.56  7076.8   51.73    7076
    52.4 7075.57   54.88    7074   86.53    7074   88.46 7075.36   89.57    7076
  100.31 7076.88   113.3    7078  118.32 7079.21  122.76    7080  124.01 7080.04
  131.32 7080.25  134.37  7080.1  136.82 7080.01  137.05    7080  142.41 7079.14
  149.66    7078  154.97 7076.12  155.44    7076  159.57    7076  160.15 7076.12
  172.32    7078  173.47 7078.33  175.53 7079.02  178.41    7080  188.19 7081.29
  194.54    7082   204.8 7083.12   212.2    7084  222.63 7085.12  229.65    7086
  245.22 7087.51     250 7087.97

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   13.63     .03   51.73    .045   89.57     .04   113.3    .028
  131.32     .04  178.41    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         51.73   89.57              104     100     102             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  131.32     250 7080.25       F

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 11500.36

INPUT
Description: SL-197
Station Elevation Data    num=      73
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7083.89     .48 7083.84     .73 7083.81    1.07 7083.78    1.87 7083.69
    8.46    7083    9.86 7082.84   12.84 7082.48   16.19    7082   17.53 7081.44
   17.58 7081.42   18.15 7081.19   20.36 7080.26   21.14    7080   31.88 7078.04
   32.09    7078   32.27 7077.97   43.15    7076   48.49 7075.75   54.87 7075.46
   68.31 7074.86   72.72 7074.72   75.73 7074.65    79.7  7074.4   82.35 7074.22
   82.87  7074.2   85.86    7074   86.64 7073.77   87.24 7073.71   89.31 7073.19
   91.77 7073.06   93.83 7072.93    97.5 7072.38   97.82 7072.31   98.02 7072.25
   98.69 7072.18   99.09 7072.15   99.19 7072.14   99.31 7072.13   99.36 7072.12
   99.98 7072.11  100.67 7072.11   100.7 7072.13  100.88 7072.17  101.38 7072.23
  101.82 7072.27  103.66 7072.21  104.46 7072.32   106.5    7072  109.19 7071.93
   110.3    7072  110.76 7072.21  110.96 7072.32  112.097072.906   114.2    7074
  130.69 7075.19  147.19    7076  148.57 7076.09  149.08 7076.14   152.6 7076.44
  155.35 7076.67  162.62 7077.32  172.03    7078  178.66 7079.21  181.76 7079.65
  181.92 7079.67  182.27 7079.72   184.3    7080  192.52 7081.37  195.28 7081.59
  196.79 7081.79  198.28    7082     200 7082.24

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   16.19    .028   43.15     .04   85.86     .04   114.2    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         93.83  112.09               92     100     108             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 11400.36

INPUT
Description: SL-196
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Station Elevation Data    num=      60
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7084.04.4499969    70849.059998 7083.07   15.22    7082    17.2 7081.26
   18.44 7081.0623.75999    708024.85001 7079.8526.53999 7079.65   28.02 7079.48
   38.89    7078   40.53 7077.7841.89999 7077.56   46.81 7076.89   51.37    7076
59.42999 7074.29   60.77    7074   65.92 7073.28   73.02 7072.44   74.03 7072.33
   74.62 7072.28   74.95 7072.27   75.31    7072   79.42 7070.43   80.17 7070.16
   80.54    7070   80.75 7069.98    84.7 7069.83   90.89 7069.63    91.7  7069.6
   93.31 7069.57   99.49 7069.66   99.98 7069.67  106.73 7069.83  107.03    7070
  108.55 7071.42  109.07    7072  109.51 7072.49  110.12 7072.94  110.65 7073.18
  110.75 7073.15  111.73 7073.41  113.96 7072.97  116.34 7072.83  117.21 7072.89
  120.33 7073.07  120.96 7073.09  123.45 7072.96  123.91 7072.94  126.03 7072.79
  129.04 7072.71  130.97 7072.67  133.58 7072.83  140.55 7073.25  152.56    7074
  162.21 7075.45  165.65    7076  174.76 7076.73  188.57    7078     200 7079.23

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .035   80.54     .04  106.73     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        80.54  106.73              121     100     104             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 11300.36

INPUT
Description: SL-195
Station Elevation Data    num=      65
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7078.161.050003 7078.031.410004    70784.880005 7077.176.139999    7076
   12.45  7074.6   12.91 7074.51   13.12 7074.47   14.28 7074.25   15.27    7074
16.42999 7073.7725.25999    707232.21001 7070.85   36.31  7070.6   45.58 7070.19
   46.89 7070.08   50.64    7070   52.06    707055.57001 7069.6462.24001 7069.19
   68.05 7068.7370.10001 7068.52   72.91    7068    74.4 7067.99   75.94    7068
   79.78 7068.46   81.22 7068.64   81.83 7068.73   83.47    7069   85.95 7069.42
   86.64 7069.52   87.06 7069.63   88.09 7069.39   88.92 7069.15   89.44 7068.98
   91.98    7068    93.9 7067.99   96.04 7067.98   98.74 7067.97  100.19 7067.97
   102.1 7067.98  108.09    7068  110.94 7069.42  112.24    7070  114.78 7070.88
  117.65    7072  121.11 7072.71  123.15 7072.98  128.93 7073.84  129.99    7074
  135.23 7074.47  139.45 7074.86  152.85    7076  152.97 7076.02  153.63  7076.1
  161.92 7077.18  165.62 7077.69  168.06    7078  176.87 7079.42  180.27    7080
  186.96 7080.98  193.81    7082  198.19 7082.54  198.54 7082.53     200 7082.67

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0    .045   68.05     .05   81.22     .04   89.44     .05  108.09    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        68.05  108.09              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 11200.36

INPUT
Description: SL-194
Station Elevation Data    num=      41
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7079.16.1600037 7079.135.100006    7078   20.05 7076.13   21.11    7076
21.92999 7075.91    39.3    7074   50.75 7072.53   53.98    7072   60.91 7070.25
61.75999    707065.03999 7069.46   70.48 7068.25   71.63    7068   72.18 7067.89
   79.56    7066    86.8 7065.99   90.04 7065.98   95.64 7065.98  108.61    7066
  111.33 7066.46  111.67 7066.52  117.08  7067.5     120    7068   123.7 7068.94
  128.04    7070  139.02 7071.72  140.88    7072  141.18 7072.07  148.23    7074
  152.83 7075.78  153.63    7076  160.79 7076.79  163.03 7077.04  167.51 7077.49
  168.51 7077.59  172.21    7078  185.06 7079.41  189.19 7079.89  190.08    7080
     200 7080.91

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .045   72.18    .055     120     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        72.18     120              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 11100.36

INPUT
Description: SL-193
Station Elevation Data    num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
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```
       0  7076.86.770004    707618.53999 7074.98   29.89    707434.92999 7073.42
   50.28    7072   52.95 7071.66   67.52    707067.67999 7069.97   75.04 7068.58
   78.09 7068.01   78.13    7068   78.14 7067.99   79.76    7066   84.77 7064.85
   88.83    7064   92.05 7063.99   95.63 7063.99   98.76 7063.98   100.4 7063.98
  109.78    7064  112.33 7065.74  112.72    7066  112.91 7066.18  114.38    7068
  116.04  7068.3  119.67 7068.93  122.65    7070  136.39 7071.87  137.33    7072
  150.02 7073.78  151.61    7074  156.64 7074.65  166.94    7076  172.87 7076.76
  182.35    7078     200 7079.55

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .045   79.76     .05  112.72    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         79.76  112.72              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 11000.36

INPUT
Description: SL-192
Station Elevation Data    num=      49
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7079.262.740005    70795.210007 7078.81   14.64    7078    21.5 7077.05
   26.98 7076.27   28.42    7076   29.12 7075.55   31.06    7074   33.42 7073.35
   37.67    7072   40.02 7071.46   45.89    7070   57.14 7068.84   61.25 7068.53
   63.44 7068.34   67.83    7068   69.45 7067.77   78.38    7066   80.56 7064.35
   80.99    7064   86.27 7062.73   86.75 7062.63   88.55  7062.2   89.48    7062
  101.82    7062  115.78 7063.71  116.83    7064  118.79 7065.83  118.99    7066
  136.36 7067.52  144.04 7067.86  147.47    7068  148.53 7068.07  148.61 7068.08
  155.15 7068.47  156.66 7068.51  157.32 7068.52  159.36 7068.71   161.4 7068.91
  163.81 7069.66  165.09    7070  167.48 7070.43  172.24 7071.22  177.77    7072
  181.59 7072.44  184.96 7072.75  189.56    7074     200 7075.66

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .035   80.99    .028  115.78     .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         80.99  115.78              107     100      97             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 10900.36

INPUT
Description: SL-191
Station Elevation Data    num=      43
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7074.493.470001    7074   13.47 7072.43   16.13    7072   17.08 7071.86
18.50999 7071.65   23.48 7070.93   30.89    7070   41.17 7068.75   48.11    7068
   58.17 7067.46   60.59 7067.32   69.72 7066.87   72.93 7066.71   80.02  7066.3
   85.06    7066   86.38 7064.88   88.13    7064   88.28  7063.8   89.87    7062
   98.15 7061.95   99.98 7061.94  105.17 7061.91   114.1 7061.96  116.92 7061.98
  119.52    7062  122.89 7063.95  122.98    7064  123.79 7064.16  132.15    7066
  135.56  7066.4  150.88    7068  160.16 7069.47  163.94    7070  174.91 7071.33
  179.58    7072  182.18 7072.39  184.48 7072.62  185.98 7072.79  187.19 7072.92
  196.24    7074  199.79 7074.43     200 7074.45

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   88.28     .03  122.89     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         88.28  122.89              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 10800.36

INPUT
Description: SL-190
Station Elevation Data    num=      44
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7071.318.429993    7070   10.66 7069.65   15.91 7068.7518.49001 7068.31
   20.14    7068    21.2 7067.79   30.41    706664.49001 7064.35   66.75 7064.25
   68.44 7064.18   72.85    7064   78.79  7063.4    85.2 7062.77   90.72    7062
   93.01  7060.3   93.38    7060   94.12    7060   99.98 7059.99  102.21 7059.99
  109.53    7060  109.59    7060  109.87 7060.13  113.34    7062  115.75 7063.18
  117.17    7064  123.32 7065.95  123.47    7066  126.96 7066.42  127.83  7066.5
  129.73 7066.88  135.04    7068  148.52 7069.37  155.07    7070  158.87 7070.46
  159.72 7070.52  163.82 7070.91  165.69 7071.06  167.94 7071.22  168.95 7071.29
  176.44    7072  182.06 7072.39  186.71 7072.68     200 7073.82
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Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   90.72    .028  113.34     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         90.72  113.34               97     100     102             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 10700.36

INPUT
Description: SL-189
Station Elevation Data    num=      80
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7069.92     .08 7069.911.390015 7069.72   10.34 7068.47   13.72    7068
    16.5 7067.6318.95999 7067.3429.42001    7066   33.88 7065.2539.85001 7064.34
   41.97    7064   49.25 7063.5657.85001 7063.02   70.66    7062   74.41 7060.69
   76.66    706079.18001  7059.2   81.72 7058.4482.07001 7058.31    82.3 7058.27
82.68001 7058.2282.93001  7058.2   83.11 7058.17   83.16 7058.1683.17001 7058.15
   83.88 7058.1484.51001 7058.14   85.05 7058.1785.49001 7058.19   86.72 7058.25
88.68001 7058.3591.70001 7058.5193.04001 7058.59   96.33 7058.7999.98001 7058.91
  107.37 7059.16    115.1    7060  116.83 7060.82  119.43    7062  123.25 7062.02
  125.72  7062.2    129.5 7062.42  130.21 7062.47  133.45 7062.53  136.44 7062.58
  139.75 7062.63   150.92 7062.83  154.77 7062.89  158.32 7062.92  161.49 7062.93
  164.06 7062.93   171.72 7062.92  176.52 7062.99  183.98 7063.24  188.63 7063.21
   192.1 7063.33   196.63 7063.33   198.3 7063.26  201.03 7063.32  206.03 7063.53
  208.47 7063.62   210.81 7063.65  213.08 7063.63  219.54 7063.78  219.84 7063.78
  225.08    7064   225.89 7064.04  226.47 7064.09  235.49 7064.72  237.13 7064.86
  243.88 7065.63   245.45 7065.79  247.31    7066  256.18 7066.75  268.61    7068
   271.1 7068.25   274.93 7068.62  282.59 7069.39  284.61 7069.58  286.85 7069.76

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   76.66     .03   115.1     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         76.66   115.1              108     100      94             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 10600.36

INPUT
Description: SL-188
Station Elevation Data    num=     119
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7075.82     .35 7075.83     .63 7075.84     .78 7075.85    1.47 7075.85
    2.25 7075.79    4.67 7075.54    4.91  7075.4    7.44 7074.78    9.78 7074.52
    12.5    7074    14.5 7072.88    15.5 7072.42   15.68 7072.32   16.23    7072
   19.48 7070.13   19.74    7070   21.15 7069.23    21.3 7069.18   24.25 7068.33
   25.47    7068   27.05 7067.64   28.51 7067.56   31.34 7067.63    32.3 7067.68
   35.59    7068   40.99 7068.46   41.02 7068.45   41.27    7068   41.48  7067.6
   42.59    7066   43.41 7064.44    43.7    7064    44.5 7062.53   44.86    7062
   45.64 7060.56   46.05    7060   46.85 7058.56   47.29    7058   47.47    7058
   53.84 7058.01   56.47 7058.02   58.49 7058.02   68.14    7058   69.55    7058
   71.16 7058.59   75.08    7060   80.04    7060   83.98 7059.78   85.92 7059.66
    92.3 7059.35   93.42 7059.31   96.78 7059.29   98.98 7059.25  100.51 7059.25
  107.76 7059.29  109.63 7059.32  113.25  7059.4  115.34 7059.45  117.27 7059.51
  118.52 7059.77  119.55 7059.91  120.47    7060  121.46    7060  121.75 7060.01
  123.26 7060.01  131.61 7060.06  136.14 7060.06   147.4 7060.01  147.98    7060
  151.22    7060  156.16 7059.99  159.45 7059.99  161.92    7060  164.15    7060
  173.07 7060.76  176.74 7060.93  180.14 7061.21  181.61 7061.31  187.12 7061.47
  192.96  7061.6  193.72 7061.67  194.07 7061.71  194.44 7061.74  194.53 7061.75
  194.82 7061.77  195.99 7061.83  196.17 7061.84  196.29 7061.85  196.81 7061.86
  197.73 7061.88  211.87 7061.95   212.2 7061.95   224.7 7061.98  225.05 7061.98
  228.37    7062  238.36 7062.12  241.97    7062  242.87 7061.99  247.05    7062
  255.58 7062.09  255.94  7062.1  258.52 7062.17  259.17 7062.21  266.55 7062.52
  268.62 7062.69  269.54 7062.78  276.15 7063.49  278.09 7063.67  279.14 7063.79
  280.66    7064   289.9 7065.23  294.26    7066  305.53 7067.27  307.34 7067.47
  311.91    7068  319.88 7068.89  323.93  7069.3     325  7069.4

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   40.99    .028   46.05    .035   75.08    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         46.05   75.08              120     100      74             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 10500.36
```

```
INPUT
Description: SL-187
Station Elevation Data    num=      95
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7065.31.1900024 7065.282.850006  7065.7 3.48999 7065.444.320007 7065.48
5.649994 7064.928.070007    7064   11.03 7062.8312.60001 7062.28   13.34    7062
   17.13 7060.56    18.8    706023.95999 7059.49   24.16 7059.4924.64001 7059.38
26.14001 7059.24   32.56    7058   33.91 7057.6934.32999 7057.7234.76001 7057.74
   39.38 7057.1240.14999    705748.10999  7056.853.73999 7056.6759.57001 7056.96
    62.2 7057.02   63.75 7057.0364.99001 7057.03   66.98 7057.04    78.2 7057.85
    78.5 7057.86    80.2    7058    81.2 7058.0786.53999 7058.47  103.68 7059.76
  106.85    7060  109.21 7060.01  109.79 7060.01  113.97 7060.03  116.76 7060.04
  123.08 7060.05  124.81 7060.04  128.79 7060.03  134.91    7060  136.33    7060
  143.22 7059.99  144.44 7059.99  151.77    7060  153.96 7060.19  154.86 7060.23
  160.51 7060.69  162.94 7060.85  166.52 7060.96  170.31 7061.04  172.13  7061.2
  172.96 7061.29  173.86 7061.38  174.08 7061.41  174.77 7061.44  175.71  7061.5
  177.58 7061.59     178 7061.62   178.3 7061.65  179.54 7061.67  181.75 7061.71
  194.62 7061.77  196.08 7061.79  207.55 7061.82  207.87 7061.82  208.46 7061.83
  208.68 7061.83  208.98 7061.84  209.54 7061.83  210.68 7061.82  223.02  7061.9
  223.69 7061.89  224.06 7061.89  228.68 7061.82  240.38 7061.86  242.81 7061.88
  243.26 7061.88  251.09 7061.98  251.96    7062  258.29 7062.58  262.84 7063.07
   269.4    7064  272.57 7064.42  281.52    7066  282.73 7066.14  287.35 7066.65
  297.43 7067.82  298.59 7067.95  299.04    7068  305.85  7068.7     315 7069.56

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .028    18.8     .04  106.85    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          18.8  106.85              111  114.56     130             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 10385.8

INPUT
Description: SL-186
Station Elevation Data    num=      59
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7063.39       1 7063.295.149994 7063.0321.45999 7062.0822.34999    7062
   22.53 7061.97   22.73 7061.9229.67999 7060.33   30.55    706033.50999 7058.86
   35.55    705840.09999 7056.14    40.4    705641.20999 7055.9941.67999 7055.99
   48.41 7055.91   59.17 7055.79   61.33 7055.77   64.55  7055.8    70.7 7055.87
   72.86 7055.8976.45999 7055.92   84.99    705689.59999 7056.48   91.31 7056.53
   92.31 7056.56   95.75 7056.81   97.13 7056.9198.45999 7056.92   98.77 7056.93
   99.09 7056.9499.24001 7056.94  103.66 7057.11  105.64 7057.22  118.49    7058
  123.16 7058.41  127.93 7058.62  138.74 7059.31  139.13 7059.31  141.76 7059.39
  144.48 7059.49  153.38 7059.79  154.86 7059.87  160.76    7060  163.68 7060.05
  163.82 7060.06  164.07 7060.08  164.45  7060.1  196.72    7062  196.78 7062.01
  206.29    7064  209.85 7064.83  213.09 7065.62  214.75    7066  221.44  7066.9
  227.27 7067.67   229.7    7068  237.55 7068.92  239.67 7069.16

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04    40.4    .035   84.99     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          40.4   84.99               79   85.44     158             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 10300.36

INPUT
Description: SL-185
Station Elevation Data    num=      74
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  7063.17.600006    7062    13.7 7060.93   19.58    706023.39999 7059.32
   28.62  7058.330.67999    7058   33.39 7057.66   36.03  7057.4   37.09 7057.43
   40.16 7057.14   44.81 7057.03   48.58 7056.8160.96001    7056   62.31 7055.95
   62.67 7055.95   66.08 7055.8769.96001  7055.873.53999 7055.75   77.65 7055.71
   79.27 7055.68   83.66 7055.72   83.78 7055.72   85.76  7055.7   87.68 7055.66
   94.59 7055.62   95.19 7055.61   96.82 7055.55   98.98 7055.47   99.83 7055.42
  101.13 7055.35  102.37 7055.26  102.99 7055.22   109.7 7054.63  115.82    7054
   126.5  7053.3  136.63    7054  144.31    7054  147.09 7053.99  148.57 7053.99
  150.91    7054  154.34    7054  156.46 7055.51  156.47 7055.52  156.62 7055.64
  157.12    7056  157.49 7056.24  160.05    7058  161.43 7058.89  163.76    7060
  164.89 7060.49  165.93 7060.83  166.95    7062  167.59 7062.76  168.66    7064
   169.8 7065.25  170.42    7066  171.24 7066.87  172.15    7068  180.17 7069.14
  183.65    7070  187.39 7070.35  191.56 7070.68  193.25 7070.78  194.09 7070.82
   196.9 7070.96  197.08 7070.97  197.54    7071  197.73 7070.99  197.83 7070.98
  198.72 7070.94  200.18 7070.85  201.67 7070.69  202.39 7070.43

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .045   96.82    .045  156.46     .03
```

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         96.82  156.46               79   96.39     158             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 10203.97

INPUT
Description: SL-184
Station Elevation Data    num=      52
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7063.147.900009    7062 9.01001 7061.81    11.2 7061.46   16.31 7060.58
20.74001    7060    25.3 7059.07   29.63 7058.24   31.31    705834.10001  7057.6
   34.56  7057.5   39.02 7056.67   40.83 7056.3442.46001    7056   48.11 7055.58
   66.75    7054   73.58 7052.61   76.96    705287.56001    7052   89.62 7052.19
   96.83 7052.84  103.27 7053.33  104.76  7053.4  105.17 7053.37  110.26    7054
  110.44  7054.2  111.93 7055.36  111.96 7055.39  112.27 7055.64   112.4 7055.73
  112.66 7055.93  112.74    7056  112.84 7056.11  114.45    7058  115.59  7058.5
  117.81 7059.05  119.02 7059.37  119.48 7059.52   121.3    7060  125.73 7060.58
  125.77 7060.58   125.8 7060.59  125.82 7060.59  128.41 7060.99  134.91    7062
  142.53 7063.09  148.39    7064   154.3 7064.87  161.44    7066  169.36 7067.22
   174.5    7068  176.44 7068.29

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   66.75    .045  110.26    .028  114.45     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         66.75  110.26               89  103.61     110             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 10100.36

INPUT
Description: SL-183
Station Elevation Data    num=      54
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7065.18.1399994  7065.3    4.25 7065.18   10.44 7064.94   20.36    7064
36.85001 7062.56   43.59    706251.67999 7061.3566.42999    7060   69.27  7058.9
   72.25    7058   73.12 7056.55   73.37    7056   74.02 7054.94   75.77    7054
   77.31  7053.378.25999 7052.81   79.02    7052      90    7051     120    7051
  140.16    7052  141.61 7052.16  143.43 7052.39  144.18 7052.46  144.71 7052.49
  148.25 7052.81  154.06 7053.35  157.89 7053.67  162.17    7054  164.96 7054.22
  168.23 7054.54  178.04 7055.69   180.2 7055.93  180.72    7056  181.65 7056.24
  188.23    7058  192.99 7059.25  196.19    7060  197.82 7060.29  207.46    7062
  210.65 7062.43  210.79 7062.45  217.98 7063.46   222.6 7063.95  222.72 7063.96
  223.04    7064  232.46 7065.83  233.26 7065.99  233.34 7065.99  233.38    7066
   233.8 7066.09  243.87 7067.95  244.21    7068     250 7068.91

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .03   79.02     .04  140.16    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         79.02  140.16              114     100      73             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 10000.36

INPUT
Description: SL-182
Station Elevation Data    num=      60
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7061.643.410004 7061.497.059998 7061.2814.29001 7060.81   22.78 7060.21
25.85001    7060   27.37 7059.92   28.41 7059.85   35.89 7059.34    38.3  7059.2
   41.44 7059.11   46.28 7058.78   48.36 7058.67   57.27    7058   58.05 7057.93
   59.53 7057.78    73.3 7056.39   75.63    7056   77.47 7054.91   79.77    7054
80.14999 7053.69   81.56 7052.85   82.12    7052   84.87    7050   114.1    7050
  147.51    7052  152.39 7052.34   154.6 7052.47  155.82 7052.55  158.81 7052.75
  173.56 7053.47  181.97 7053.95   182.9    7054   186.4 7055.48  187.68    7056
  189.39 7056.77  192.14    7058  193.08 7058.12  196.89 7058.62  199.17 7058.82
  201.78 7059.08  202.22 7059.09   203.5 7059.22  211.83    7060  213.54 7060.21
  214.19 7060.33  216.24 7060.67  221.71 7061.44  221.85 7061.47  224.12    7062
  229.06 7063.18  232.98    7064  233.66 7064.08  236.84 7064.56   250.8    7066
  253.17 7066.19  253.47 7066.21  254.59 7066.33  263.86 7067.14  263.97 7067.15

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   75.63     .03   82.12     .04  147.51     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
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```
        82.12  147.51               93     100     127             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 9900.36

INPUT
Description: SL-181
Station Elevation Data    num=      55
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7058.341.580002 7058.265.679993    7058   23.81 7056.6925.50999 7056.56
   32.87    7056   40.25 7055.1548.74001    7054   51.77 7053.35   57.66    7052
   68.64    7050   94.72    7048  108.56    7048  123.03    7050  133.95    7052
  135.64 7053.09  136.29 7053.68  136.65    7054   141.1 7055.99  141.11    7056
  143.74 7057.18  145.52    7058  154.37    7058  156.09 7058.01  157.43 7058.01
  157.81    7058   159.7    7058  160.17 7057.73  160.23 7057.69   160.3 7057.65
  160.62 7057.59   161.5 7057.55  165.53 7057.06  166.52 7057.04  167.13 7057.23
  168.54    7058  169.07 7058.31  169.17 7058.33  169.22 7058.32  169.27 7058.29
  169.68    7058  170.25 7057.31  170.77 7057.14   171.4 7056.81  171.47 7056.79
  171.87 7056.87  172.68 7057.01  173.32 7057.34  174.03    7058  176.58 7059.07
  178.24    7060  179.35 7060.84  180.67  7061.4  181.74    7062     200    7062

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   68.64     .04  123.03    .028

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         68.64  123.03               100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 9800.36

INPUT
Description: SL-285
Station Elevation Data    num=      40
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7057.482.970001 7057.28   21.03    7056   25.87 7055.04   29.33 7054.67
   29.69 7054.6235.89999    705437.89999  7053.640.42999 7053.01   43.47    7052
   51.24    7050   86.36    7048  100.34  7046.5  112.95    7048  121.17    7050
  129.68    7052  130.52 7052.16  134.95 7052.65  136.01 7052.92  136.19 7052.94
  136.66    7053  137.09 7053.08   138.3 7053.34   139.6    7054  149.12 7055.22
   155.2    7056  157.16 7056.32  157.57 7056.37  162.26 7056.95  168.83  7057.7
  170.81 7057.96  171.53    7058  175.83 7058.53  177.35 7058.74  180.64 7059.36
  187.63    7060  193.81 7060.02  198.06 7060.02  199.64 7060.03     200 7060.03

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   51.24    .045  121.17    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         51.24  121.17               100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 9700.36

INPUT
Description: SL-180
Station Elevation Data    num=      70
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  7065.9    4.52    7064    9.39    7062   14.28    7060   19.26    7058
   24.13    7056   32.69    7054    48.7    7052   50.16 7051.7452.46001 7051.25
   54.34 7050.79   57.48  7050.1   61.77    7048   68.18    7046      72  7045.8
   77.72    7046   92.35 7047.95   94.31  7048.1   97.75  7048.4   98.36 7048.45
   99.98  7048.6  102.01 7048.78     104 7048.89  105.81 7048.98  106.05 7048.99
  108.26 7049.07  111.14 7049.21  111.76 7049.24  118.69 7049.68  118.93 7049.69
  119.55 7049.74  125.67 7050.24  127.91 7050.48  128.02  7050.5  131.32 7050.89
  131.86 7050.95   134.2 7051.19  143.01 7051.78  146.02 7051.96  146.07 7051.96
     147    7052  151.45 7052.32  152.32 7052.33  154.23 7052.39  155.89 7052.36
  157.24 7052.28  159.27 7052.18  159.53 7052.18  161.21 7052.13  163.35    7052
   163.6    7052  176.09 7051.96  180.71 7051.95  183.34 7051.94  186.79 7051.93
  188.69 7051.94  200.57 7051.98   202.5 7051.98  208.24 7051.99  208.59    7052
  210.47 7052.64  210.85 7052.76  214.15    7054  220.74 7054.97  228.04    7056
  241.16 7057.93  241.64    7058  242.41 7058.11  256.01    7060  261.25 7060.67

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0    .045   61.77     .04   92.35    .035  154.23     .04  214.15    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         61.77   92.35               100     100     100             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
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  154.23  261.25    7054       F

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 9600.36

INPUT
Description: SL-179
Station Elevation Data    num=      35
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    7061    2.55    7060    7.32    7058    12.2    7056   29.44    7054
   33.23 7053.62   48.81    7052   62.16    7050   72.13    7048   78.92    7046
      82  7044.9   129.8  7044.9   133.9    7046  140.45    7048  146.99    7050
  150.82    7052  151.87 7052.16  154.31 7052.48  157.57 7052.78  161.29 7052.75
  161.87 7052.74  164.36 7053.13  164.95 7053.14  166.49 7053.43  167.16  7053.6
  168.13 7053.58  170.08    7054  174.91 7055.38  175.77 7055.57  176.46 7055.74
  177.87    7056  190.33 7057.18  198.94    7058  216.28 7059.19     220 7059.46

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .045   78.92     .04   133.9     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         78.92   133.9               98     100     103             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 9500.36

INPUT
Description: SL-178
Station Elevation Data    num=      29
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7056.14   45.63    7054   52.25 7053.68   59.11 7053.12   64.08 7052.71
   72.74    7052    83.8    7050      92    7048   100.1    7046  103.617045.147
   107.1  7044.3   151.2  7044.3     173    7045     175    7046   179.6    7048
   183.7    7050  190.05 7051.74  197.43    7052  202.33 7052.63   205.3 7052.81
  207.37 7053.02  216.01 7053.39  219.71 7053.69  222.62 7053.76  225.72    7054
  242.21 7055.88  243.44    7056  256.03 7057.02     260 7057.32

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .045  103.61     .05     173     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        103.61     173               93      90      89             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 9410.36

INPUT
Description: SL-177
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  7054.3    4.27 7054.08      64    7052   74.03 7051.53      98    7051
  107.29 7050.69  107.31  7050.7  107.34  7050.7  209.98 7050.66     229    7052
  278.92    7054  304.58  7055.2   311.6 7055.53  318.31 7055.85  319.26 7055.89
     320 7055.91

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .035  107.29    .028  209.98    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        107.29  209.98              121  110.36     110             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 9300

INPUT
Description: SL-176
Station Elevation Data    num=      54
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7054.05.3300018    70546.850006  7053.114.75999    705228.40001 7050.21
29.21001 7050.11   30.11    7050   31.63 7049.8336.96001 7049.2440.25999 7048.95
   44.37 7048.48   47.81    704850.25999 7047.4557.00999    7046   58.89  7045.1
   61.02    7044   61.52 7043.9367.50999 7043.82   69.37 7043.7371.18001 7043.68
72.35001 7043.62    73.5 7043.56    75.7 7043.49   78.59 7043.42   81.72 7043.41
84.68001 7043.33   85.85 7043.29   99.95 7043.28  102.95 7043.28  118.94 7043.26
  121.29 7043.36  121.55  7043.4  127.89 7043.68  130.87 7043.81  136.17 7043.99
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  136.62    7044  143.81 7045.02  151.28    7046   157.1 7046.53  174.51    7048
  174.83 7048.01   174.9 7048.02  183.89 7048.38  189.41 7048.56  189.74 7048.58
  199.07 7048.83  201.15 7048.81  202.84  7048.8  205.22 7048.84  209.04 7048.94
  212.52 7049.05  219.43 7049.24  225.81 7049.38  227.08 7049.42

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .045   61.52     .06  136.17     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         61.52  136.17              102   99.64      90             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 9200.36

INPUT
Description: SL-175
Station Elevation Data    num=      67
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7059.522.589996    7059    6.25    70586.869995 7057.828.479996 7057.28
12.64999    7056   13.13 7055.85   15.58  7054.9   17.81    7054   21.56 7052.25
22.17999    7052   22.41 7051.8622.67999 7051.78   25.06 7051.11   27.39 7050.49
28.53999 7050.22   29.72    7050   31.98 7049.5832.14999 7049.5532.46001 7049.53
   37.55 7049.2140.60001 7049.28   41.11 7049.2542.49001 7049.0144.03999 7048.83
   46.97    704847.49001 7047.79   47.69 7047.6748.92999 7046.9549.96001 7046.41
   50.75    7046   51.64 7045.2553.46001    7044    64.7 7042.5366.92999 7042.25
   67.63 7042.14   69.06    7042   82.22  7041.8   83.45 7041.7785.10001 7041.73
   95.66 7041.71   99.98 7041.71  106.04  7041.7  110.18 7041.72  116.52 7041.72
  119.96 7041.69  124.24  7041.7  131.39 7041.72  135.41 7041.72  137.97 7041.94
  138.89    7042  152.67 7043.65   155.2    7044  167.32  7044.6  179.28 7045.13
  183.74 7045.25  195.08 7045.63  196.44 7045.68  206.19    7046   213.2 7046.27
  215.27 7046.35  217.29 7046.43  229.26 7046.89  233.65 7047.08  247.21 7047.95
     248    7048     250 7048.14

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   41.11     .03   69.06    .055  135.41    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         69.06  135.41              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 9100.36

INPUT
Description: SL-174
Station Elevation Data    num=      95
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7053.311.100006 7052.82    2.25 7052.434.080002    70524.979996 7050.64
5.389999    70506.369995  7048.86.580002 7048.316.779999    70487.850006 7047.54
8.720001 7047.279.479996 7047.24    10.8    7048   11.09 7048.21   11.53 7048.43
   13.09 7049.1114.49001 7048.78   15.88 7048.6217.64999 7048.95   20.42 7049.36
   20.77 7049.4920.89999 7049.53   21.73  7049.622.28999 7049.6922.75999 7049.71
   22.91 7049.6826.35001    704827.96001 7047.15   30.12    7046   30.97 7045.58
33.32001 7044.46   34.34    7044   34.81 7043.71   39.16 7043.4841.10001 7043.21
   45.42 7043.0246.25999 7043.0147.24001 7042.74   49.19    7042   52.17 7041.89
   52.77 7041.8859.64999 7041.5661.14999 7041.57   63.37 7041.54   65.78  7041.5
72.99001 7041.37    75.5 7041.29   79.06 7041.1781.99001 7041.0885.96001 7040.95
86.67999 7040.93   86.97 7040.9387.96001  7040.9   92.48 7040.81   94.28 7040.77
96.24001 7040.73   98.23  7040.7   99.98 7040.68   109.7 7040.55  131.13 7040.24
  133.18  7040.2  133.39 7040.19  133.88 7040.18  134.31 7040.17  134.83 7040.16
  134.99 7040.16  136.14 7040.13  136.33 7040.13  136.94 7040.12  137.29 7040.12
  138.09  7040.1  138.31  7040.1   138.9 7040.09  139.46 7040.08  141.83 7040.08
  141.95 7040.09  142.17 7040.11  142.47 7040.13   142.9 7040.16  143.31 7040.19
  143.89 7040.25  147.42    7040  150.99 7039.93  153.63    7040  156.07 7040.52
  162.52    7042   174.4 7042.74  192.73 7043.72  195.29 7043.86  197.98    7044
     200  7044.1   216.1 7044.83  231.57 7045.77  235.31    7046     250 7047.38

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .0422.75999    .035   49.19    .055   109.7     .05  156.07     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         109.7  156.07              103     100     109             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 9000.36

INPUT
Description: SL-173
Station Elevation Data    num=      50
```

```
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7052.172.919998 7051.388.240005    7050   14.91 7046.8116.46001    7046
   22.03 7044.33   22.94    704426.03999 7043.25   31.31    7042   38.02 7041.24
   50.17    7040   56.44 7039.7158.17999 7039.6266.92999  7039.376.03999 7038.99
   78.81 7038.91   80.25 7038.87   81.02 7038.86   84.19 7038.7888.21001 7038.69
   88.55 7038.68   90.36 7038.6692.67999 7038.63   95.16 7038.63   97.11 7038.61
98.60001 7038.59   99.98 7038.57  101.16 7038.55  102.96 7038.52   104.9 7038.48
   106.6 7038.44  107.52 7038.46  109.73 7038.52  112.11 7038.58  115.31 7038.66
  118.41 7038.74  123.89 7038.88  130.38 7039.05   141.9 7039.33  152.58  7039.6
   169.9    7040  170.02 7040.02  178.98    7042  185.87  7043.1  190.47    7044
  211.52 7045.99  211.58 7045.99  211.67    7046  212.26 7046.04     230 7047.34

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   50.17    .055   169.9    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         50.17   169.9             108     100      80             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 8900.36

INPUT
Description: SL-172
Station Elevation Data    num=      24
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7048.191.110001    704813.82001 7046.29   16.25    7046    18.5 7045.59
   29.72    7044   32.48 7043.05   35.44    7042   37.86 7041.15   41.62    7040
   59.44 7039.27   65.58 7039.0289.57001    7038  107.84    7038  115.65  7038.2
  177.63 7039.77  179.73 7039.83  186.48    7040  189.67  7040.7  195.96    7042
  200.45 7042.41  217.81    7044  229.58 7045.22     230 7045.26

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .045   41.62    .045  186.48    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         41.62  186.48             130  100.08      89             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 8800.28

INPUT
Description: SL-171
Station Elevation Data    num=      26
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7048.161.660004    7048   15.39 7046.0315.60001    7046   16.16  7045.9
   28.14    7044   35.52 7043.14   44.56    7042   54.38 7041.08   56.83 7040.94
   61.97 7040.58   69.81    7040   77.97 7038.17   78.74    7038  105.85    7038
  108.71 7038.07   118.3    7038  175.36    7038  183.72 7039.33  187.83    7040
   193.9 7040.98  200.64    7042  212.09  7043.3  215.15 7043.63  218.44    7044
     230 7044.38

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   78.74    .035  175.36     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         78.74  175.36              99  100.07     103             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 8700.21

INPUT
Description: SL-170
Station Elevation Data    num=      29
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    70493.220001 7048.344.059998 7048.144.839996    70485.269989 7047.88
12.16998    7046   16.12 7044.8518.87997    7044   22.41 7042.9425.44998    7042
27.98999 7041.1631.87999 7040.0131.91998    704032.00999 7039.96   35.87 7038.43
36.94998    703894.28999 7037.99  137.65 7037.99  158.54    7038  188.34    7038
     200  7039.1  206.19 7039.89  207.21    7040  225.28 7041.76  227.64    7042
  231.54 7042.29  255.32    7044  278.07 7044.77  284.02 7044.96

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .0436.94998     .03  188.34     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      36.94998  188.34              97  100.06      37             .1       .3
```

CROSS SECTION

RIVER: SandCreek
REACH: CLOMR-CL   RS: 8600.15

INPUT
Description: SL-169
Station Elevation Data   num=   44
     Sta   Elev   Sta   Elev   Sta   Elev   Sta   Elev   Sta   Elev
       0 7052.791.019989 7052.766.109985 7052.677.829987 7052.5821.60999   7052
   24.13 7051.8725.20999 7051.7935.41998 7051.0938.13998 7050.948.26001   7050
60.63998 7049.172.38998   704891.29001 7046.2794.10001   704695.76999 7045.75
   97.12 7045.55 106.86   7044 113.47 7042.26 114.35   7042 114.88 7041.81
  119.21   7040 120.24 7039.59 123.81   7038 136.91   7038 222.34 7037.98
  286.07 7037.98 357.09   7038 359.35   7038 364.07 7038.51 367.19 7038.76
  371.39 7039.26 373.72 7039.51 374.94 7039.69   375.6 7039.72 376.57 7039.71
  378.85   7040 391.46 7041.73 393.78   7042 394.73 7042.06 405.63 7042.65
  412.59 7043.13 420.82 7043.56 425.48   7044 450.06 7044.89

Manning's n Values   num=   3
     Sta   n Val   Sta   n Val   Sta   n Val
       0   .04 123.81   .028 359.35   .035

Bank Sta: Left   Right   Lengths: Left Channel   Right   Coeff Contr.   Expan.
        123.81 359.35   322 200.11   178   .1   .3

CROSS SECTION

RIVER: SandCreek
REACH: CLOMR-CL   RS: 8400.04

INPUT
Description: SL-168
Station Elevation Data   num=   51
     Sta   Elev   Sta   Elev   Sta   Elev   Sta   Elev   Sta   Elev
       0   70447.049988 7043.49.679993 7043.1821.54999   704223.58997 7041.79
27.92999 7041.3629.45996 7041.330.39996 7041.2837.59998 7041.1747.79999 7040.44
53.44995 7040.03 182.42 7040.03 189.03 7040.02 309.45 7040.02 310.74 7040.01
  333.38 7040.01 335.84 7040.02 384.18 7040.02 391.04 7040.01 567.01 7040.01
  572.79   7040 645.85   7040 648.16 7039.57 656.55   7038 658.27 7037.85
  660.28 7037.63 667.93 7037.55 689.66 7037.37 712.09 7037.23 722.81 7037.29
733.8199 7037.33 744.42 7037.35 757.23 7037.41 760.18 7037.45 760.62 7037.46
  767.44 7037.57775.8199 7037.7 785.73 7037.85 795.08   7038 801.07 7039.74
  801.95   7040 808.63 7041.92   808.9   7042 811.92 7042.86 815.83   7044
  827.06 7045.22 838.37 7045.44 842.27 7045.69 845.37 7045.73   847.5 7045.73
  848.48 7045.79

Manning's n Values   num=   3
     Sta   n Val   Sta   n Val   Sta   n Val
       0   .035 656.55   .028 795.08   .03

Bank Sta: Left   Right   Lengths: Left Channel   Right   Coeff Contr.   Expan.
        656.55 795.08   85   100   157   .1   .3

CROSS SECTION

RIVER: SandCreek
REACH: CLOMR-CL   RS: 8300.04

INPUT
Description: SL-167
Station Elevation Data   num=   77
     Sta   Elev   Sta   Elev   Sta   Elev   Sta   Elev   Sta   Elev
       0 7032.81   1.05 7032.94   2.95 7033.03   7.13 7033.15   13.76 7033.57
   16.35 7033.78   19.51   7034   25.53 7034.43   26.25 7034.48   30.25 7034.73
   33.41 7034.86   44.95 7035.89   45.66 7035.92   46.26   7036   50.45 7037.24
   53.96   7038   54.79 7038.1   55.89   7038   56.77 7037.84   57 7037.8
   57.51 7037.7   59.82 7037.16   63.34   7036   64.9 7035.96   65.8 7035.69
   67.09 7035.4   78.89 7035.8   79.76 7035.85   80.04 7035.87   80.05 7035.87
   80.12 7035.88   80.5 7035.87   85.12   7036   89.54 7036.18   90.08 7036.14
   90.41 7036.12   90.63 7036.1   90.79 7036.08   90.89 7036.07   92.16 7036.05
   92.94 7036.04   94.21 7036.04   94.35 7036.05   94.93 7036.05   95.13 7036.06
   95.56 7036.06   95.81 7036.07   95.82 7036.07   96.3 7036.08   96.8 7036.09
   97.39 7036.1   98.26 7036.12   99.6 7036.15   99.98 7036.16 101.04 7036.18
  117.01 7036.33 121.56 7036.45 124.22 7036.49   125.4 7036.5 126.65 7036.51
  130.82 7036.57   138.6 7036.66 147.95 7036.95   155.3 7037.07   158 7037.17
  161.83 7037.23 164.48 7037.26 167.47 7037.29 168.87 7037.28 179.66 7037.93
  180.03 7037.93 180.43 7037.92 180.86   7038 182.75 7038.38 190.56   7040
  194.55 7040.83   200 7041.93

Manning's n Values   num=   3
     Sta   n Val   Sta   n Val   Sta   n Val
       0   .04   63.34   .03   89.54   .035

Bank Sta: Left   Right   Lengths: Left Channel   Right   Coeff Contr.   Expan.
         63.34   89.54   185 199.82   179   .1   .3
Ineffective Flow   num=   1

```
   Sta L   Sta R    Elev  Permanent
      0   54.79    7040       F

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 8100.22

INPUT
Description: SL-166
Station Elevation Data    num=      58
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7032.974.570007 7032.66   13.89    7032   19.16 7031.73   22.83  7031.6
   27.08 7031.47   29.41  7031.430.53999 7031.3732.17999 7031.34   41.84 7030.98
   42.38 7030.96   68.03    703068.25999 7029.6269.89999    7028   70.28 7027.47
   71.84    7026    73.3 7024.85   74.84    7024   75.63 7023.79   81.07    7022
   82.07 7021.81   82.25 7021.72   86.89 7021.53   90.62 7021.38   97.57 7021.39
   99.31 7021.41  104.29 7021.47  108.17 7021.53  114.01 7021.67  115.92 7021.73
  122.16 7021.84  123.43 7021.85  125.17 7021.88  127.47 7021.94  128.59    7022
  132.84 7022.62  134.19 7022.75  136.32  7022.9  137.93 7022.88  140.35 7022.98
  142.04 7022.83  142.56 7022.76  142.84  7022.7  145.33 7023.24   146.5 7023.54
  148.39    7024  150.67 7024.95  151.59 7025.31  153.07    7026  153.76 7026.39
  156.58    7028  162.13 7029.39  165.42    7030  171.95 7030.65  186.59    7032
  187.27 7032.08  189.18  7032.3     200 7033.55

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   68.03     .03   82.25    .035  128.59     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         82.25  128.59              103  100.23   95.26             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 7999.99

INPUT
Description: SL-165
Station Elevation Data    num=      45
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7028.8311.78999 7028.59   16.08 7028.44   26.02 7028.25   27.12 7028.21
36.14999 7028.02   36.34 7028.02   37.41    702843.00999 7027.75   43.87 7027.67
   48.63 7027.19   57.97 7026.58   59.25 7026.2259.92999    702661.32001 7025.15
62.17999 7024.5863.07001    702463.99001 7023.57   64.28 7023.44   67.16    7022
   79.47 7020.07   79.92    7020   79.95    7020    93.9 7019.99  113.28 7019.99
  125.11    7020   126.3 7020.39  128.42 7021.54  129.35    7022  130.22 7022.45
  133.25    7024   136.3 7025.73  136.78    7026  137.47 7026.41  139.26 7027.38
  140.49    7028   149.8 7029.28   151.4  7029.5  155.12    7030  162.66 7031.01
  169.95    7032   177.8 7033.02  185.46    7034  199.93  7035.4     200 7035.41

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .045   79.47     .04  125.11    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         79.47  125.11               88     100     110             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 7899.99

INPUT
Description: SL-164
Station Elevation Data    num=      68
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7027.08     .23 7027.07    8.17 7027.02   12.41 7026.99   12.81 7026.98
   12.86 7026.97   20.94 7026.73   27.16 7026.53   29.33 7026.45   34.94 7026.22
   35.67 7026.18   39.95    7026   42.03 7024.96   45.23    7024   45.55 7023.91
    45.6  7023.9   45.61 7023.89   50.39    7022   55.63 7021.36   55.82 7021.34
   56.05 7021.28   59.79 7020.94   62.07 7020.78   64.18 7020.82   66.86 7020.99
   68.11 7021.89   70.07    7020   74.86  7019.5   77.57 7019.12   80.32 7018.83
   81.48  7018.7   82.23 7018.55   82.52 7018.49   82.68 7018.47   87.86 7018.41
   91.93 7018.37   93.41 7018.43   95.22  7018.5   95.35 7018.51   96.98 7018.61
    99.6 7018.78   99.98 7018.81  105.16 7019.14  114.99 7019.76  115.11 7019.77
   115.2 7019.77  118.57    7020  121.21    7021  123.66    7022  126.64 7023.28
   128.2    7024  129.27 7024.55  132.06    7026  134.24 7027.12  135.96    7028
  140.69 7028.99  145.61    7030  154.85 7031.37  159.13    7032  169.31 7032.83
  177.61 7033.37  181.12 7033.62     184  7033.8  186.86    7034  194.42 7034.32
  198.02 7034.49  199.83 7034.55     200 7034.55

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   70.07    .045  118.57    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
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        70.07  118.57               91     100     107             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 7799.99

INPUT
Description: SL-163
Station Elevation Data    num=      58
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7025.48.1100006 7025.48   10.13 7025.2317.71001 7025.07   27.08 7024.82
   37.48 7024.6241.35001 7024.52    45.3 7024.46   50.36 7024.36      56 7024.14
   60.72    702461.39999 7023.84   63.22 7023.3767.99001 7022.24   68.62    7022
   71.28 7021.04   74.35    7020   75.66 7019.67   81.18    7018    83.3 7017.74
   84.22 7017.66   85.84 7017.38   86.19 7017.17   86.31 7017.12   87.96 7016.98
   94.67 7016.94   99.98 7016.91  100.92 7016.91  102.72    7017  105.75 7017.16
  107.79 7017.27  110.83 7017.48  114.65 7017.75  118.06    7018  122.04 7019.14
  125.14    7020  127.89  7021.3  129.54    7022  130.57 7022.75  132.19    7024
   134.7 7025.84  134.91    7026   136.9 7026.25  148.22    7028  158.45  7028.8
  166.67 7029.42  168.49 7029.56   170.6 7029.73  174.22 7029.93  175.71    7030
  183.75 7030.23  184.08 7030.24  188.55 7030.36  189.84 7030.37   190.4 7030.38
     194 7030.49  197.17 7030.55     200 7030.64

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   84.22     .04  114.65     .03   134.7    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         84.22  114.65               94     100     106             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 7699.99

INPUT
Description: SL-162
Station Elevation Data    num=      52
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7024.071.960007    7024   28.28  7023.1   41.77 7022.5647.46001 7022.36
   56.05    7022   58.75  7021.565.71001    7020   70.66 7018.58   72.59    7018
   81.98 7016.41   84.29    7016   90.27 7014.67   93.25    7014   93.84  7013.8
   94.88 7013.38   96.11 7013.13   96.61 7013.09   97.43 7013.05   98.31 7013.04
   99.24 7013.08   99.67 7013.15   99.98 7013.19  101.62 7013.38  102.01 7013.45
  104.83    7014  107.02 7014.98  109.41    7016  114.69 7017.37  115.01 7017.46
  116.84    7018  116.86 7018.01  120.81    7020  121.65 7020.42  124.81    7022
  129.69 7023.63  130.88    7024  131.54 7024.12   141.3    7026  145.81 7026.84
  152.06    7028  153.87 7028.09  158.11  7028.3  159.86 7028.39   161.1 7028.44
  166.06 7028.56  174.26 7028.55  182.52 7028.56  190.79 7028.57  194.86 7028.58
  198.96  7028.6     200 7028.59

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   90.27     .04  104.83     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         90.27  104.83              104     100      99             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 7599.99

INPUT
Description: SL-161
Station Elevation Data    num=     104
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7022.65   12.62    7022   15.52 7021.73   28.39 7020.59   34.84    7020
   35.58 7019.79   41.75    7018   47.07 7016.31   48.03    7016   48.37 7015.89
   53.77    7014   54.56 7013.89   57.26 7013.51   58.14 7013.38   60.44 7013.21
    61.4 7013.19   62.18 7013.17   62.86 7013.13   64.52 7013.07   65.61 7013.02
   68.44 7013.04   71.38 7013.06   71.72 7013.22   71.87 7013.45   71.89 7013.49
   73.57 7013.86   77.76 7013.94   81.29    7014   82.86 7014.03   93.95 7014.23
   96.03 7014.33    96.5 7014.35   98.21 7014.44  100.48 7014.55  105.56 7014.83
  108.08 7015.03  110.02 7015.17  114.13 7015.36  116.17 7015.48   116.5  7015.5
  116.76 7015.52  116.96  7015.5  116.97  7015.5  117.41 7015.46  117.44 7015.45
   118.1 7015.38   119.8  7015.1  120.73 7014.95  122.77 7014.55  126.09    7014
  137.48 7012.21  138.83 7012.01  138.85    7012  138.87    7012  141.34  7011.9
  148.56 7011.95  149.98 7011.96  153.98    7012   156.3    7012  157.02  7012.2
  163.77    7014  165.53 7014.89  168.08    7016  168.67 7016.32  169.93 7016.85
  172.29 7017.81  172.58 7017.92  172.65 7017.94  172.85    7018  176.49 7019.14
  176.87 7019.25  178.74 7019.65  179.73 7019.87  180.66    7020  187.63 7020.44
  190.19 7021.04   190.6 7021.15   192.3 7021.38  192.63 7021.42  192.79 7021.45
  193.68 7021.65  196.81    7022  203.88  7022.9   205.7 7022.79  207.62 7023.02
   209.1 7023.29  210.59 7023.34  219.05    7024   222.3 7024.23  222.96 7024.29
  223.44 7024.33  226.71 7024.55  229.22 7024.68  232.45 7024.78  235.86 7024.91
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  236.67 7024.92  237.49 7024.94  239.03 7025.05  240.69 7025.14   241.5 7025.17
  245.61 7025.58  246.38 7025.67  248.68    7026     250 7026.09

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  126.09     .04  163.77    .035  180.66    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        126.09  163.77              114     100      94             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0   116.5  7016.5       F

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 7499.99

INPUT
Description: SL-160
Station Elevation Data    num=      67
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7021.47   19.11 7020.41   26.72    7020   45.72 7018.0245.92999    7018
   45.95    7018   61.19    7016   63.81 7015.02   65.86    701467.03999 7013.34
   69.89    7012   72.58 7010.69   77.85  7010.6   78.84 7010.39   79.43 7010.33
   79.73  7010.3    92.2 7010.31   92.83 7010.23   93.06 7010.19   93.43 7010.15
   93.55 7010.13    93.7 7010.14   94.12 7010.18    94.2 7010.19   94.56 7010.17
  103.49 7010.17  103.78 7010.16  104.03 7010.15  104.16 7010.15  104.25 7010.14
  104.34 7010.14  104.69 7010.11  104.76 7010.11  105.03 7010.09  105.05 7010.09
  105.37 7010.08   105.4 7010.08  105.65 7010.07     106 7010.07   106.3 7010.08
  106.45 7010.09   106.5 7010.09  106.61  7010.1  106.73  7010.1  106.73 7010.11
  106.76 7010.11  106.77 7010.12  106.78 7010.12  106.87 7010.13  107.31 7010.17
  107.49 7010.18  108.31 7010.25  110.49 7010.43  115.83 7010.57  129.54    7012
  132.32 7012.26  153.92    7014  156.48  7014.5  163.82    7016  168.29 7016.79
  174.04    7018  184.15 7019.87  184.94    7020  186.18 7020.27  194.43    7022
  196.94 7022.57     200  7023.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04    92.2     .04  110.49    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          92.2  110.49               73     100      88             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 7399.99

INPUT
Description: SL-159
Station Elevation Data    num=      69
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7015.249.029999    70149.839996 7013.91   10.69 7013.84   15.84 7013.38
   16.98 7013.28   19.34 7013.12   28.02  7012.128.14999 7012.09    28.3 7012.08
   28.83    701229.03999    7012   29.37 7011.9629.39999 7011.95   29.47 7011.94
36.74001 7011.18   38.94 7011.1448.46001    7011   57.67 7010.8857.74001 7010.92
   59.84 7011.01   61.59    7011   63.17 7010.97   63.73 7010.96   63.89 7010.96
   64.36 7010.93   64.94 7010.8865.74001 7010.6765.75999 7010.6271.57001 7010.12
   73.03    7010   74.53 7009.41   77.97    7008   91.39    7008   99.98 7008.51
  104.22 7008.76  105.69 7008.88   110.2 7009.09  113.38 7009.46  114.74 7009.58
   118.3    7010  135.77  7011.9  136.28 7011.95  136.66    7012  137.57  7012.2
  145.52    7014  150.76 7015.38  153.16    7016   156.4 7016.98   158.2 7017.44
  158.89 7017.59  160.05    7018  161.52 7018.62  165.15    7020  166.69 7020.66
  169.98  7021.3  171.08  7021.5  172.39 7021.71  174.04    7022  181.61 7023.53
  182.16 7023.56  184.62    7024  191.23 7025.16  195.76 7025.75  197.21    7026
   198.4 7026.02  198.43 7026.02  198.96 7026.06     200 7026.13

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05   74.53    .045  118.3    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         74.53   118.3               108     100     135             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 7299.99

INPUT
Description: SL-158
Station Elevation Data    num=      49
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7014.11.6600037    7014   12.88 7012.5517.32001    7012   20.83 7011.87
   22.66  7011.841.60001 7011.14   46.88 7010.97   49.33 7010.8854.82001 7010.76
   72.61 7010.32   86.14    7010   92.08 7009.85   92.45 7009.84  103.68 7009.58
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  104.25 7009.55  110.68 7009.42  111.98 7009.36  114.26 7009.26  115.72 7009.16
  117.61 7009.02  124.98 7008.41  129.89    7008     149    7006   153.5  7005.9
   157.9    7006  159.81    7008  160.41 7008.57  161.71    7010   163.5 7011.88
  163.63    7012  164.14 7012.55  165.41    7014  165.73 7014.33  167.23    7016
  167.59 7016.41  168.99    7018  170.76 7019.88  170.88    7020  171.25 7020.39
  172.45    7022  192.43 7023.84  194.41    7024  194.53 7024.02   194.9 7024.05
  194.91  7024.1  194.92 7024.15     213  7024.5     225 7024.69

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  124.98     .04  160.41    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        124.98  160.41              112     100     119             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 7199.99

INPUT
Description: SL-157
Station Elevation Data    num=      52
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7012.584.229996    7012   28.06 7010.5632.67999  7010.337.00999    7010
39.39999  7009.956.49001 7009.23    66.2 7009.05   72.94 7008.93   77.99 7008.82
   99.98 7008.21  107.33    7008  116.97 7006.91  124.85    7006  126.81 7006.62
  132.51    7006  139.25 7005.93  140.06    7006  140.18 7006.43  140.64    7008
  140.78 7008.51  141.21    7010  141.63 7011.48  141.78    7012  142.21 7013.48
  142.35    7014  142.47 7014.46  142.92    7016  143.11 7016.67   143.5    7018
  151.36 7018.61  154.38 7018.79  160.32 7018.81  160.61 7018.82  170.15 7019.63
  172.42 7019.64  174.49    7020  179.63 7020.45  186.29 7021.05  187.83 7021.25
  189.53 7021.32   192.1 7021.46  193.45  7021.6  193.88 7021.64  194.09 7021.69
  194.88 7021.69  195.01  7021.7  195.36  7021.7  196.36 7021.68  196.46 7021.67
  197.07  7021.7     200 7021.54

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  107.33    .035  140.64    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        107.33  140.64              110     100     117             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 7099.99

INPUT
Description: SL-156
Station Elevation Data    num=      67
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7016.282.389999    701610.89999 7015.0420.24001    7014   31.78 7013.09
44.74001    7012   48.25 7011.0651.99001    7010   57.44 7008.4759.10001    7008
   85.49  7006.7   99.98 7006.13  102.96    7006  120.56 7004.53  125.82    7004
  129.77    7004  134.66 7003.92  142.35 7003.82   144.5    7004  144.77 7004.55
  145.28    7006  145.72 7006.95  146.04    7008  146.37 7009.19  146.75    7010
  147.15 7010.91  147.52    7012  147.87 7013.22  148.22    7014  148.95 7015.95
  148.97    7016  149.87 7016.16  151.69 7016.48  156.92 7017.41  157.06 7017.37
  157.22 7017.32  158.34 7017.37  158.73 7017.42  159.54 7017.52  159.98 7017.57
  162.04    7018  162.64 7018.41  162.79 7018.45  162.93 7018.49  166.15 7018.62
  169.57 7018.83  170.27 7018.85  173.17 7018.96  174.48 7019.07  175.82 7019.11
  176.63 7019.08  177.09 7019.08  177.74 7019.09  180.79 7019.19  181.68 7019.24
  183.59 7019.33  183.92 7019.36  188.66  7019.7  189.02 7019.75   191.9 7019.98
  192.09    7020  194.43 7020.25   195.1 7020.31  195.71  7020.4  196.93  7020.6
  197.61 7020.72     200 7021.14

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .045  120.56    .035  144.77     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        120.56  144.77               97     100      92             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 6999.99

INPUT
Description: SL-155
Station Elevation Data    num=      47
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7018.749.270004    70189.320007    701826.57001    7016   28.66 7015.72
   40.92    7014   48.25 7012.24   49.25    701256.50999 7010.05   56.69    7010
   56.81 7009.96   61.69 7008.59    63.7 7008.0263.75999    7008    63.8 7007.98
   63.86 7007.9863.92999 7007.97   64.33 7007.92   78.35    7006   99.98  7004.3
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  100.63 7004.25  103.86    7004  105.83  7003.6   113.4    7002     116    7002
  116.31 7002.03  134.15    7004  136.26 7004.95  138.57    7006  141.19 7006.82
  144.25    7008  147.84 7009.56  148.91    7010   150.3  7010.4  155.77    7012
  157.73  7012.7  162.14    7014  166.72 7015.79  167.19 7015.95  167.59 7015.95
  172.81 7015.88  182.46 7015.95  186.22 7015.95  192.93    7016  198.18 7016.04
  198.28 7016.04     200 7016.05

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  103.86    .035  134.15    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        103.86  134.15              111     100     101             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 6899.99

INPUT
Description: SL-154
Station Elevation Data    num=      73
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7019.312.889999 7018.958.559998    70189.910004 7017.67   11.34 7017.51
   12.22 7017.37    12.8 7017.29   20.19    701620.28999 7015.95   23.52 7015.21
      28 7014.13   28.33 7014.06   28.64    7014   28.67    7014    30.3 7013.45
   31.52 7012.6534.60001    7012   36.02 7011.48   37.33 7011.1137.99001 7010.93
   39.45 7010.82   40.89 7010.66   41.16 7010.6242.07001  7010.7    42.7  7010.8
   44.16 7010.78   45.34 7010.39   46.44 7010.31    46.7 7010.26   49.59    7010
   51.23 7009.3352.57001    7008   55.81 7006.27   55.88 7006.24    56.3  7006.2
57.39999 7006.19   57.56 7006.1959.89999 7006.2960.49001    7006      62 7005.41
   65.91    7004   66.89 7003.83   73.61    7002   81.37    7002   87.18 7001.99
   91.35    7002   101.9    7002  107.23 7003.97  107.36    7004  111.26    7004
  112.19 7003.79  117.34 7003.75  124.61 7003.25  128.42 7003.11  145.35 7003.95
  145.96    7004  146.31 7004.13  147.53 7004.62  150.64  7005.8  151.17    7006
   152.1 7006.33  157.29    7008  160.98 7008.33  166.52 7008.78   169.6 7009.01
  171.57 7009.14  173.17 7009.25  176.25 7009.44  187.97    7010  193.02 7010.33
  194.95 7010.46  196.03 7010.52     200 7010.82

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .045   66.89     .04  107.36    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         66.89  107.36              124     100      85             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 6799.99

INPUT
Description: SL-153
Station Elevation Data    num=      49
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7024.01     .07    702412.85001 7022.64   18.36    7022   21.52 7021.48
31.39999    7020   41.86 7018.75   48.25    701859.28999 7016.63   64.69    7016
   66.44 7015.25   66.63 7015.19   68.55 7014.45   77.21 7011.24   77.99 7010.87
   80.12    7010   85.08 7006.85   86.96 7005.73   93.867001.888   97.25    7000
  100.21    7000     113 7001.14  114.47 7001.24  118.74 7001.53  120.03  7001.5
  120.42 7001.45  120.49 7001.41  121.03 7001.34  122.19 7001.04  124.27 7001.02
  126.28    7001  127.22 7001.06  128.62 7001.14  129.84  7001.2  130.92 7001.29
  134.35 7001.63  138.93    7002  152.03 7003.34  155.97 7003.72  157.57 7003.87
  159.27    7004  163.82 7004.43   169.3  7004.9  176.15 7005.44  178.47 7005.62
  180.98 7005.75  185.76    7006  186.18 7006.04     200 7007.54

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   93.86     .03  138.93     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         93.86  138.93              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 6699.99

INPUT
Description: SL-152
Station Elevation Data    num=      66
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7018.222.520004 7018.032.690002 7018.012.869995    70187.050003 7017.62
9.639999 7017.3818.07001 7016.6626.17999    701631.96001 7015.53    32.5  7015.5
   35.59 7015.35   39.55 7015.0945.28999 7014.76   52.17 7014.23   54.33    7014
    55.2 7013.4355.24001 7013.4155.35001 7013.36   55.37 7013.3455.42999 7013.28
   57.39    7012   60.28  7010.460.82001    7010   61.94 7009.39   64.02 7008.65
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   64.73    7008   65.94 7006.8667.03999 7006.05   67.13    700667.71001 7005.61
    69.8 7004.26   70.09 7004.0870.17999 7004.1470.24001 7004.22   72.69    7006
   73.28 7006.45   73.69 7006.83   75.99 7006.62   76.89 7006.53    77.1 7006.43
   77.91    7006   78.67 7005.69   79.15 7005.34   79.21 7005.27   80.09    7004
   80.82    7003    81.6    7002    82.5  7001.3   84.39    7000  103.93    7000
  118.83 6999.81  121.54 6999.86  123.77 6999.91   125.2    7000  137.59 7001.06
  140.44 7001.18  144.88 7001.35  154.43    7002  156.32 7002.28   165.7    7004
  172.67 7005.13  178.24    7006  181.08 7006.22   184.4  7006.5  198.42  7007.6
     200 7007.77

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04    82.5     .03  137.59     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          82.5  137.59              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 6599.99

INPUT
Description: SL-151
Station Elevation Data    num=      42
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7011.147.220001  7010.512.92999    701016.49001  7009.7   22.44 7009.28
   33.28  7008.5   35.25 7008.36   40.88    7008   46.92 7007.48   48.13 7007.45
   48.59 7007.41   50.34 7007.34   53.23  7007.2   54.41 7007.0654.89999 7006.98
   60.17 7006.03    60.3 7006.02   60.41    700660.96001 7005.54   63.02    7004
   63.22 7003.86   66.03 7003.08   66.05  7003.168.53999    7002   70.78 7001.07
   73.75    7000      79 6998.89   84.87    6998  103.28    6998  108.16 6998.26
  113.45 6998.55  138.83    7000   151.5 7001.51  154.77    7002  157.97 7002.57
  164.42    7004  170.63 7005.07  175.77    7006  184.09 7006.97  191.66    7008
  198.02 7008.77     200    7009

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   73.75     .03  138.83     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         73.75  138.83               89     100     118             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 6499.99

INPUT
Description: SL-150
Station Elevation Data    num=      69
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7006.872.600006 7006.598.240005    700612.46001 7005.58   27.88    7004
   29.52 7003.8932.92999 7003.6144.71001 7002.71   45.86 7002.61   49.55 7002.42
   53.05    700257.71001 7000.72   60.28    7000   62.83 6999.09   66.56    6998
   67.61 6997.89   69.28 6997.79   69.63 6997.7571.96001 6997.59   73.74 6997.43
   74.18 6997.32   82.44 6997.26   89.99 6997.21   95.07 6997.31    95.8 6997.33
   97.66 6997.39   99.38 6997.46   99.98 6997.47  100.02 6997.47  100.77 6997.49
  107.96 6997.64  108.51 6997.66  108.97 6997.68  109.27 6997.72  110.13 6997.76
  110.77 6997.81  112.23 6997.88  112.38 6997.89  112.49 6997.89  112.64  6997.9
  116.83 6997.99   117.4    6998  118.95 6998.12  119.15 6998.13  128.32 6998.74
  131.34 6998.98  131.68 6999.03  131.72 6999.04  136.73    7000  139.06 7000.86
  141.97    7002  144.91 7003.25  147.42    7004  148.58 7004.78  150.44 7005.22
   153.1    7006  154.72 7006.61  159.04    7008  166.43 7009.87  166.68 7009.94
  166.72 7009.95  166.96 7009.97  167.08 7009.97  167.36    7010  170.78 7010.15
  193.74 7011.13   197.3 7011.29  199.94  7011.4     200  7011.4

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   66.56     .03  119.15     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         66.56  119.15               79     100     122             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 6399.99

INPUT
Description: SL-149
Station Elevation Data    num=      43
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  7005.911.42999 7004.56      16    7004   21.92 7003.2332.00999    7002
33.14999 7001.89   52.44    700060.14999 6998.1960.89999    6998   63.61 6997.54
   71.08 6996.26   82.28 6996.01    82.3    6996  124.03    6996  130.25 6996.15
  130.39 6996.17  136.31 6996.21   139.2 6996.14   140.8    6998  142.09 6999.52
```

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  142.53    7000   143.8 7001.53  144.26    7002  145.71 7003.71     146    7004
   147.5 7005.71  147.75    7006  148.22 7006.54  149.51    7008   149.7 7008.02
  154.55    7008  162.94  7007.9  163.53 7007.91  166.35 7007.88  167.78 7007.88
  174.26 7007.79  180.05    7008  184.44 7008.08  184.71 7008.08  189.02 7008.13
  190.76 7008.17  196.79 7008.26     200 7008.27

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   71.08     .03   139.2     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         71.08   139.2              101     100     101             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 6299.99

INPUT
Description: SL-148
Station Elevation Data    num=      58
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7008.694.330002    700811.25999  7006.3   12.56    700620.85001  7004.1
20.92999 7004.09   21.13 7004.05      22    7004   28.25 7003.1731.71001 7002.55
   34.97    7002   38.16 7001.68   40.08 7001.35   44.05 7000.29   44.42  7000.2
44.74001 7000.11    45.2    7000      53 6998.64   56.61    6998   60.14 6997.73
   80.84    6996   82.57 6995.94   83.45 6995.75   85.53 6995.53   87.06 6995.45
   89.88 6995.36   91.22 6995.28   91.23 6995.28   93.07 6995.22   99.98 6995.24
  106.83 6995.26  121.82 6995.33  122.24 6995.35  123.55 6995.53  126.68  6995.7
  129.56 6995.85  132.27 6995.96  133.56    6996   135.3 6996.43  142.98    6998
  145.48 6999.02  147.65    7000  151.28 7000.35  151.92  7000.4  154.35 7000.56
  154.63 7000.45  157.79 7000.26  159.76  7000.2  161.22 7000.02   162.1    7000
  164.33 6999.96  170.58 6999.89  180.28    7000  185.69 7000.09   186.3  7000.1
  197.01 7000.29  199.01 7000.32     200 7000.34

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   80.84     .03  133.56     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         80.84  133.56             99.8    99.8    99.8             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 6200.19

INPUT
Description: SL-147
Station Elevation Data    num=      48
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7012.041.089996    70123.509995 7011.176.770004    70109.580002 7009.06
11.75999 7008.51   14.47    700814.49001 7007.99   16.33 7007.4723.74001    7006
   26.73 7005.18   30.72    700432.17999 7003.58   37.45    7002   38.63 7001.73
   39.25 7001.56   41.91 7000.91      44    7000   48.66  6998.4   50.08    6998
   51.95 6997.58   58.56    6996   64.12 6995.37   68.89 6994.89   75.72 6994.14
   76.62 6994.06   76.96    6994   79.85 6993.93   82.94 6993.88    93.5 6993.75
   95.94 6993.81   98.57 6993.88   98.83 6993.92   99.02 6993.93     100 6993.99
  100.14    6994   111.5  6994.7  115.09 6994.91  124.93 6995.43  137.03  6995.7
  148.07    6996  153.34 6996.99  155.95 6997.52  158.22    6998  171.72 6998.53
  194.62 6999.18  199.61 6999.32     200 6999.33

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   64.12     .03  124.93     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         64.12  124.93             137   100.2      88             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 6099.99

INPUT
Description: SL-146
Station Elevation Data    num=      79
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7006.983.860001 7007.187.979996 7007.36   15.86 7007.77   16.38  7007.8
   16.91 7007.83   17.31 7007.87   17.44  7007.917.89999 7007.92   18.31 7007.92
18.39999 7007.9118.53999 7007.91   18.58  7007.9   18.64 7007.88   18.66 7007.87
   18.72 7007.85   18.81 7007.81   18.98 7007.71   19.02 7007.6119.32001 7007.28
   22.88 7006.26   23.27 7006.13   24.33    7006   27.42  7005.3   33.19    7004
34.25999 7003.82   34.86 7003.69   35.77 7003.46   38.95 7002.43   40.08    7002
   40.17 7001.95   44.42    7000   48.14 6998.0648.25999    699848.35001 6997.95
48.50999 6997.8450.60001    699653.17999  6994.9   55.42    6994   58.72 6993.35
   63.67 6992.3964.57001 6992.2264.75999 6992.1864.96001 6992.16   65.28 6992.13
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65.50999 6992.11   65.62  6992.1   65.75  6992.1   65.83 6992.0965.89999 6992.08
66.10001 6992.07    66.5 6992.07   66.67 6992.0667.35001 6992.06   67.45 6992.07
67.57001 6992.07   67.64 6992.08   67.81 6992.08   68.22 6992.0968.35001 6992.09
   68.41  6992.168.46001  6992.168.78999 6992.11   69.45 6992.1469.67999 6992.15
   71.41  6992.2   72.99 6992.25   75.64 6992.31   80.79 6992.47   88.35  6992.7
   99.98 6993.08  101.92 6993.15  129.26    6994  142.49 6995.19  151.31    6996
  160.27 6996.54  183.95    6998  190.14 6998.38     200 6998.96

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   55.42     .03  129.26     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         55.42  129.26              115     100      91             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 5999.99

INPUT
Description: SL-145
Station Elevation Data    num=      54
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 7006.715.259995 7006.267.979996    7006   15.64 7004.9121.85001    7004
   30.66 7002.52   33.81    700237.25999 7000.05   37.34    7000   37.52 6999.89
    40.5    6998   44.48 6996.65   45.05 6996.49   45.45 6996.42   45.81 6996.34
   46.38    6996    47.2 6995.52   50.02    6994   56.17 6993.2156.25999  6993.2
   56.37 6993.19   56.88 6993.13   66.11    6992   70.89  6991.971.53999 6991.89
   73.58 6991.76   73.84 6991.74   78.75 6991.68   83.34 6991.63   85.93 6991.62
   88.03 6991.63   92.68 6991.65   99.98 6991.69  101.98 6991.71  105.75 6991.73
  105.99 6991.74  106.22 6991.74  109.87 6991.78  113.22 6991.84  115.72 6991.89
  119.64 6991.95  124.95    6992  125.58 6992.04  126.54 6992.15  137.31 6992.99
  141.78    6994  144.29 6994.69  149.44    6996  174.59 6997.84  176.89    6998
  177.99 6998.12  179.85 6998.31  196.34    7000     200 7000.42

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   66.11     .03  126.54     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         66.11  126.54              115     100     101             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 5899.99

INPUT
Description: SL-144
Station Elevation Data    num=      86
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  6999.82.509995 6999.942.600006 6999.952.800003 6999.95     3.5    7000
   12.64 7000.54   15.39 7000.68   16.06 7000.58   21.94    700026.14999 6999.65
   28.44 6999.42   30.95 6999.19   33.05 6999.09   40.09  6998.2   40.98 6998.01
   41.39    6998   41.59    699849.92999  6996.452.03999    6996   54.83 6994.72
   56.38    6994   56.73 6993.7157.67999 6993.09    58.9    6992    60.7 6991.84
62.99001 6991.63   64.84 6991.4865.96001 6991.4467.53999  6991.4   73.09 6991.26
   76.91 6991.17   78.42 6991.13   79.28 6991.11   81.83 6991.06   84.69 6990.99
   85.19 6990.97   88.39 6990.91   91.57 6990.86   91.86 6990.85   92.76 6990.79
   92.87 6990.79   95.05 6990.77   97.13 6990.75   99.28 6990.75   99.98 6990.76
  101.43 6990.77  105.74  6990.8  107.49 6990.81   107.6 6990.81  107.71 6990.82
  109.42 6990.84     111 6990.86  112.17 6990.89  114.03 6990.92  116.72 6990.95
  120.31 6990.97  120.95 6991.05   121.8 6991.15  122.93 6991.24  123.85 6991.28
  126.05 6991.35  130.61 6991.47  138.66 6991.65  147.97 6991.86  154.43    6992
  156.74 6992.55  157.66 6992.74  158.18 6992.85  163.19    6994  165.65 6994.52
  166.89 6994.75  169.29 6995.14  172.47 6995.67  175.09    6996  175.13 6996.01
  178.55 6996.41  180.85 6996.57  182.13 6996.66   184.8 6996.78  188.91 6997.68
   190.3    6998  191.44 6998.37  194.78 6999.64  195.74    7000  197.67 7000.29
     200 7000.62

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04    58.9     .03  154.43     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          58.9  154.43               73     100     125             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 5799.99

INPUT
Description: SL-143
Station Elevation Data    num=      51
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
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       0 6997.24.7899933 6997.225.899994 6997.0614.24001 6996.57   18.39 6996.42
   23.61 6996.0723.92999    6996   24.87 6995.8435.03999    699441.28999 6993.06
   47.81    699255.17999 6990.93   58.65 6990.4261.78999 6990.3565.89999 6990.19
   66.48 6990.13   69.31 6990.15   72.64 6990.12   73.35 6990.06   77.07 6990.07
   81.42    6990   88.13    6990   99.98 6989.98  101.62 6989.98  111.15 6989.99
  113.78    6990  115.99    6990  119.31 6990.19  124.42 6990.19  125.46 6990.07
  127.72    6990  140.82    6990  143.82 6990.64  149.79    6992  154.93 6993.38
  157.71    6994   160.6 6994.99  163.45    6996  170.42 6997.82  171.05    6998
  178.38 6999.52  179.42 6999.57  181.82 6999.66  186.23 6999.86  188.01    7000
  191.81 7000.83   194.5 7001.65     195 7001.84  195.42    7002  197.61 7002.22
     200 7002.43

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   58.65     .03  140.82     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         58.65  140.82               67     100     119             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 5699.99

INPUT
Description: SL-142
Station Elevation Data    num=      44
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 6997.62.3200073 6997.571.710007 6997.31     8.5 6996.27   10.03    6996
   10.47 6995.9411.74001 6995.79   25.48    699433.39999 6992.74   38.09    6992
44.82001 6991.18    54.1    6990   56.62  6989.9   64.19 6989.5368.10001 6989.33
   68.84 6989.26   90.18 6988.93     100 6988.82  103.83 6988.81  106.33 6988.83
  107.21 6988.91  109.93 6989.05  110.57 6989.07  117.49 6989.25  120.99 6989.35
  128.02  6989.6  130.47  6989.7  139.03    6990  145.08 6991.52  146.89    6992
  149.78 6992.66  156.32    6994  163.41 6995.63  165.12    6996  168.11 6996.67
  170.98 6997.17  175.91    6998  175.95    6998   180.9 6998.27   182.6 6998.41
  186.69  6998.7  191.51 6999.08  198.55 6999.53     200 6999.71

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04    54.1     .03  139.03     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          54.1  139.03               76     100     154             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 5599.99

INPUT
Description: SL-141
Station Elevation Data    num=      49
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    69945.860001 6993.11   13.16    6992   19.92 6990.91   26.62    6990
   31.47 6989.46   37.12  6989.1    40.5 6988.8147.32001 6988.42   48.11 6988.35
   49.42 6988.2456.14999    6988   62.27  6987.8   63.31 6987.82    68.7 6987.65
   71.17 6987.6271.78999 6987.63   77.76 6987.31   79.56 6987.19   79.63 6987.14
   82.96  6986.9   85.22 6986.77   86.29 6986.76   86.68 6986.75   89.38 6986.69
   90.57 6986.67   91.77 6986.64   93.19 6986.65    94.6 6986.66   95.95 6986.69
   99.98 6986.76     102 6986.79  104.93 6986.84  109.97 6986.93  120.35 6987.11
  136.22 6987.39  143.72 6987.52  156.59 6987.75  169.22    6988  172.36 6989.74
  172.87    6990  174.35 6991.23  175.27    6992  177.72 6992.61  179.74  6993.1
  181.93 6993.58  184.05    6994  194.49 6995.36     200 6995.93

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .0471.78999     .03  169.22     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      71.78999  169.22               80     100     140             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 5499.99

INPUT
Description: SL-140
Station Elevation Data    num=      42
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 6992.262.080002    69922.669998 6991.854.039993 6991.65   12.86    6990
   20.23 6988.52    22.8    698826.99001 6987.39   37.64 6986.09    38.3    6986
   40.94 6985.6142.21001 6985.4643.50999 6985.37   45.37 6985.18   47.24 6985.04
49.71001 6984.91   51.73 6984.81    56.2 6984.79   57.42 6984.78   99.98 6985.03
   109.3 6985.08  164.75  6985.1  166.54  6985.1  168.57 6985.11  170.71 6985.11
  172.48 6985.12  175.53 6985.15  177.87 6985.18  179.29 6985.22  181.46 6985.57
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  182.99 6985.82  184.44    6986  189.32 6987.81  189.85    6988  193.25 6989.92
  193.38    6990  193.46 6990.08  195.66    6992  196.15 6992.54   197.8    6994
  198.94 6995.02     200 6995.97

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   47.24     .03  179.29     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         47.24  179.29              100     100     100             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 5399.99

INPUT
Description: SL-139
Station Elevation Data    num=      49
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 6992.351.539993 6992.092.119995    6992   15.42 6990.02   15.45 6990.01
   15.53    6990   27.05  6988.5   30.23    6988    33.2 6986.98    36.5    6986
40.10001 6984.84   44.03    6984   52.826982.803    58.2 6982.07   58.64    6982
   65.56    6982   80.25 6982.1982.89999 6982.24   97.71 6982.43   99.98 6982.47
  101.65 6982.51  109.19 6982.62  117.16 6982.75  130.86 6982.95  141.44 6983.12
  142.72 6983.14  143.48 6983.08  145.22 6983.05  148.89 6983.02  150.98 6982.95
  152.03 6982.93  152.05 6982.93   155.2 6983.03  159.95 6983.26  162.94 6983.39
   168.8  6983.6  175.77 6983.83  180.76    6984  181.61 6984.09  194.52    6986
  199.36 6986.57  200.91 6986.67  200.94 6986.67  214.51    6988   217.2 6988.31
  218.16  6988.4  218.86 6988.46  219.53 6988.53     220 6988.58

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   52.82     .03  141.44     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         52.82  141.44              151     100      27             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 5299.99

INPUT
Description: SL-138
Station Elevation Data    num=      30
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 6994.563.449997  6994.4   10.89    6994   14.77 6992.52   16.14    6992
   19.48 6990.04   19.52    6990   19.77 6989.86   23.69    698824.57001 6987.64
25.75999 6987.29   26.31 6987.17   28.22    6986   31.72 6984.92   34.69    6984
   39.17 6982.59   41.14    6982   99.98 6981.99  105.79 6981.99   133.5    6982
  170.85    6982  183.32  6983.1  189.27 6983.62  190.59 6983.73  193.69    6984
  214.28 6985.86  215.64    6986  216.65 6986.11  228.48 6987.37     230 6987.53

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   41.14     .03  170.85     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         41.14  170.85              141     100      79             .1       .3

CROSS SECTION


RIVER: SandCreek
REACH: CLOMR-CL           RS: 5199.99

INPUT
Description: SL-137
Station Elevation Data    num=      26
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 6990.732.639999 6990.667.169998 6990.517.600006 6990.198.419998    6990
   10.19 6989.16   12.37    6988   14.55 6986.8216.00999    6986   19.39  6984.4
   20.25    6984   26.97 6982.19   27.65    6982   53.89    6982    93.9 6981.99
   99.98 6981.99  103.54 6981.98   135.2 6981.99  173.37    6982     176 6982.26
  194.59    6984  195.49 6984.09  195.81 6984.13  214.54    6986  216.94 6986.28
     220 6986.64

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   27.65     .03  173.37     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         27.65  173.37               73     100     105             .1       .3

CROSS SECTION
```

RIVER: SandCreek
REACH: CLOMR-CL RS: 5099.99

INPUT
Description: SL-136
Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	6986.76	4.849991	69866.409988		6985.77	7.969986	6985.48	16.67	6984
18.12	6983.83	1.92999	698232.81999		6982	34.84	6981.99	35	6981.99
36.06999	6981.94	40.18999	6981.88	90.89999	6981.42	100.02	6981.35	127.13	6981.31
132.38	6981.45	138.32	6981.61	145.32	6981.79	154.15	6981.95	156	6982
164.83	6983.55	167.25	6984	177.88	6985.93	178.24	6985.99	178.28	6986
183.1	6986.75	189.09	6988	196.54	6988.7	198.07	6988.81	199.91	6988.9
200.04	6988.91								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	31.92999	.03	156	.04

Bank Sta: Left	Right	Coeff Contr.	Expan.
31.92999	156	.1	.3

SUMMARY OF MANNING'S N VALUES

River:SandCreek

Reach	River Sta.	n1	n2	n3	n4	n5	n6	n7
CLOMR-CL	20301.24	.04	.03	.04				
CLOMR-CL	20201.24	.04	.03	.04				
CLOMR-CL	20101.24	.04	.03	.04				
CLOMR-CL	20001.24	.04	.03	.04				
CLOMR-CL	19901.24	.04	.03	.04				
CLOMR-CL	19801.24	.04	.03	.04				
CLOMR-CL	19701.24	.04	.03	.04				
CLOMR-CL	19601.24	.04	.03	.04				
CLOMR-CL	19501.24	.04	.03	.04				
CLOMR-CL	19401.24	.04	.03	.04				
CLOMR-CL	19301.24	.04	.03	.04				
CLOMR-CL	19201.24	.04	.03	.04				
CLOMR-CL	19001.24	.04	.03	.04				
CLOMR-CL	18901.24	.04	.03	.04				
CLOMR-CL	18801.24	.04	.03	.04				
CLOMR-CL	18701.24	.04	.03	.04				
CLOMR-CL	18601.24	.04	.03	.04				
CLOMR-CL	18501.24	.04	.03	.04				
CLOMR-CL	18401.24	.04	.03	.04				
CLOMR-CL	18301.24	.04	.03	.04				
CLOMR-CL	18201.24	.04	.03	.04				
CLOMR-CL	18101.24	.04	.03	.04				
CLOMR-CL	18001.24	.04	.03	.04				
CLOMR-CL	17901.24	.04	.03	.04				
CLOMR-CL	17801.24	.04	.03	.04				
CLOMR-CL	17701.24	.04	.03	.04				
CLOMR-CL	17601.24	.04	.03	.04				
CLOMR-CL	17501.24	.04	.03	.04				
CLOMR-CL	17401.24	.04	.03	.04				
CLOMR-CL	17301.24	.04	.03	.04				
CLOMR-CL	17201.24	.04	.03	.04				
CLOMR-CL	17101.24	.04	.03	.04				
CLOMR-CL	17001.24	.04	.03	.04				
CLOMR-CL	16901.24	.04	.03	.04				
CLOMR-CL	16801.24	.04	.03	.04				
CLOMR-CL	16701.24	.04	.03	.04				
CLOMR-CL	16601.24	.04	.03	.04				
CLOMR-CL	16501.24	.04	.03	.04				
CLOMR-CL	16401.24	.04	.03	.04				
CLOMR-CL	16301.24	.04	.03	.04				
CLOMR-CL	16201.24	.04	.03	.04				
CLOMR-CL	16101.24	.04	.03	.04				
CLOMR-CL	16001.24	.04	.03	.04				
CLOMR-CL	15901.24	.04	.03	.04				
CLOMR-CL	15801.24	.04	.03	.04				
CLOMR-CL	15701.24	.04	.03	.04				
CLOMR-CL	15601.24	.04	.03	.04				
CLOMR-CL	15501.24	.04	.03	.04				
CLOMR-CL	15401.24	.04	.03	.04				
CLOMR-CL	15301.24	.04	.03	.04				
CLOMR-CL	15201.24	.04	.03	.04				
CLOMR-CL	15101.24	.04	.03	.04				
CLOMR-CL	15001.24	.04	.03	.04				
CLOMR-CL	14901.24	.04	.03	.04				
CLOMR-CL	14801.24	.04	.03	.04				
CLOMR-CL	14701.24	.04	.03	.04				
CLOMR-CL	14650.02	.04	.03	.04				
CLOMR-CL	14629.91	.04	.03	.04				
CLOMR-CL	14601.24	.04	.03	.04				
CLOMR-CL	14501.24	.04	.03	.04				

CLOMR-CL	14401.24	.04	.03	.04				
CLOMR-CL	14301.24	.04	.03	.04				
CLOMR-CL	14201.24	.04	.03	.04				
CLOMR-CL	14101.24	.04	.03	.04				
CLOMR-CL	14001.24	.04	.03	.04	.03	.04		
CLOMR-CL	13901.17	.04	.03	.04	.03	.04		
CLOMR-CL	13800.84	.04	.03	.04				
CLOMR-CL	13700.84	.04	.03	.04				
CLOMR-CL	13600.84	.04	.03	.04	.03	.04		
CLOMR-CL	13500.78	.04	.03	.04	.03	.04		
CLOMR-CL	13400.7	.04	.03	.04	.03	.04		
CLOMR-CL	13300.36	.04	.05	.035				
CLOMR-CL	13200.36	.045	.055	.04				
CLOMR-CL	13100.36	.04	.05	.035				
CLOMR-CL	13000.36	.045	.045	.035				
CLOMR-CL	12900.36	.035	.045	.03				
CLOMR-CL	12800.36	.04	.05	.035				
CLOMR-CL	12700.36	.045	.055	.04				
CLOMR-CL	12600.36	.04	.05	.045				
CLOMR-CL	12500.36	.03	.04	.04				
CLOMR-CL	12400.36	.035	.045	.045				
CLOMR-CL	12300.36	.03	.045	.035				
CLOMR-CL	12200	.035	.05	.04				
CLOMR-CL	12100.36	.04	.055	.04				
CLOMR-CL	12000.36	.04	.04	.028				
CLOMR-CL	11900.36	.028	.04	.035	.028	.04	.035	.04
CLOMR-CL	11800.36	.028	.04	.045	.04	.045	.028	.045
CLOMR-CL	11700.36	.04	.03	.045	.04	.045		
CLOMR-CL	11600.36	.04	.03	.045	.04	.028	.04	.045
CLOMR-CL	11500.36	.04	.028	.04	.04	.045		
CLOMR-CL	11400.36	.035	.04	.04				
CLOMR-CL	11300.36	.045	.05	.04	.05	.045		
CLOMR-CL	11200.36	.045	.055	.04				
CLOMR-CL	11100.36	.045	.05	.045				
CLOMR-CL	11000.36	.035	.028	.03				
CLOMR-CL	10900.36	.04	.03	.04				
CLOMR-CL	10800.36	.04	.028	.04				
CLOMR-CL	10700.36	.04	.03	.04				
CLOMR-CL	10600.36	.04	.028	.035	.045			
CLOMR-CL	10500.36	.028	.04	.045				
CLOMR-CL	10385.8	.04	.035	.04				
CLOMR-CL	10300.36	.045	.045	.03				
CLOMR-CL	10203.97	.04	.045	.028	.04			
CLOMR-CL	10100.36	.03	.04	.045				
CLOMR-CL	10000.36	.04	.03	.04	.04			
CLOMR-CL	9900.36	.04	.04	.028				
CLOMR-CL	9800.36	.04	.045	.035				
CLOMR-CL	9700.36	.045	.04	.035	.04	.045		
CLOMR-CL	9600.36	.045	.04	.04				
CLOMR-CL	9500.36	.045	.05	.04				
CLOMR-CL	9410.36	.035	.028	.035				
CLOMR-CL	9300	.045	.06	.05				
CLOMR-CL	9200.36	.04	.03	.055	.045			
CLOMR-CL	9100.36	.04	.035	.055	.05	.05		
CLOMR-CL	9000.36	.04	.055	.045				
CLOMR-CL	8900.36	.045	.045	.045				
CLOMR-CL	8800.28	.04	.035	.04				
CLOMR-CL	8700.21	.04	.03	.04				
CLOMR-CL	8600.15	.04	.028	.035				
CLOMR-CL	8400.04	.035	.028	.03				
CLOMR-CL	8300.04	.04	.03	.035				
CLOMR-CL	8100.22	.04	.03	.035	.04			
CLOMR-CL	7999.99	.045	.04	.045				
CLOMR-CL	7899.99	.04	.045	.035				
CLOMR-CL	7799.99	.04	.04	.03	.045			
CLOMR-CL	7699.99	.04	.04	.04				
CLOMR-CL	7599.99	.04	.04	.035	.045			
CLOMR-CL	7499.99	.04	.04	.035				
CLOMR-CL	7399.99	.05	.045	.045				
CLOMR-CL	7299.99	.05	.04	.035				
CLOMR-CL	7199.99	.04	.035	.035				
CLOMR-CL	7099.99	.045	.035	.04				
CLOMR-CL	6999.99	.04	.035	.035				
CLOMR-CL	6899.99	.045	.04	.035				
CLOMR-CL	6799.99	.04	.03	.04				
CLOMR-CL	6699.99	.04	.03	.04				
CLOMR-CL	6599.99	.04	.03	.04				
CLOMR-CL	6499.99	.04	.03	.04				
CLOMR-CL	6399.99	.04	.03	.04				
CLOMR-CL	6299.99	.04	.03	.04				
CLOMR-CL	6200.19	.04	.03	.04				
CLOMR-CL	6099.99	.04	.03	.04				
CLOMR-CL	5999.99	.04	.03	.04				
CLOMR-CL	5899.99	.04	.03	.04				
CLOMR-CL	5799.99	.04	.03	.04				
CLOMR-CL	5699.99	.04	.03	.04				
CLOMR-CL	5599.99	.04	.03	.04				
CLOMR-CL	5499.99	.04	.03	.04				
CLOMR-CL	5399.99	.04	.03	.04				
CLOMR-CL	5299.99	.04	.03	.04				

CLOMR-CL	5199.99	.04	.03	.04
CLOMR-CL	5099.99	.04	.03	.04

SUMMARY OF REACH LENGTHS

River: SandCreek

Reach	River Sta.	Left	Channel	Right
CLOMR-CL	20301.24	100	100	100
CLOMR-CL	20201.24	100	100	100
CLOMR-CL	20101.24	100	100	100
CLOMR-CL	20001.24	100	100	100
CLOMR-CL	19901.24	100	100	100
CLOMR-CL	19801.24	100	100	100
CLOMR-CL	19701.24	100	100	100
CLOMR-CL	19601.24	100	100	100
CLOMR-CL	19501.24	100	100	100
CLOMR-CL	19401.24	100	100	100
CLOMR-CL	19301.24	100	100	100
CLOMR-CL	19201.24	200	200	200
CLOMR-CL	19001.24	100	100	100
CLOMR-CL	18901.24	100	100	100
CLOMR-CL	18801.24	100	100	100
CLOMR-CL	18701.24	100	100	100
CLOMR-CL	18601.24	100	100	100
CLOMR-CL	18501.24	100	100	100
CLOMR-CL	18401.24	100	100	100
CLOMR-CL	18301.24	100	100	100
CLOMR-CL	18201.24	100	100	100
CLOMR-CL	18101.24	100	100	100
CLOMR-CL	18001.24	100	100	100
CLOMR-CL	17901.24	100	100	100
CLOMR-CL	17801.24	100	100	100
CLOMR-CL	17701.24	100	100	100
CLOMR-CL	17601.24	100	100	100
CLOMR-CL	17501.24	100	100	100
CLOMR-CL	17401.24	100	100	100
CLOMR-CL	17301.24	100	100	100
CLOMR-CL	17201.24	100	100	100
CLOMR-CL	17101.24	100	100	100
CLOMR-CL	17001.24	100	100	100
CLOMR-CL	16901.24	100	100	100
CLOMR-CL	16801.24	100	100	100
CLOMR-CL	16701.24	100	100	100
CLOMR-CL	16601.24	100	100	100
CLOMR-CL	16501.24	100	100	100
CLOMR-CL	16401.24	100	100	100
CLOMR-CL	16301.24	100	100	100
CLOMR-CL	16201.24	100	100	100
CLOMR-CL	16101.24	100	100	100
CLOMR-CL	16001.24	100	100	100
CLOMR-CL	15901.24	100	100	100
CLOMR-CL	15801.24	100	100	100
CLOMR-CL	15701.24	100	100	100
CLOMR-CL	15601.24	100	100	100
CLOMR-CL	15501.24	100	100	100
CLOMR-CL	15401.24	100	100	100
CLOMR-CL	15301.24	100	100	100
CLOMR-CL	15201.24	100	100	100
CLOMR-CL	15101.24	100	100	100
CLOMR-CL	15001.24	100	100	100
CLOMR-CL	14901.24	100	100	100
CLOMR-CL	14801.24	100	100	100
CLOMR-CL	14701.24	51.22	51.22	51.22
CLOMR-CL	14650.02	20.11	20.11	20.11
CLOMR-CL	14629.91	28.67	28.67	28.67
CLOMR-CL	14601.24	100	100	100
CLOMR-CL	14501.24	100	100	100
CLOMR-CL	14401.24	100	100	100
CLOMR-CL	14301.24	100	100	100
CLOMR-CL	14201.24	100	100	128
CLOMR-CL	14101.24	41.33	100	128.4
CLOMR-CL	14001.24	55.87	100.07	131.1
CLOMR-CL	13901.17	11	100.33	137
CLOMR-CL	13800.84	105	100	91
CLOMR-CL	13700.84	101	100	179
CLOMR-CL	13600.84	172	100.06	200
CLOMR-CL	13500.78	125	100.08	64
CLOMR-CL	13400.7	65	100.34	112
CLOMR-CL	13300.36	104	100	96
CLOMR-CL	13200.36	98	100	102
CLOMR-CL	13100.36	91	100	113
CLOMR-CL	13000.36	101	100	99
CLOMR-CL	12900.36	94	100	102
CLOMR-CL	12800.36	90	100	104
CLOMR-CL	12700.36	100	100	100

CLOMR-CL	12600.36	104	100	95
CLOMR-CL	12500.36	111	100	91
CLOMR-CL	12400.36	148	100	55
CLOMR-CL	12300.36	81	100.36	158
CLOMR-CL	12200	78	99.64	112
CLOMR-CL	12100.36	89	100	110
CLOMR-CL	12000.36	114	100	107
CLOMR-CL	11900.36	102	100	101
CLOMR-CL	11800.36	138	100	83
CLOMR-CL	11700.36	111	100	94
CLOMR-CL	11600.36	104	100	102
CLOMR-CL	11500.36	92	100	108
CLOMR-CL	11400.36	121	100	104
CLOMR-CL	11300.36	100	100	100
CLOMR-CL	11200.36	100	100	100
CLOMR-CL	11100.36	100	100	100
CLOMR-CL	11000.36	107	100	97
CLOMR-CL	10900.36	100	100	100
CLOMR-CL	10800.36	97	100	102
CLOMR-CL	10700.36	108	100	94
CLOMR-CL	10600.36	120	100	74
CLOMR-CL	10500.36	111	114.56	130
CLOMR-CL	10385.8	79	85.44	158
CLOMR-CL	10300.36	79	96.39	158
CLOMR-CL	10203.97	89	103.61	110
CLOMR-CL	10100.36	114	100	73
CLOMR-CL	10000.36	93	100	127
CLOMR-CL	9900.36	100	100	100
CLOMR-CL	9800.36	100	100	100
CLOMR-CL	9700.36	100	100	100
CLOMR-CL	9600.36	98	100	103
CLOMR-CL	9500.36	93	90	89
CLOMR-CL	9410.36	121	110.36	110
CLOMR-CL	9300	102	99.64	90
CLOMR-CL	9200.36	100	100	100
CLOMR-CL	9100.36	103	100	109
CLOMR-CL	9000.36	108	100	80
CLOMR-CL	8900.36	130	100.08	89
CLOMR-CL	8800.28	99	100.07	103
CLOMR-CL	8700.21	97	100.06	37
CLOMR-CL	8600.15	322	200.11	178
CLOMR-CL	8400.04	85	100	157
CLOMR-CL	8300.04	185	199.82	179
CLOMR-CL	8100.22	103	100.23	95.26
CLOMR-CL	7999.99	88	100	110
CLOMR-CL	7899.99	91	100	107
CLOMR-CL	7799.99	94	100	106
CLOMR-CL	7699.99	104	100	99
CLOMR-CL	7599.99	114	100	94
CLOMR-CL	7499.99	73	100	88
CLOMR-CL	7399.99	108	100	135
CLOMR-CL	7299.99	112	100	119
CLOMR-CL	7199.99	110	100	117
CLOMR-CL	7099.99	97	100	92
CLOMR-CL	6999.99	111	100	101
CLOMR-CL	6899.99	124	100	85
CLOMR-CL	6799.99	100	100	100
CLOMR-CL	6699.99	100	100	100
CLOMR-CL	6599.99	89	100	118
CLOMR-CL	6499.99	79	100	122
CLOMR-CL	6399.99	101	100	101
CLOMR-CL	6299.99	99.8	99.8	99.8
CLOMR-CL	6200.19	137	100.2	88
CLOMR-CL	6099.99	115	100	91
CLOMR-CL	5999.99	115	100	101
CLOMR-CL	5899.99	73	100	125
CLOMR-CL	5799.99	67	100	119
CLOMR-CL	5699.99	76	100	154
CLOMR-CL	5599.99	80	100	140
CLOMR-CL	5499.99	100	100	100
CLOMR-CL	5399.99	151	100	27
CLOMR-CL	5299.99	141	100	79
CLOMR-CL	5199.99	73	100	105
CLOMR-CL	5099.99			

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: SandCreek

Reach	River Sta.	Contr.	Expan.
CLOMR-CL	20301.24	.1	.3
CLOMR-CL	20201.24	.1	.3
CLOMR-CL	20101.24	.1	.3
CLOMR-CL	20001.24	.1	.3
CLOMR-CL	19901.24	.1	.3
CLOMR-CL	19801.24	.1	.3

CLOMR-CL	19701.24	.1	.3
CLOMR-CL	19601.24	.1	.3
CLOMR-CL	19501.24	.1	.3
CLOMR-CL	19401.24	.1	.3
CLOMR-CL	19301.24	.1	.3
CLOMR-CL	19201.24	.1	.3
CLOMR-CL	19001.24	.1	.3
CLOMR-CL	18901.24	.1	.3
CLOMR-CL	18801.24	.1	.3
CLOMR-CL	18701.24	.1	.3
CLOMR-CL	18601.24	.1	.3
CLOMR-CL	18501.24	.1	.3
CLOMR-CL	18401.24	.1	.3
CLOMR-CL	18301.24	.1	.3
CLOMR-CL	18201.24	.1	.3
CLOMR-CL	18101.24	.1	.3
CLOMR-CL	18001.24	.1	.3
CLOMR-CL	17901.24	.1	.3
CLOMR-CL	17801.24	.1	.3
CLOMR-CL	17701.24	.1	.3
CLOMR-CL	17601.24	.1	.3
CLOMR-CL	17501.24	.1	.3
CLOMR-CL	17401.24	.1	.3
CLOMR-CL	17301.24	.1	.3
CLOMR-CL	17201.24	.1	.3
CLOMR-CL	17101.24	.1	.3
CLOMR-CL	17001.24	.1	.3
CLOMR-CL	16901.24	.1	.3
CLOMR-CL	16801.24	.1	.3
CLOMR-CL	16701.24	.1	.3
CLOMR-CL	16601.24	.1	.3
CLOMR-CL	16501.24	.1	.3
CLOMR-CL	16401.24	.1	.3
CLOMR-CL	16301.24	.1	.3
CLOMR-CL	16201.24	.1	.3
CLOMR-CL	16101.24	.1	.3
CLOMR-CL	16001.24	.1	.3
CLOMR-CL	15901.24	.1	.3
CLOMR-CL	15801.24	.1	.3
CLOMR-CL	15701.24	.1	.3
CLOMR-CL	15601.24	.1	.3
CLOMR-CL	15501.24	.1	.3
CLOMR-CL	15401.24	.1	.3
CLOMR-CL	15301.24	.1	.3
CLOMR-CL	15201.24	.1	.3
CLOMR-CL	15101.24	.1	.3
CLOMR-CL	15001.24	.1	.3
CLOMR-CL	14901.24	.1	.3
CLOMR-CL	14801.24	.1	.3
CLOMR-CL	14701.24	.1	.3
CLOMR-CL	14650.02	.1	.3
CLOMR-CL	14629.91	.1	.3
CLOMR-CL	14601.24	.1	.3
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CLOMR-CL	12200	.1	.3
CLOMR-CL	12100.36	.1	.3
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CLOMR-CL	11200.36	.1	.3
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CLOMR-CL	11000.36	.1	.3
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CLOMR-CL	10800.36	.1	.3
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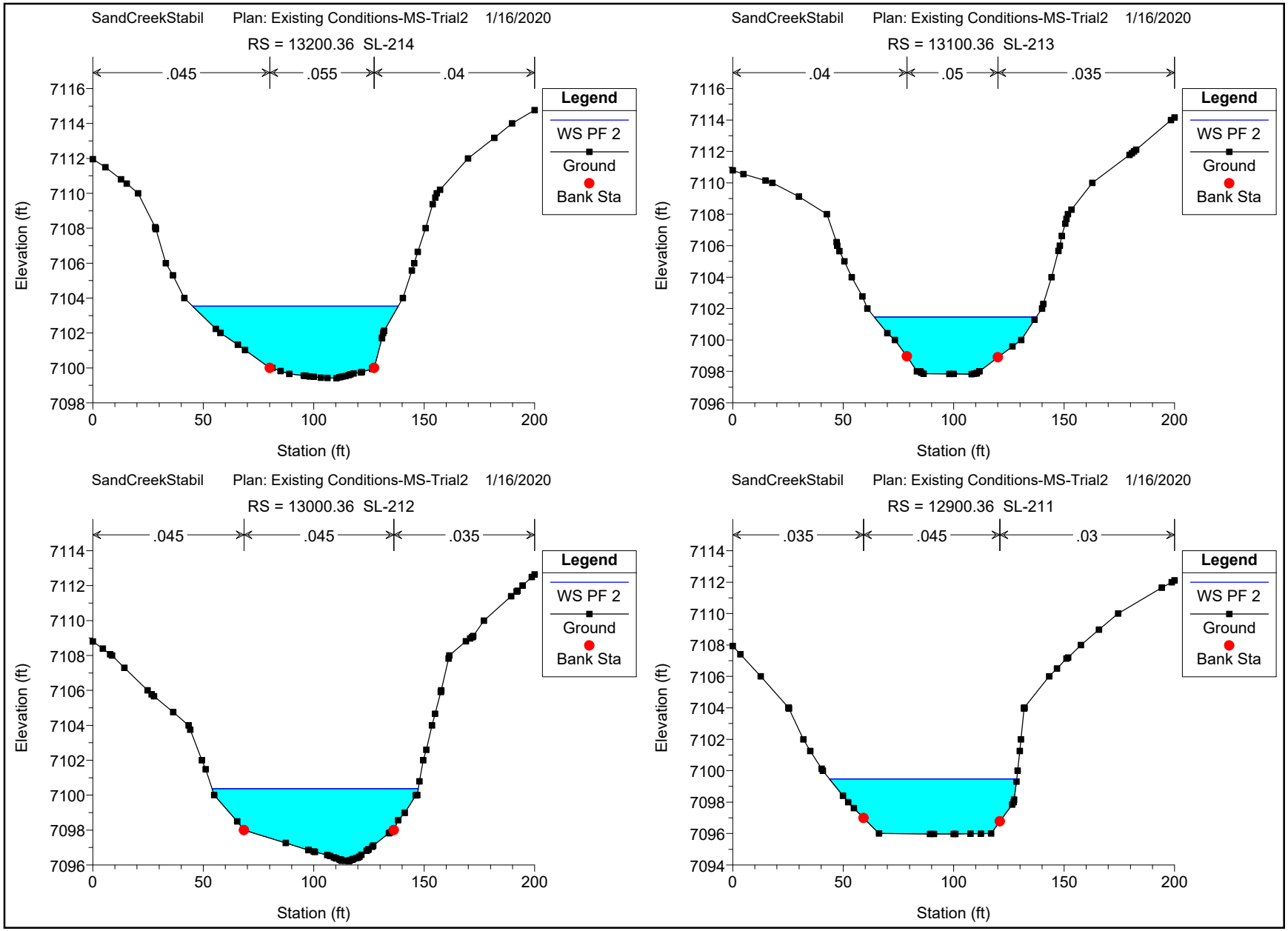
HEC-RAS Plan: SCS2020T2 Locations: User Defined Profile: PF 2

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Max Chl Dpth	Crit W.S.	E.G. Slope	Vel Left	Vel Chnl	Vel Right	Shear LOB	Shear Chan	Shear ROB	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(ft/s)	(ft/s)	(lb/sq ft)	(lb/sq ft)	(lb/sq ft)	(sq ft)	(ft)	
SandCreek	CLOMR-CL	12400.36	PF 2	1776.00	7089.96	7093.02	3.06	7092.88	0.014760	6.60	8.43	3.89	1.33	2.81	0.88	232.19	106.29	0.85
SandCreek	CLOMR-CL	12300.36	PF 2	1776.00	7088.42	7091.33	2.91	7091.33	0.020165	5.43	8.06	4.46	0.85	2.84	0.80	227.68	119.56	0.95
SandCreek	CLOMR-CL	12200	PF 2	1776.00	7086.00	7089.55	3.55	7088.57	0.005855	4.55	4.64	2.98	0.61	1.07	0.39	387.14	152.24	0.48
SandCreek	CLOMR-CL	12100.36	PF 2	1776.00	7084.54	7087.58	3.04	7087.58	0.031083	5.40	8.52	5.49	1.45	4.64	1.49	212.28	97.67	0.97
SandCreek	CLOMR-CL	12000.36	PF 2	1776.00	7081.48	7085.65	4.17	7085.67	0.013670	4.69	8.69	5.13	0.96	2.42	0.64	229.59	111.06	0.91
SandCreek	CLOMR-CL	11900.36	PF 2	1776.00	7080.00	7084.40	4.39	7084.17	0.006413	4.04	6.64	2.30	0.62	1.12	0.27	337.62	199.34	0.70
SandCreek	CLOMR-CL	11800.36	PF 2	1776.00	7079.98	7083.50	3.52	7083.07	0.009377	5.56	6.93	3.56	1.05	1.87	0.58	278.61	231.99	0.68
SandCreek	CLOMR-CL	11700.36	PF 2	1776.00	7078.09	7081.51	3.42	7081.51	0.020013	6.74	8.88	4.28	1.18	3.28	0.92	204.67	159.70	0.97
SandCreek	CLOMR-CL	11600.36	PF 2	1776.00	7074.00	7077.55	3.55	7078.35	0.032101	7.29	13.06	5.65	1.49	6.57	1.57	145.63	78.74	1.25
SandCreek	CLOMR-CL	11500.36	PF 2	1776.00	7071.93	7076.66	4.72	7076.79	0.011904	6.48	10.74	4.75	1.32	3.20	1.04	237.67	115.63	0.90
SandCreek	CLOMR-CL	11400.36	PF 2	1776.00	7069.57	7073.76	4.19	7074.52	0.020562	7.41	13.51	4.62	1.72	5.18	1.04	165.85	86.28	1.18
SandCreek	CLOMR-CL	11300.36	PF 2	1776.00	7067.97	7071.13	3.16	7071.68	0.040934	7.45	12.27	8.05	3.01	7.00	3.38	165.74	84.88	1.30
SandCreek	CLOMR-CL	11200.36	PF 2	1776.00	7065.98	7071.52	5.53	7069.93	0.006226	3.90	6.31	3.87	0.71	1.98	0.59	303.69	81.81	0.49
SandCreek	CLOMR-CL	11100.36	PF 2	1776.00	7063.98	7069.00	5.02	7069.00	0.019204	3.75	11.29	3.80	0.89	5.44	0.91	165.44	47.07	0.92
SandCreek	CLOMR-CL	11000.36	PF 2	1776.00	7062.00	7066.08	4.08	7067.05	0.013882	4.16	14.30	5.65	0.66	3.00	0.82	128.99	41.87	1.35
SandCreek	CLOMR-CL	10900.36	PF 2	1776.00	7061.91	7066.54	4.63	7066.54	0.007188	2.26	11.07	3.36	0.27	1.92	0.49	177.74	61.15	0.93
SandCreek	CLOMR-CL	10800.36	PF 2	1776.00	7059.99	7065.37	5.37	7066.04	0.007334	3.79	13.00	3.93	0.60	2.21	0.63	188.73	77.94	1.02
SandCreek	CLOMR-CL	10700.36	PF 2	1776.00	7058.14	7061.55	3.41	7063.42	0.033144	5.64	17.14	5.32	1.58	5.42	1.44	107.96	46.51	1.86
SandCreek	CLOMR-CL	10600.36	PF 2	1776.00	7058.00	7061.20	3.20	7061.69	0.019579	3.64	11.86	5.51	0.42	3.45	1.59	223.37	134.73	1.21
SandCreek	CLOMR-CL	10500.36	PF 2	1776.00	7056.67	7060.69	4.02	7060.49	0.010277	2.58	7.22	2.43	0.21	1.70	0.40	268.59	143.71	0.78
SandCreek	CLOMR-CL	10385.8	PF 2	1776.00	7055.77	7059.07	3.30	7059.07	0.010591	4.81	9.45	5.03	0.93	2.10	1.00	228.81	101.99	0.93
SandCreek	CLOMR-CL	10300.36	PF 2	1776.00	7053.30	7058.19	4.89	7057.09	0.004537	3.38	5.57	3.53	0.53	1.12	0.31	370.41	130.98	0.49
SandCreek	CLOMR-CL	10203.97	PF 2	1776.00	7052.00	7056.42	4.42	7056.42	0.015517	5.50	9.77	6.36	1.26	3.54	0.91	198.09	72.70	0.90
SandCreek	CLOMR-CL	10100.36	PF 2	1776.00	7051.00	7054.75	3.75	7054.21	0.007766	4.44	7.53	3.54	0.50	1.69	0.65	259.44	95.63	0.71
SandCreek	CLOMR-CL	10000.36	PF 2	1776.00	7050.00	7053.93	3.93		0.008319	3.19	7.57	3.20	0.31	1.73	0.48	253.82	101.71	0.73
SandCreek	CLOMR-CL	9900.36	PF 2	1776.00	7048.00	7053.77	5.77		0.002585	2.94	5.53	4.71	0.31	0.81	0.37	343.51	86.60	0.43
SandCreek	CLOMR-CL	9800.36	PF 2	1776.00	7046.50	7053.67	7.17		0.001898	2.37	4.37	2.69	0.21	0.63	0.21	430.07	101.38	0.33
SandCreek	CLOMR-CL	9700.36	PF 2	1906.00	7045.80	7053.46	7.66	7051.16	0.001540	1.98	5.19	3.64	0.18	0.65	0.31	456.93	175.65	0.35
SandCreek	CLOMR-CL	9600.36	PF 2	1906.00	7044.90	7053.50	8.60		0.000467	1.46	3.33	1.58	0.09	0.25	0.08	695.61	132.34	0.20
SandCreek	CLOMR-CL	9500.36	PF 2	1906.00	7044.30	7053.50	9.20		0.000368	1.37	2.48	1.24	0.07	0.21	0.05	893.21	162.93	0.14
SandCreek	CLOMR-CL	9410.36	PF 2	1906.00	7050.66	7052.64	1.98	7052.64	0.008570	4.03	7.68	3.54	0.56	1.05	0.46	294.63	199.10	0.97
SandCreek	CLOMR-CL	9300	PF 2	1906.00	7043.26	7044.82	1.56	7046.12	0.378378	12.25	18.56	10.47	11.06	31.77	10.24	104.22	82.92	2.82
SandCreek	CLOMR-CL	9200.36	PF 2	1906.00	7041.69	7044.98	3.29	7044.38	0.012479	8.25	6.59	4.42	1.42	2.51	1.02	298.84	123.76	0.65
SandCreek	CLOMR-CL	9100.36	PF 2	1906.00	7039.93	7043.00	3.07	7042.99	0.023404	6.15	8.93	4.00	2.57	4.02	1.21	258.97	132.90	0.95
SandCreek	CLOMR-CL	9000.36	PF 2	1906.00	7038.44	7042.25	3.81		0.007006	3.52	4.81	2.88	0.53	1.36	0.46	407.31	150.26	0.48
SandCreek	CLOMR-CL	8900.36	PF 2	1906.00	7038.00	7041.66	3.66		0.005108	2.06	4.67	2.03	0.26	0.89	0.26	414.28	157.92	0.49
SandCreek	CLOMR-CL	8800.28	PF 2	1906.00	7038.00	7040.72	2.72		0.006655	3.01	6.73	3.70	0.41	1.13	0.56	303.82	132.23	0.72
SandCreek	CLOMR-CL	8700.21	PF 2	1906.00	7037.99	7040.57	2.58		0.002512	2.03	4.66	2.23	0.18	0.40	0.21	430.55	183.06	0.51
SandCreek	CLOMR-CL	8600.15	PF 2	1906.00	7037.98	7040.56	2.57		0.000944	1.25	3.06	1.57	0.07	0.15	0.08	643.32	265.01	0.34
SandCreek	CLOMR-CL	8400.04	PF 2	1906.00	7037.23	7039.81	2.58	7039.27	0.003810	2.42	5.77	2.79	0.21	0.56	0.21	338.35	154.45	0.67
SandCreek	CLOMR-CL	8300.04	PF 2	1906.00	7035.40	7038.66	5.85	7038.66	0.009627	4.51	9.80	6.31	0.83	1.72	1.12	263.87	184.10	1.02
SandCreek	CLOMR-CL	8100.22	PF 2	1906.00	7021.38	7023.06	1.68	7024.93	0.233181	18.36	26.46	8.91	9.79	21.35	5.10	76.70	66.67	3.85
SandCreek	CLOMR-CL	7999.99	PF 2	1906.00	7019.99	7023.99	4.00	7023.43	0.008872	5.53	8.80	4.70	1.31	2.21	1.03	239.29	70.12	0.78
SandCreek	CLOMR-CL	7899.99	PF 2	1906.00	7018.37	7023.27	4.90		0.008428	5.00	7.91	5.23	0.94	2.22	0.82	261.50	79.43	0.68
SandCreek	CLOMR-CL	7799.99	PF 2	1906.00	7016.91	7021.39	4.47	7021.39	0.012723	6.79	10.95	9.44	1.64	3.35	1.74	189.64	57.77	0.94
SandCreek	CLOMR-CL	7699.99	PF 2	1906.00	7013.04	7019.23	6.19	7019.68	0.015226	8.02	14.34	8.29	2.20	5.26	2.31	171.52	50.87	1.06
SandCreek	CLOMR-CL	7599.99	PF 2	1906.00	7011.90	7015.69	3.79	7016.51	0.036854	6.47	15.30	6.65	1.99	7.23	1.70	131.08	118.44	1.51
SandCreek	CLOMR-CL	7499.99	PF 2	1906.00	7010.07	7013.17	3.10	7013.80	0.030787	11.65	13.51	9.54	4.59	5.73	2.79	163.64	76.28	1.38
SandCreek	CLOMR-CL	7399.99	PF 2	1906.00	7008.00	7012.53	4.53	7012.34	0.011088	4.01	8.63	4.30	1.00	2.71	0.95	274.35	114.61	0.77
SandCreek	CLOMR-CL	7299.99	PF 2	1906.00	7005.90	7011.74	5.84	7011.37	0.006548	3.11	8.38	3.59	0.60	1.90	0.44	323.16	138.94	0.67
SandCreek	CLOMR-CL	7199.99	PF 2	1906.00	7005.93	7010.69	4.76	7010.69	0.008559	4.62	9.69	2.01	0.83	2.07	0.20	263.95	115.47	0.85
SandCreek	CLOMR-CL	7099.99	PF 2	1906.00	7003.82	7007.92	4.10	7008.65	0.019024	5.94	14.41	3.61	1.77	4.58	0.70	186.41	85.36	1.28
SandCreek	CLOMR-CL	6999.99	PF 2	1906.00	7002.00	7007.35	5.35	7007.39	0.009313	5.45	10.98	5.26	1.09	2.55	0.85	214.01	74.04	0.92
SandCreek	CLOMR-CL	6899.99	PF 2	2204.00	7001.99	7006.64	4.65	7005.85	0.006074	2.77	7.64	6.48	0.42	1.62	1.04	316.49	97.92	0.65
SandCreek	CLOMR-CL	6799.99	PF 2	2204.00	7000.00	7005.11	5.11	7005.11	0.007218	3.96	10.66	4.09	0.63	1.82	0.67	242.69	83.83	0.93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.055
.04
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 13100.36 SL-213
.04
.05
.035
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 13000.36 SL-212
.045
.045
.035
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
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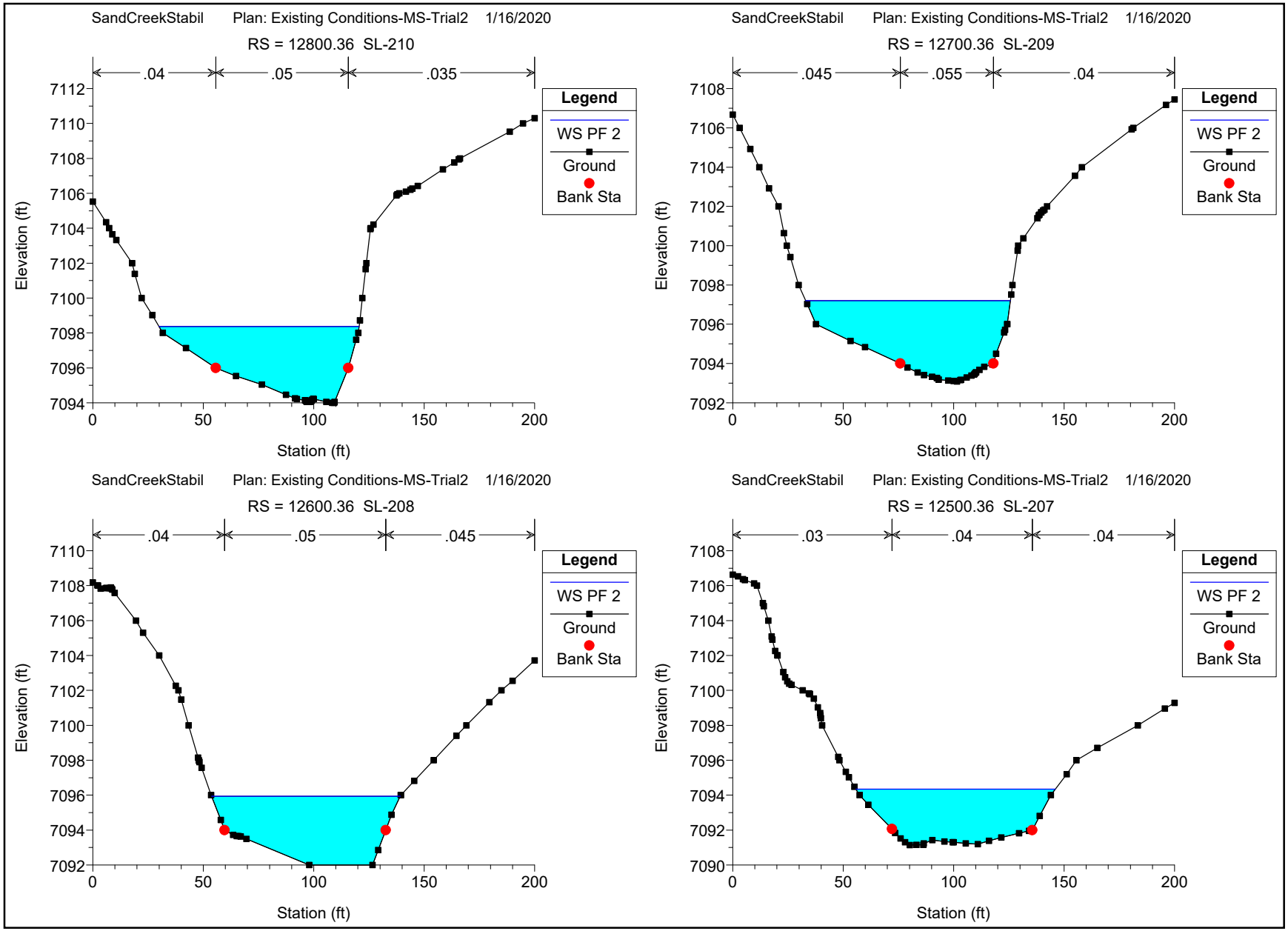
.035
.045
.03
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)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.05
.035
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 12700.36 SL-209
.045
.055
.04
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 12600.36 SL-208
.04
.05
.045
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
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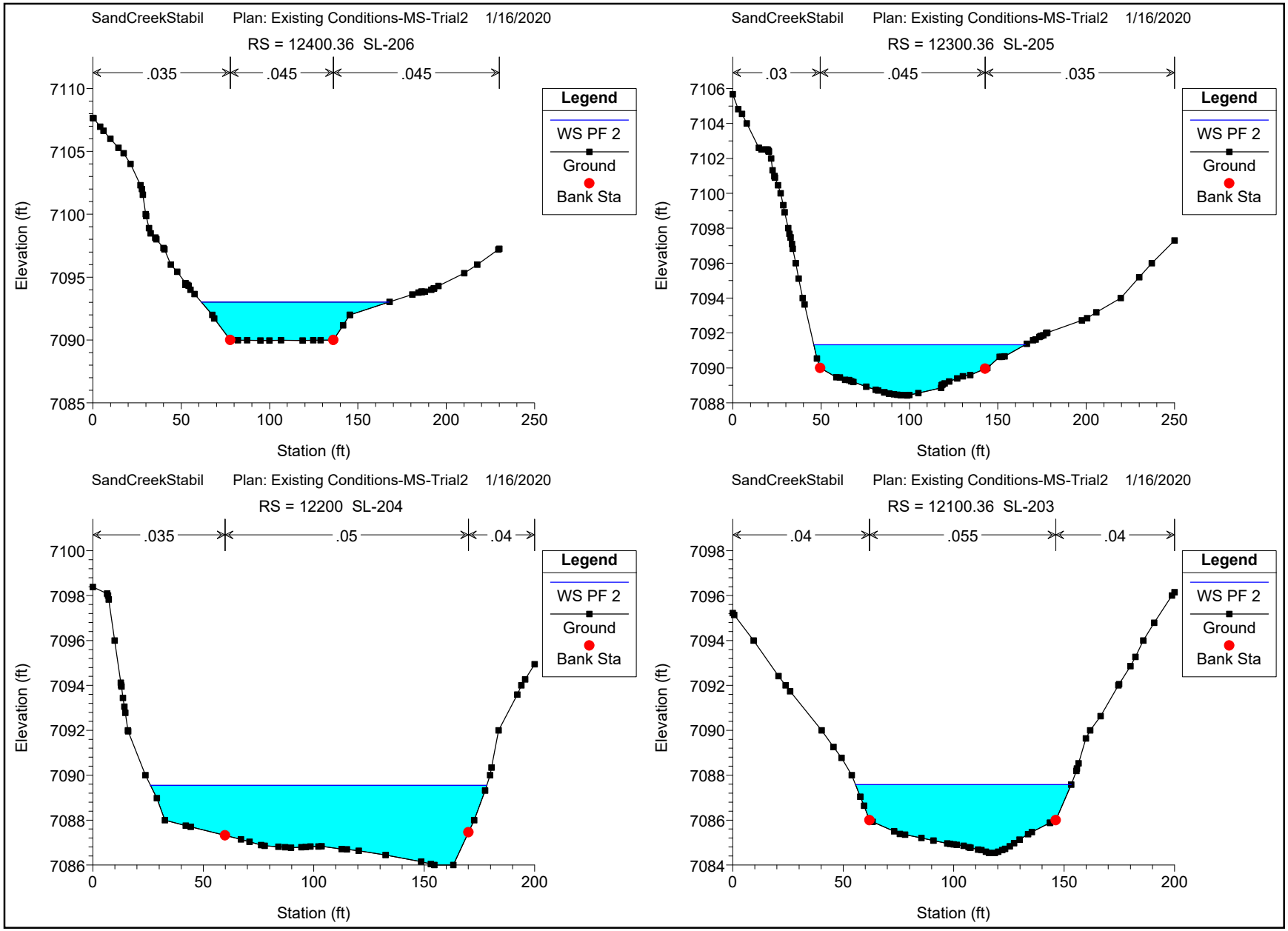
.03
.04
.04
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
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.045
.045
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 12300.36 SL-205
.03
.045
.035
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 12200 SL-204
.035
.05
.04
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
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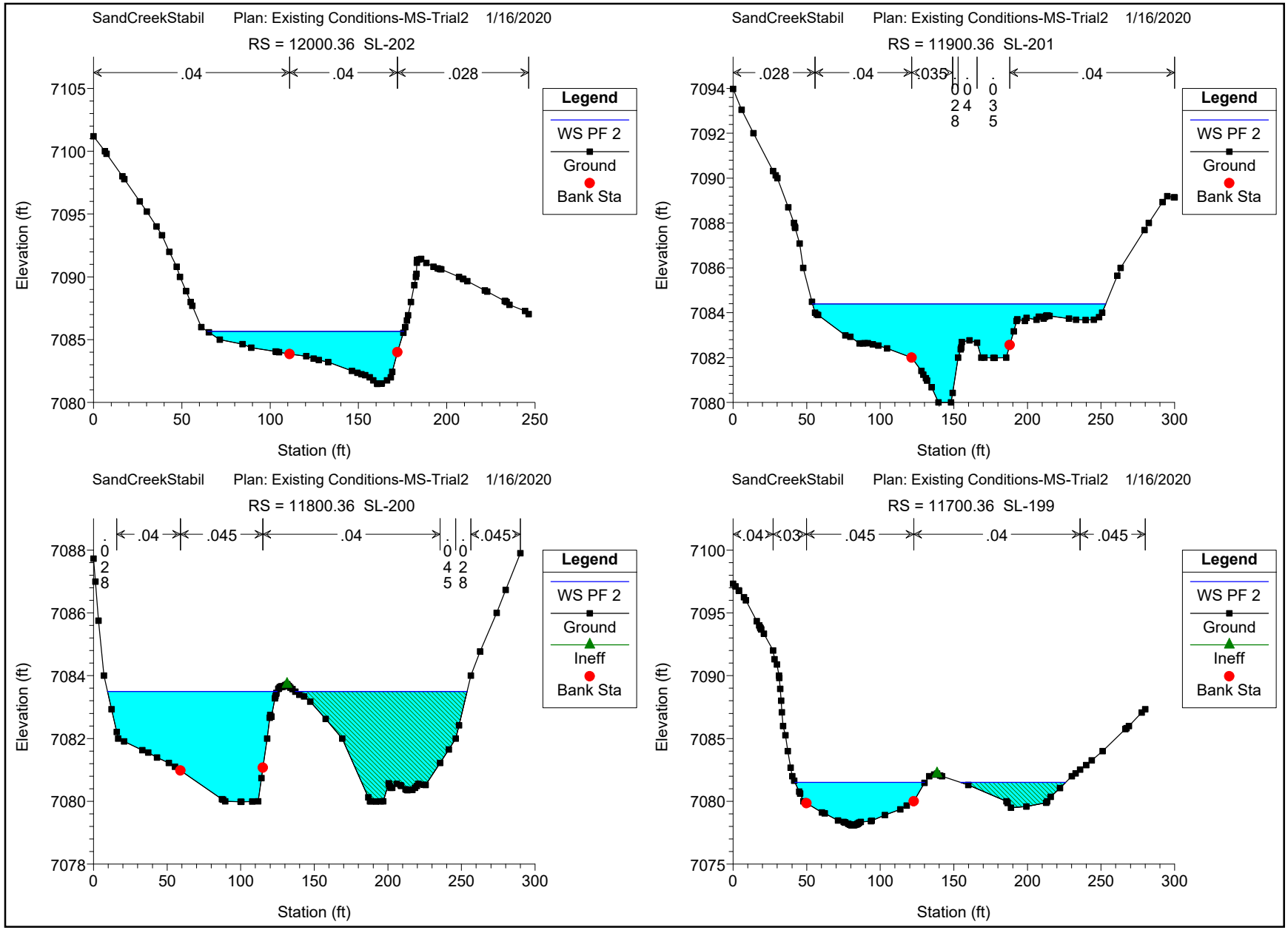
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)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Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 11900.36 SL-201
.028
.04
.035
.04
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 11800.36 SL-200
.028
.04
.045
.04
.028
.045
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
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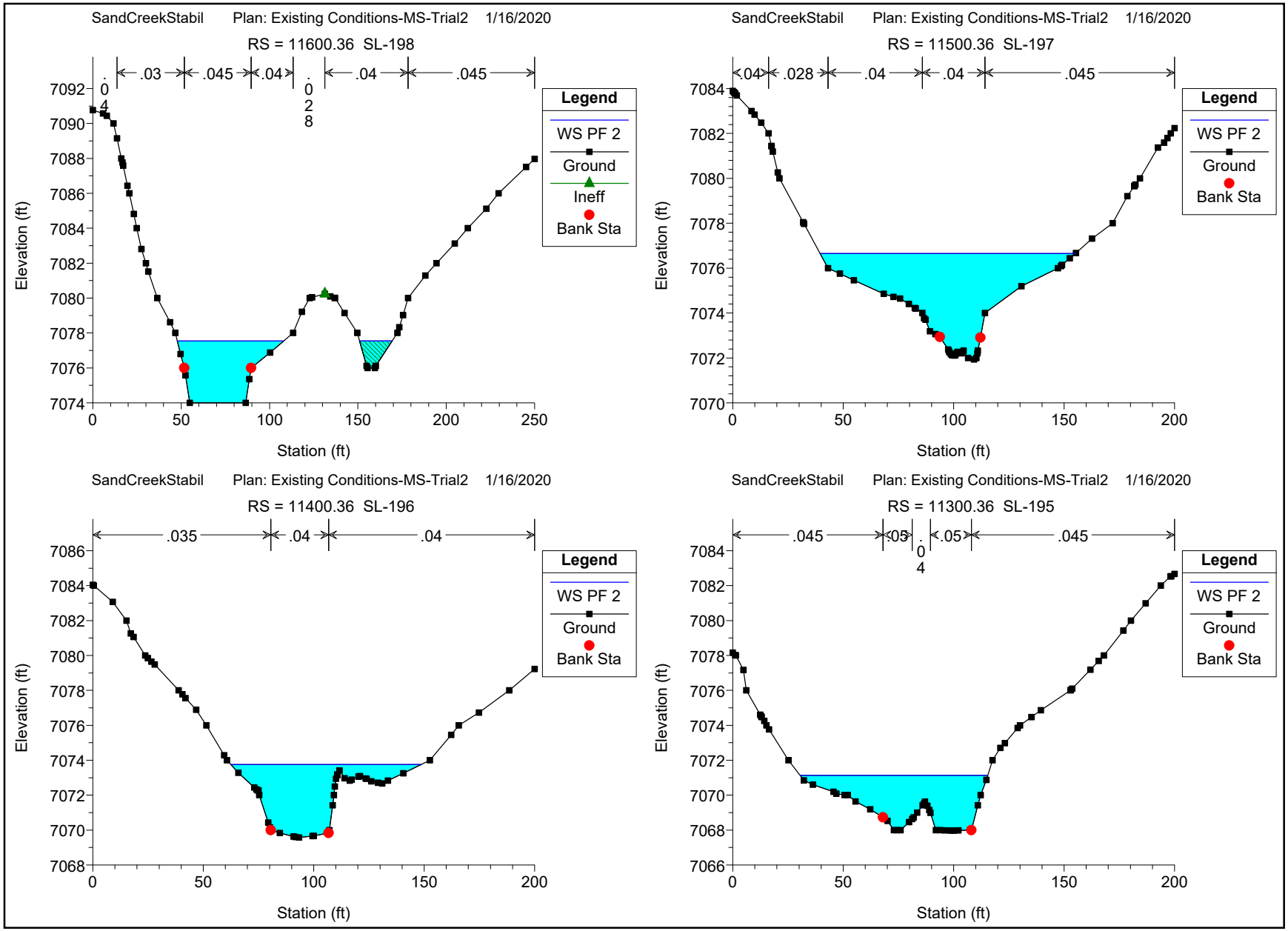
.04
.03
.045
.04
.045
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 11600.36 SL-198
.04
.03
.045
.04
.028
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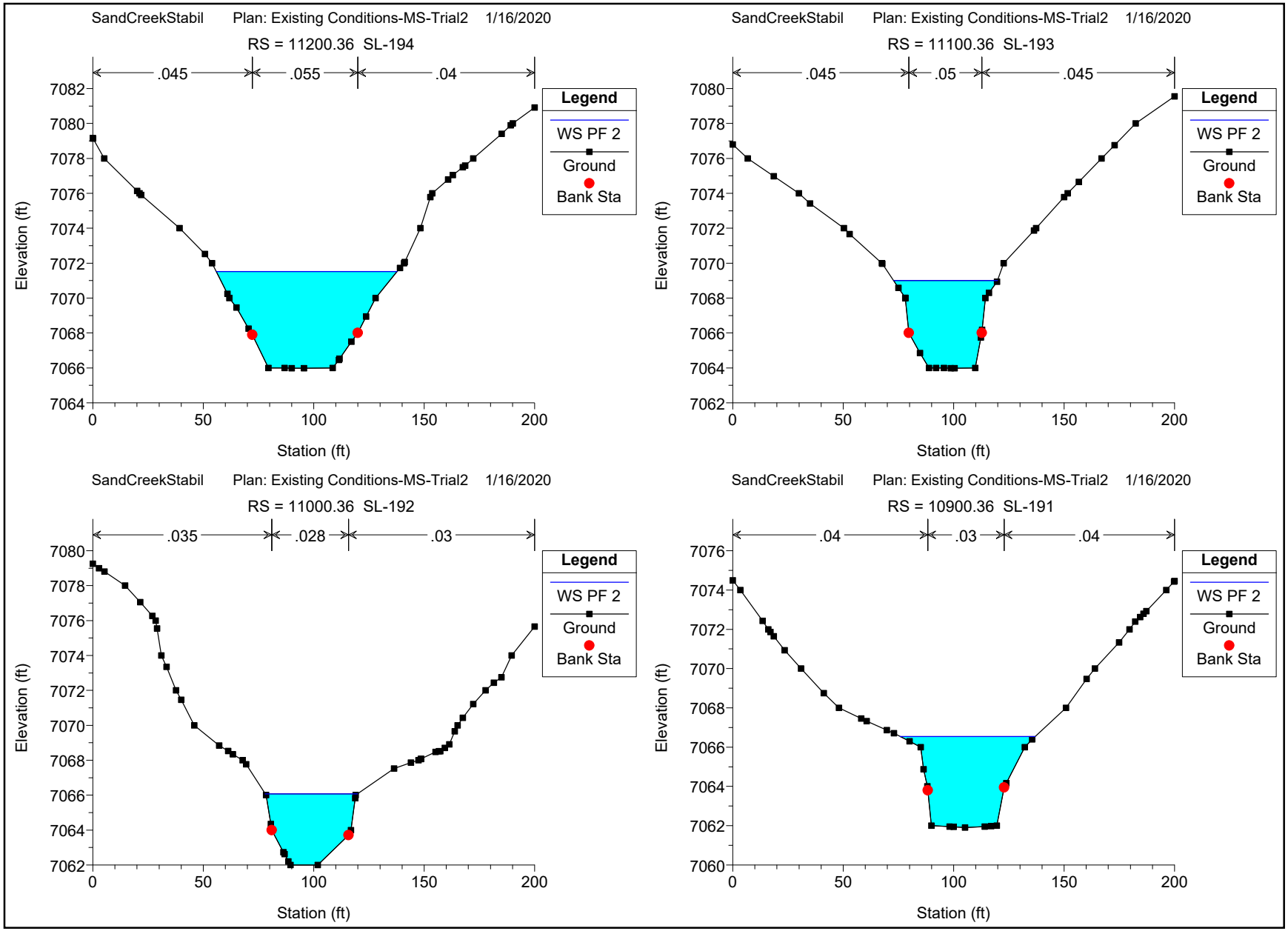
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 11500.36 SL-197
.04
.028
.04
.04
.045
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 11400.36 SL-196
.035
.04
.04
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 11300.36 SL-195
.045
.05
.04
.05
.045
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 11200.36 SL-194
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.055
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Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 11100.36 SL-193
.045
.05
.045
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 11000.36 SL-192
.035
.028
.03
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 10900.36 SL-191
.04
.03
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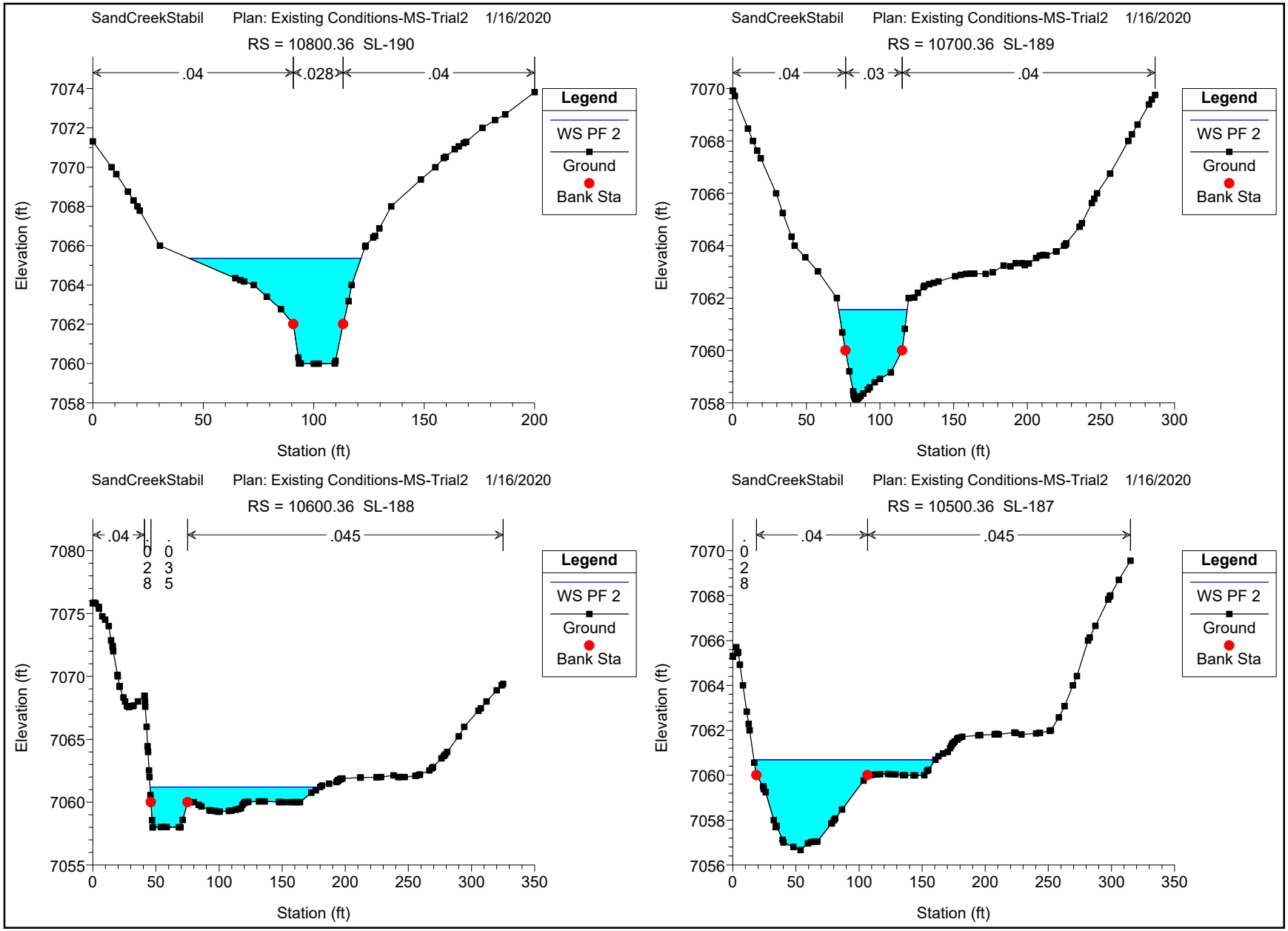
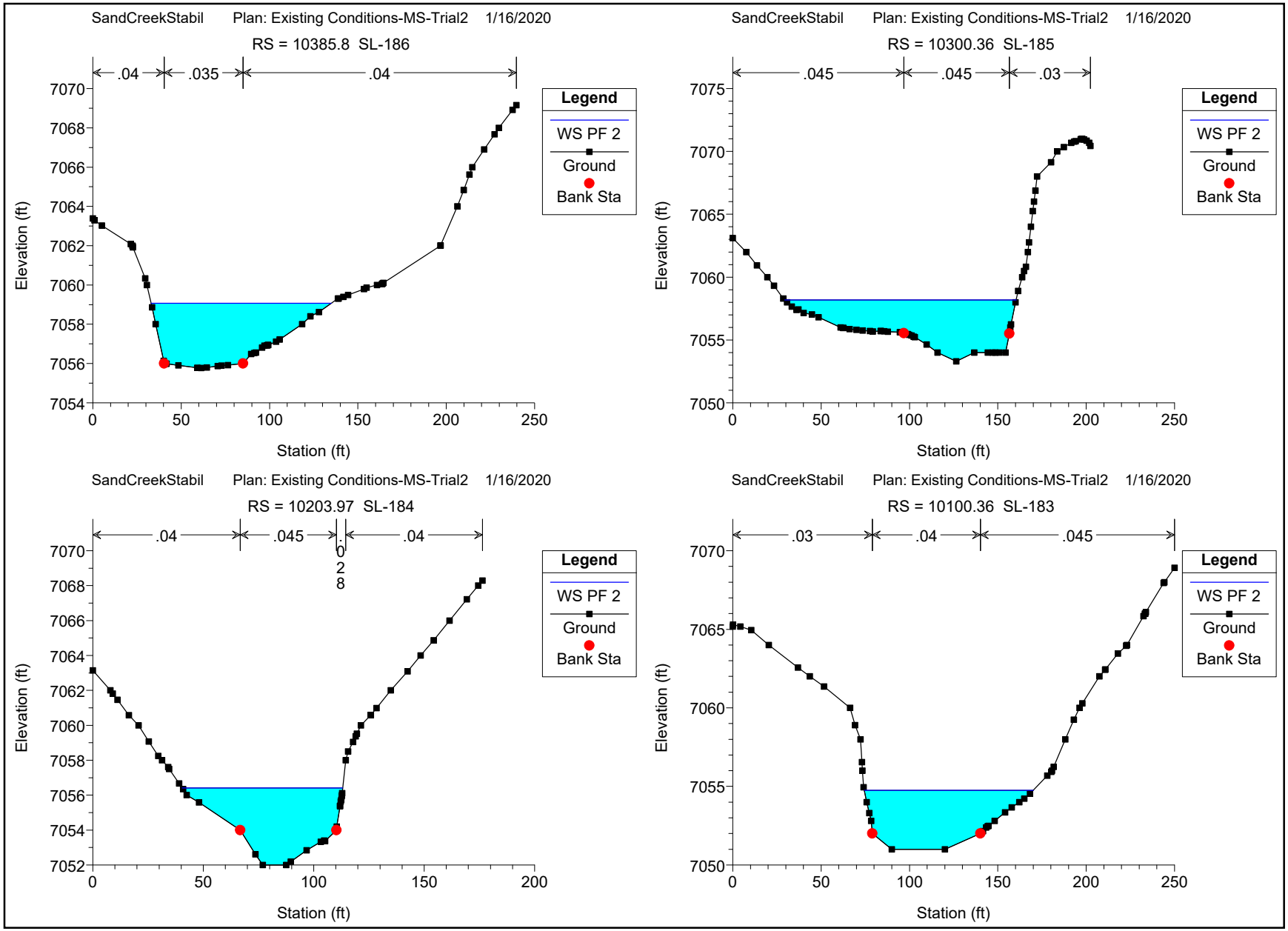
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 10800.36 SL-190
.04
.028
.04
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 10700.36 SL-189
.04
.03
.04
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 10600.36 SL-188
.04
.028
.035
.045
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 10500.36 SL-187
.04
.028
.045
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 10385.8 SL-186
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.035
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Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 10300.36 SL-185
.045
.045
.03
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 10203.97 SL-184
.04
.045
.04
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
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.04
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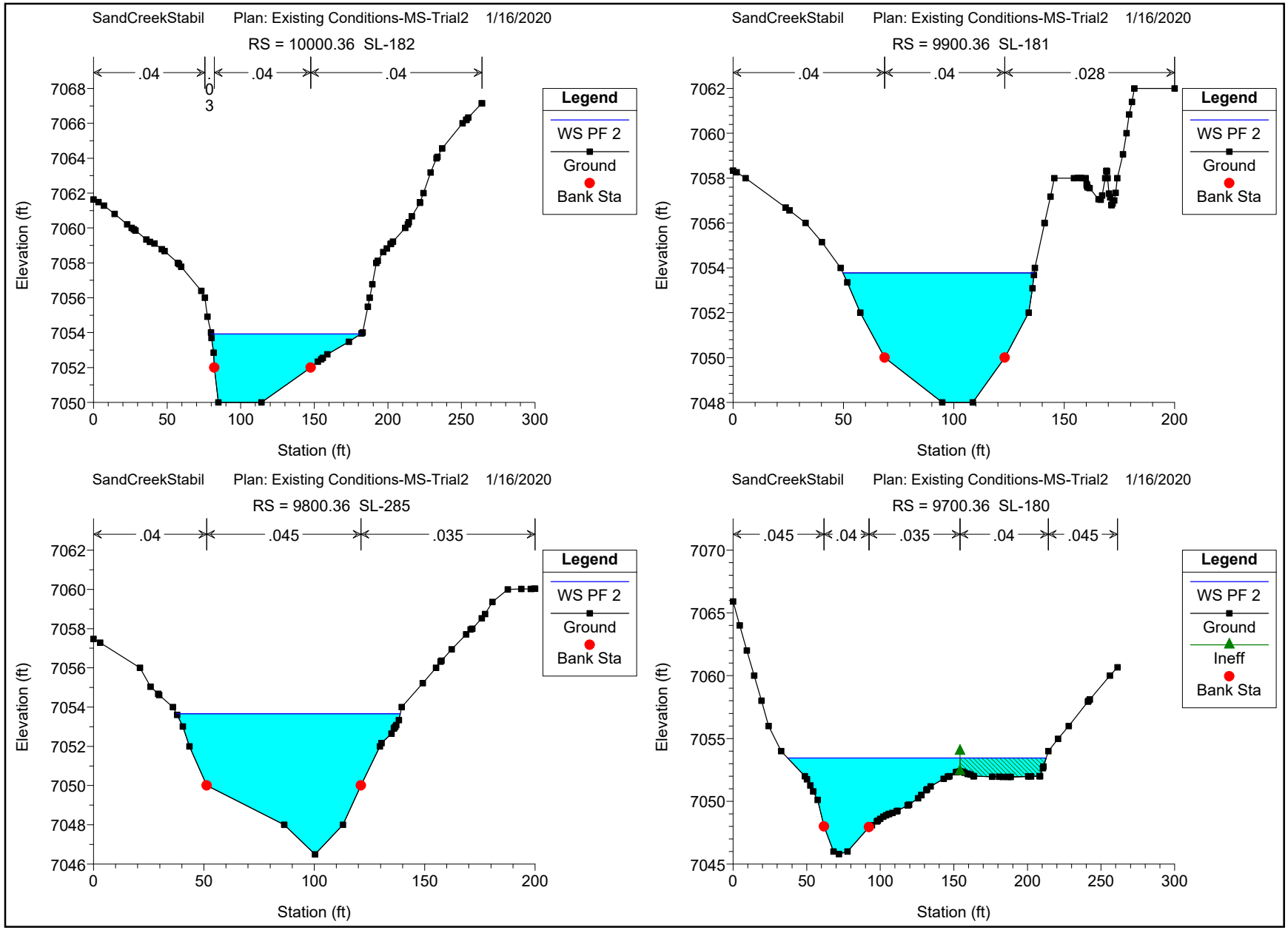
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 10000.36 SL-182
.04
.03
.04
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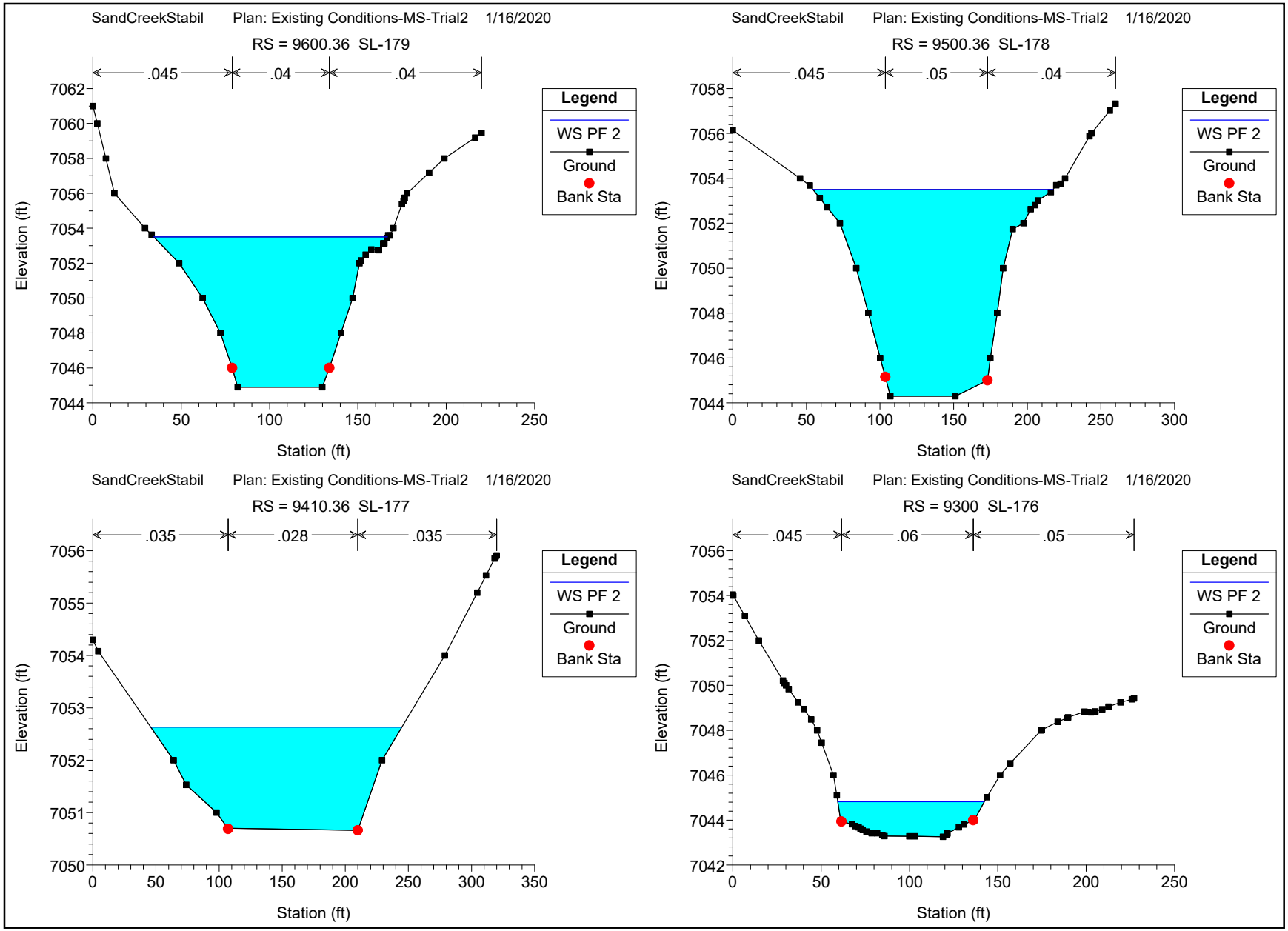
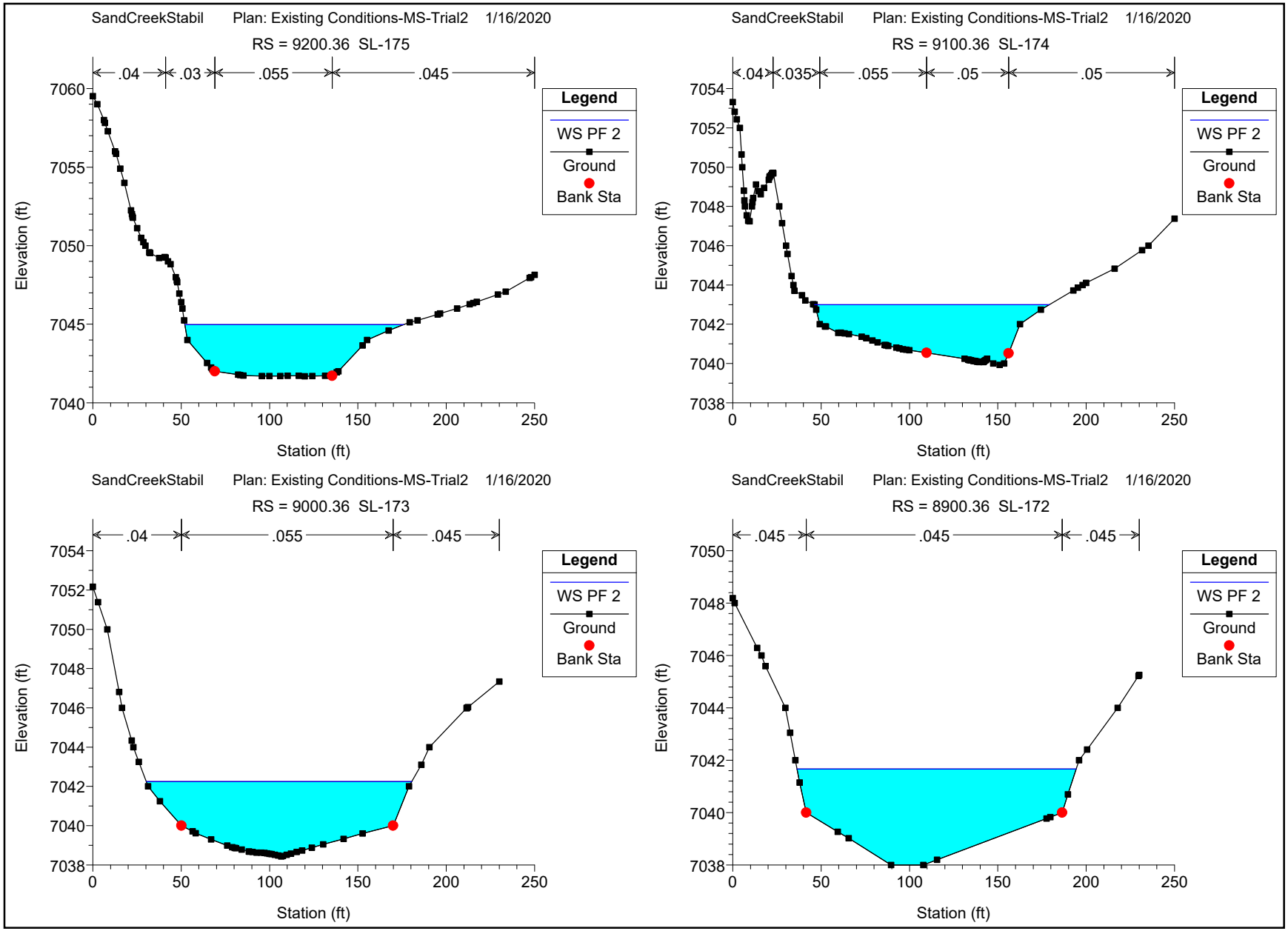
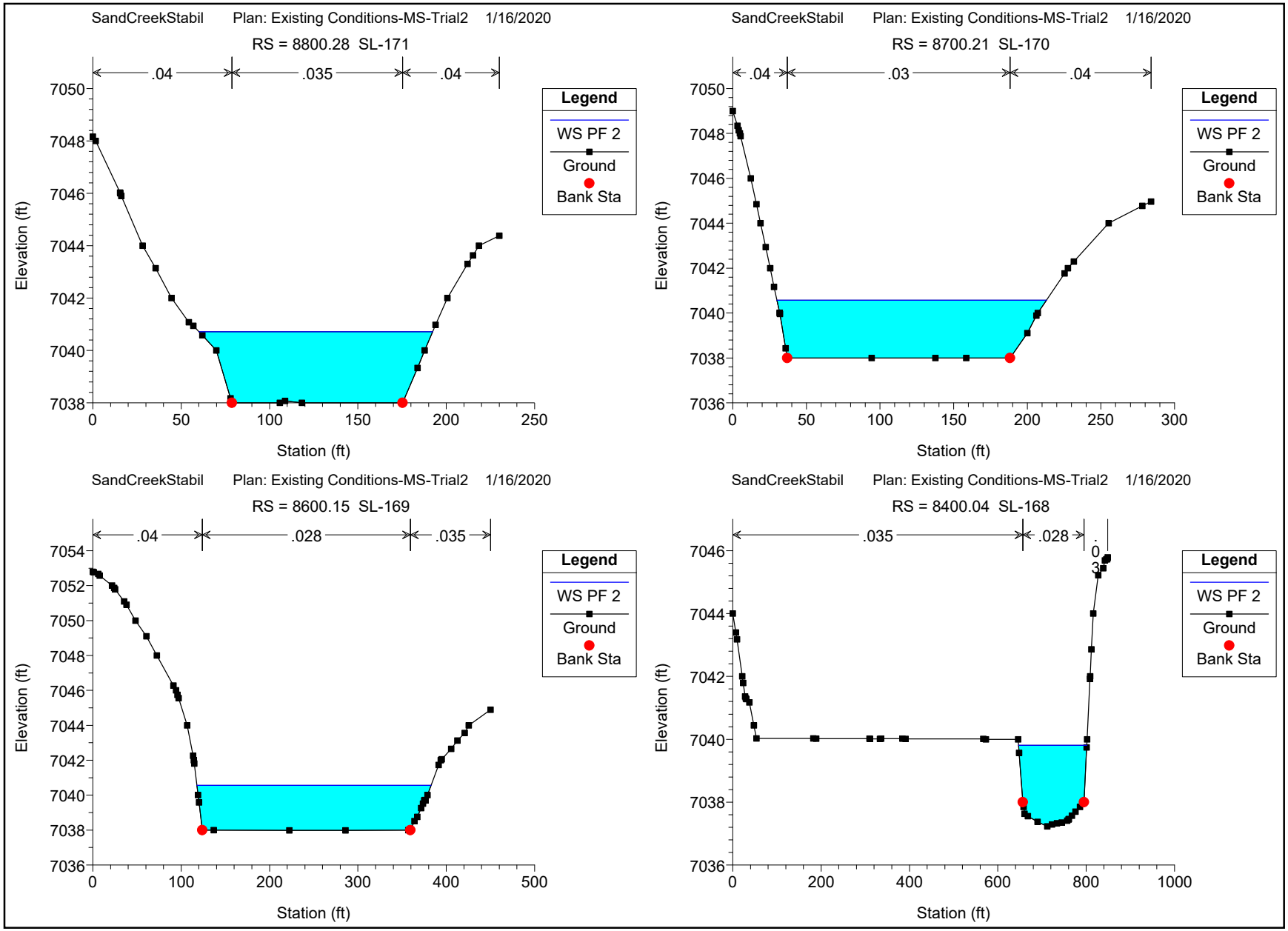
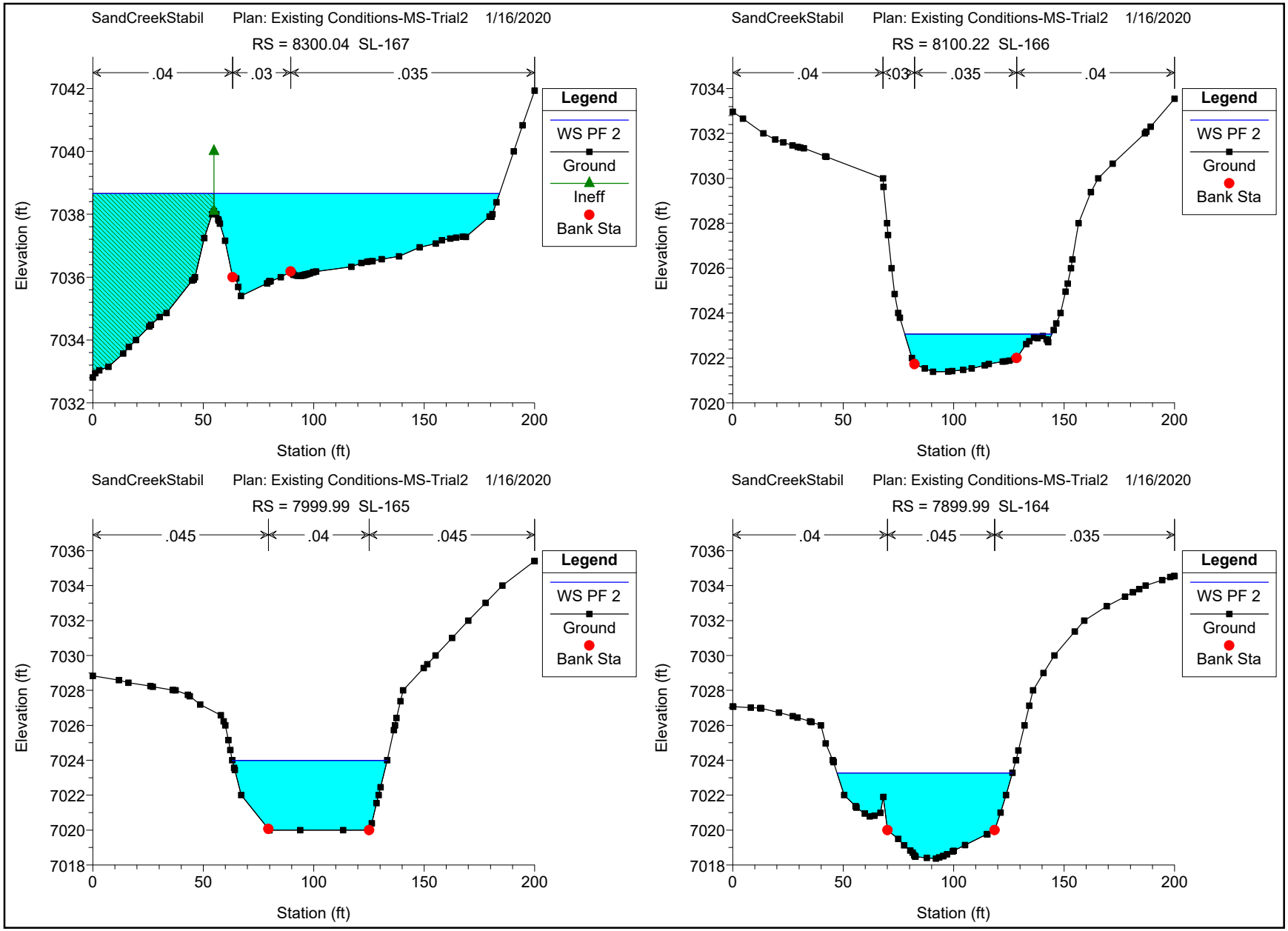
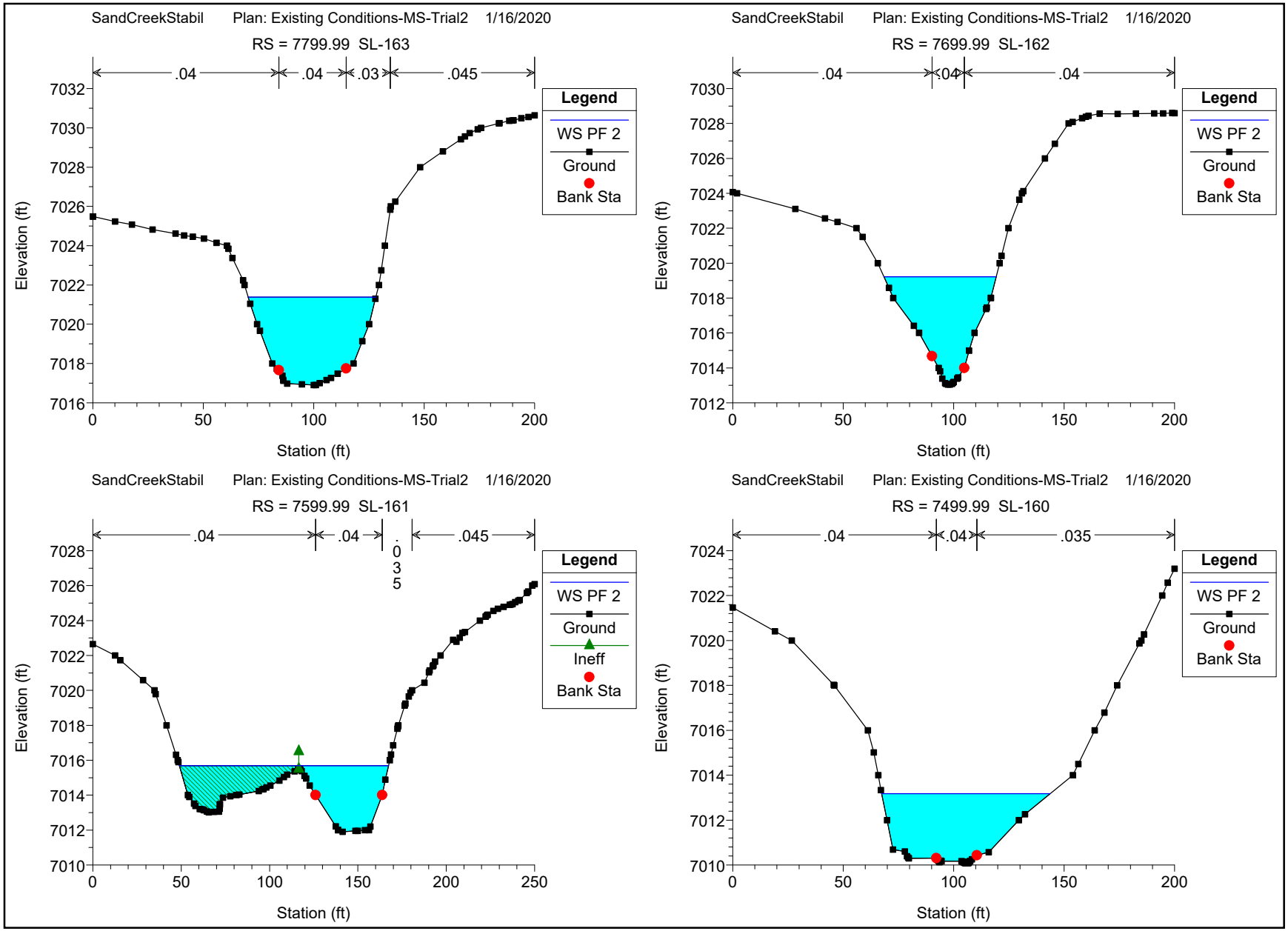
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 9900.36 SL-181
.04
.04
.028
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 9800.36 SL-285
.04
.045
.035
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 9700.36 SL-180
.045
.04
.035
.04
.045
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

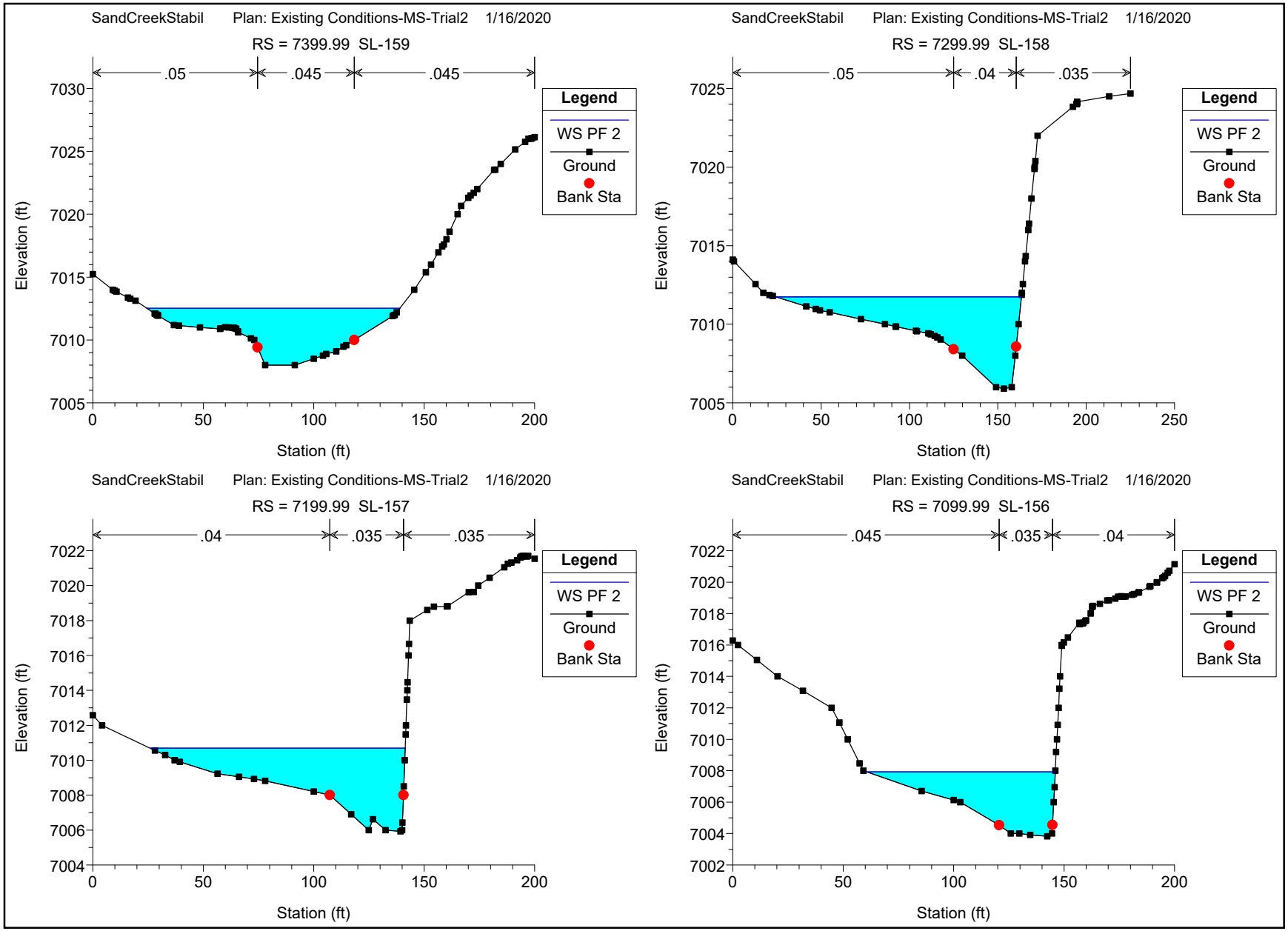

SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 9600.36 SL-179
.045
.04
.04
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 9500.36 SL-178
.045
.05
.04
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 9410.36 SL-177
.035
.028
.035
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 9300 SL-176
.045
.06
.05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

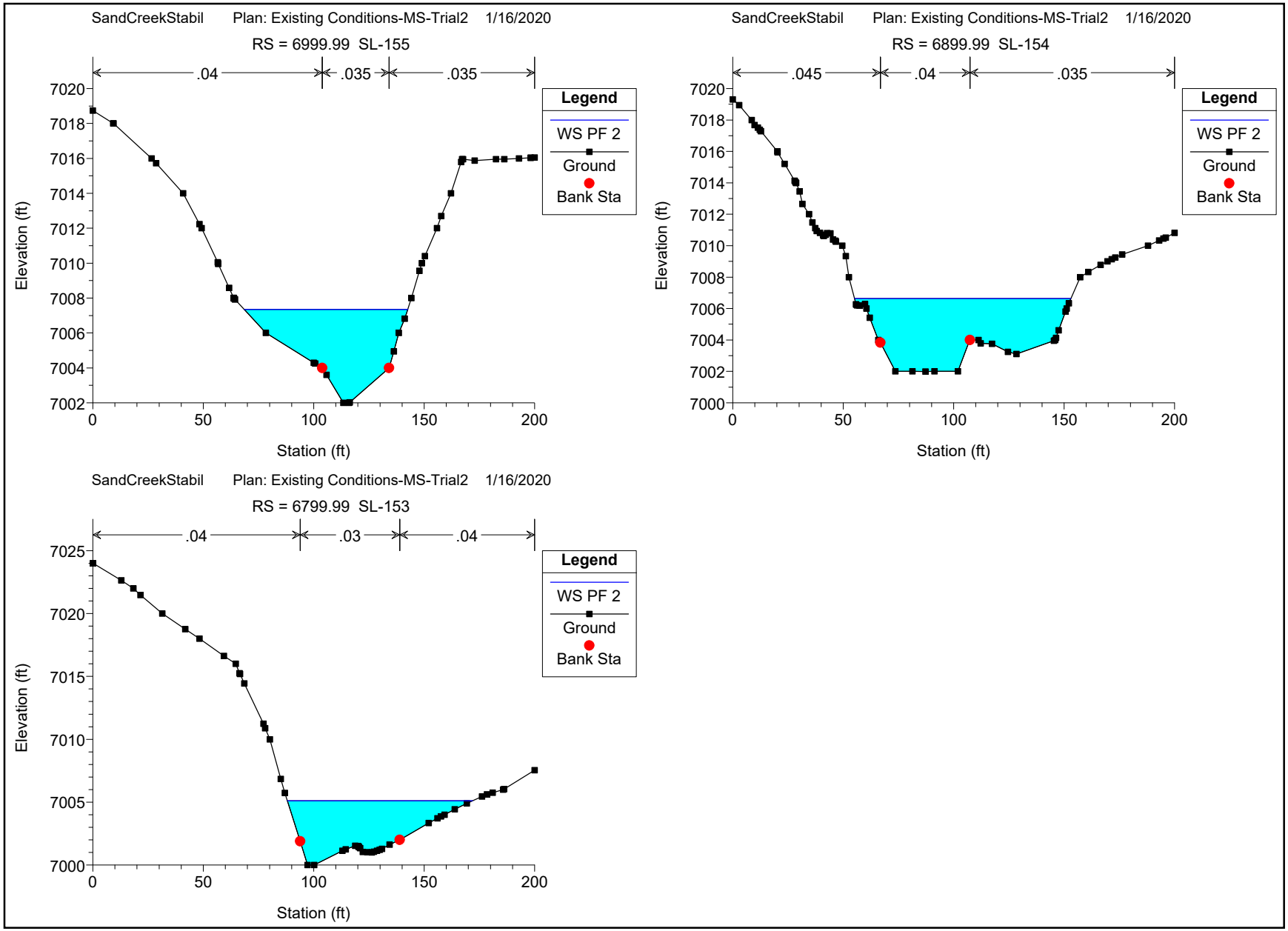

SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 9200.36 SL-175
.04 .03 .055 .045
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 9100.36 SL-174
.04 .035 .055 .05 .05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 9000.36 SL-173
.04 .055 .045
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 8900.36 SL-172
.045 .045 .045
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 8800.28 SL-171
.04
.035
.04
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 8700.21 SL-170
.04
.03
.04
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 8600.15 SL-169
.04
.028
.035
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 8400.04 SL-168
.035
.028
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 8300.04 SL-167
.04
.03
.035
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 8100.22 SL-166
.04
.03
.035
.04
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 7999.99 SL-165
.045
.04
.045
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 7899.99 SL-164
.04
.045
.035
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 7799.99 SL-163
.04
.04
.03
.045
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 7699.99 SL-162
.04
.04
.04
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 7599.99 SL-161
.04
.04
.035
.045
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 7499.99 SL-160
.04
.04
.035
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 7399.99 SL-159
.05
.045
.045
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 7299.99 SL-158
.05
.04
.035
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 7199.99 SL-157
.04
.035
.035
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 7099.99 SL-156
.045
.035
.04
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 6999.99 SL-155
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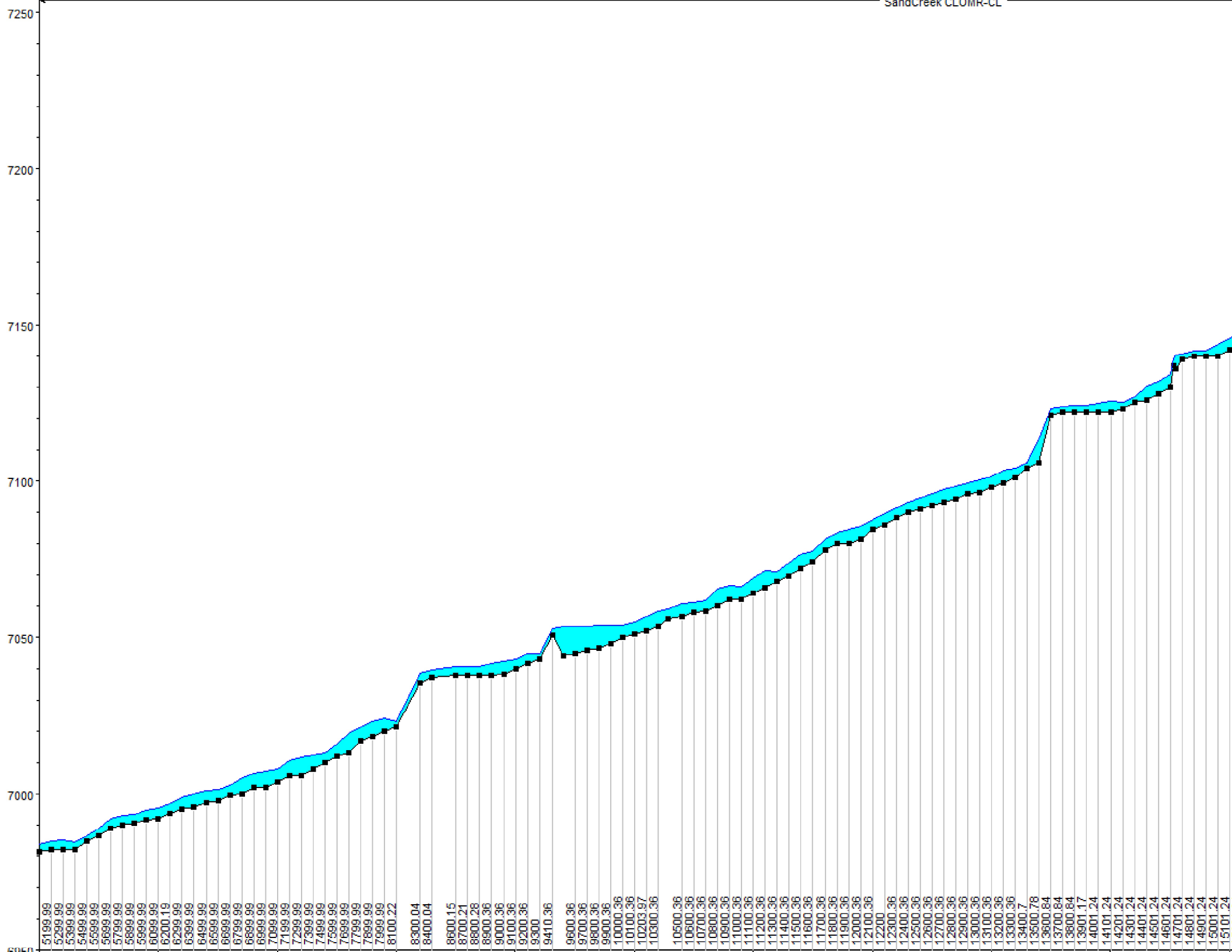
.035
.035
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 6899.99 SL-154
.045
.04
.035
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
SandCreekStabil Plan: Existing Conditions-MS-Trial2 1/16/2020
RS = 6799.99 SL-153
.04
.03
.04
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


SandCreek CLOMR-CL
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7150
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5999.99
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7899.99
7999.99
8100.22
8300.04
8400.04
8600.15
8700.21
8800.28
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10000.36
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12800.36
12900.36
13000.36
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13300.36
13400.7
13500.78
13600.84
13700.84
13800.84
13901.17
14001.24
14101.24
14201.24
14301.24
14401.24
14501.24
14601.24
14701.24
14801.24
14901.24
15001.24
15101.24

PHOTOGRAPHS OF CHANNEL/N VALUE ASSESSMENT

XS214 – XS211

LOOKING DOWNSTREAM

LOB N=0.035-0.045 *CHANNEL N = 0.04-0.055* *ROB N= 0.030-0.040*

XS210 – XS211

LOOKING UPSTREAM

ROB N=0.030-0.035 *CHANNEL N = 0.045-0.050* *LOB N= 0.035-0.040*

XS208 – XS209

LOOKING UPSTREAM

ROB N=0.040-0.045 *CHANNEL N = 0.050-0.055* *LOB N = 0.040-0.045*

XS207 – XS206

LOOKING DOWNSTREAM

LOB N=0.030-0.035 *CHANNEL N = 0.04-0.045* *ROB N = 0.040-0.045*

XS203 – XS205

LOOKING UPSTREAM

ROB N=0.035-0.040 *CHANNEL N = 0.045-0.055* *LOB N =0.030- 0.040*

XS202 – XS198

LOOKING DOWNSTREAM

LOB N=0.028-0.040 *CHANNEL N = 0.028-0.045* *ROB N =0.028-0.045*

XS197 – XS199

LOOKING UPSTREAM

ROB N=0.040-0.045 *CHANNEL N = 0.040-0.050* *LOB N =0.028- 0.040*

XS196 – XS194

LOOKING DOWNSTREAM

LOB N=0.035-0.045 *CHANNEL N = 0.040-0.055* *ROB N =0.040-0.045*

XS192 – XS193

LOOKING UPSTREAM

ROB N=0.030-0.045 *CHANNEL N = 0.028-0.050* *LOB N =0.035- 0.050*

XS192-XS190

LOOKING DOWNSTREAM

LOB N=0.035-0.040 *CHANNEL N = 0.028-0.030* *ROB N =0.030-0.040*

XS189 – XS188

LOOKING DOWNSTREAM

LOB N=0.028-0.040 *CHANNEL N = 0.030-0.035* *ROB N =0.040-0.045*

XS186 – XS187

LOOKING UPSTREAM

ROB N=0.040-0.045 *CHANNEL N = 0.035-0.045* *LOB N =0.028-0.045*

XS184 – XS182

LOOKING DOWNSTREAM

LOB N=0.028-0.045 *CHANNEL N = 0.040-0.045* *ROB N =0.028-0.045*

XS182 – XS181

LOOKING UPSTREAM

ROB N=0.028-0.045 *CHANNEL N = 0.040-0.045* *LOB N =0.028-0.045*

XS181 – XS180, XS285

LOOKING DOWNSTREAM

LOB N=0.040-0.045 *CHANNEL N = 0.040-0.045* *ROB N =0.028-0.045*

XS178 – XS180

LOOKING UPSTREAM

ROB N=0.040-0.045 *CHANNEL N = 0.040-0.045* *LOB N =0.035-0.045*

XS176 – XS172

LOOKING DOWNSTREAM

LOB N=0.035-0.045 *CHANNEL N = 0.045-0.060* *ROB N =0.045-0.050*

XS171 – XS172

LOOKING UPSTREAM

ROB N=0.040-0.045 *CHANNEL N = 0.035-0.045* *LOB N =0.040-0.045*

XS168

LOOKING DOWNSTREAM

LOB N=0.035 *CHANNEL N = 0.028* *ROB N =0.030*

XS167 – XS168

LOOKING UPSTREAM

ROB N=0.030-0.035 *CHANNEL N = 0.028-0.030* *LOB N =0.035-0.040*

XS164 – XS162

LOOKING DOWNSTREAM

LOB N=0.040 *CHANNEL N = 0.035-0.045* *ROB N =0.030-0.045*

XS161 – XS162

LOOKING UPSTREAM

ROB N=0.035-0.045 *CHANNEL N = 0.040* *LOB N =0.035-0.040*

XS160 – XS159

LOOKING DOWNSTREAM

LOB N=0.040-0.050 *CHANNEL N = 0.040-0.045* *ROB N =0.035-0.045*

XS159 – XS160

LOOKING UPSTREAM

ROB N=0.035-0.045 *CHANNEL N = 0.040* *LOB N =0.040-0.050*

XS158 – XS157

LOOKING DOWNSTREAM

LOB N=0.040-0.050 *CHANNEL N = 0.035-0.040* *ROB N =0.035*

XS157 – XS154

LOOKING DOWNSTREAM

LOB N=0.040-0.045 *CHANNEL N = 0.035-0.040* *ROB N =0.035-0.040*

NORTH AMERICAN GREEN SPECIFICATION - SC150

ROLLMAX™
ROLLED EROSION CONTROL

Specification Sheet
EroNet™ SC150® Erosion Control Blanket

DESCRIPTION

The extended-term double net erosion control blanket shall be a machine-produced mat of 70% agricultural straw and 30% coconut fiber with a functional longevity of up to 24 months. (NOTE: functional longevity may vary depending upon climatic conditions, soil, geographical location, and elevation). The blanket shall be of consistent thickness with the straw and coconut evenly distributed over the entire area of the mat. The blanket shall be covered on the top side with a heavyweight photodegradable polypropylene netting having ultraviolet additives to delay breakdown and an approximate 0.63 x 0.63 in (1.59 x 1.59 cm) mesh, and on the bottom side with a lightweight photodegradable polypropylene netting with an approximate 0.50 x 0.50 (1.27 x 1.27 cm) mesh. The blanket shall be sewn together on 1.50 inch (3.81 cm) centers with degradable thread. The blanket shall be manufactured with a colored thread stitched along both outer edges (approximately 2-5 inches [5-12.5 cm] from the edge) as an overlap guide for adjacent mats.

The SC150 shall meet Type 3.B specification requirements established by the Erosion Control Technology Council (ECTC) and Federal Highway Administration's (FHWA) FP-03 Section 713.17

Material Content		
Matrix	70% Straw Fiber 30% Coconut Fiber	0.35 lbs/sq yd (0.19 kg/sm) 0.15 lbs/sq yd (0.08 kg/sm)
Netting	Top: Heavyweight photodegradable with UV additives	3 lbs/1000 sq ft (1.47 kg/100 sm)
	Bottom: lighweight photodegradable	1.5 lb/1000 sq ft (0.73 kg/100 sm)
Thread	Degradable	

Standard Roll Sizes			
Width	6.67 ft (2.03 m)	8 ft (2.4 m)	16.0 ft (4.87 m)
Length	108 ft (32.92 m)	112 ft (34.14 m)	108 ft (32.92 m)
Weight ± 10%	44 lbs (19.95 kg)	55 lbs (24.95 kg)	105.6 lbs (47.9 kg)
Area	80 sq yd (66.9 sm)	100 sq yd (83.61 sm)	192 sq yd (165.6 sm)

Index Property	Test Method	Typical
Thickness	ASTM D6525	0.35 in. (8.89 mm)
Resiliency	ECTC Guidelines	75%
Water Absorbency	ASTM D1117	342%
Mass/Unit Area	ASTM D6475	7.87 oz/sy (267.6 g/sm)
Swell	ECTC Guidelines	30%
Smolder Resistance	ECTC Guidelines	Yes
Stiffness	ASTM D1388	1.11 oz-in
Light Penetration	ASTM D6567	6.2%
Tensile Strength - MD	ASTM D6818	362.4 lbs/ft (5.37 kN/m)
Elongation - MD	ASTM D6818	29.4%
Tensile Strength - TD	ASTM D6818	136.8 lbs/ft (2.03 kN/m)
Elongation - TD	ASTM D6818	27.6%
Biomass Improvement	ASTM D7322	481%

Design Permissible Shear Stress	
Unvegetated Shear Stress	2.00 psf (96 Pa)
Unvegetated Velocity	8.0 fps (2.44 m/s)

Slope Design Data: C Factors			
	Slope Gradients (S)		
Slope Length (L)	≤ 3:1	3:1 – 2:1	≥ 2:1
≤ 20 ft (6 m)	0.001	0.048	0.100
20-50 ft	0.051	0.079	0.145
≥ 50 ft (15.2 m)	0.10	0.110	0.190

NTPEP Large-Scale Slope
ASTM D6459 - C-factor = 0.031

Roughness Coefficients – Unveg.	
Flow Depth	Manning's n
≤ 0.50 ft (0.15 m)	0.050
0.50 – 2.0 ft	0.050-0.018
≥ 2.0 ft (0.60 m)	0.018

NORTH AMERICAN GREEN®

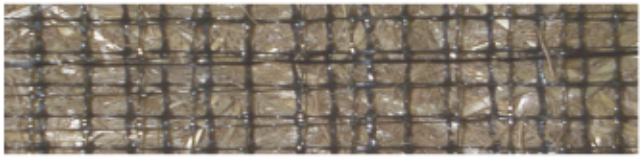
Western Green
4609 E. Boonville-New Harmony Rd.
Evansville, IN 47725

nagreen.com
800-772-2040

NORTH AMERICAN GREEN SPECIFICATION – SC250

ROLLMAX™
ROLLED EROSION CONTROL

Specification Sheet
VMax® SC250® Turf Reinforcement Mat



DESCRIPTION

The composite turf reinforcement mat (C-TRM) shall be a machine-produced mat of 70% straw and 30% coconut fiber matrix incorporated into permanent three-dimensional turf reinforcement matting. The matrix shall be evenly distributed across the entire width of the matting and stitch bonded between a heavy duty UV stabilized nettings with 0.50 x 0.50 inch (1.27 x 1.27 cm) openings, an ultra heavy UV stabilized, dramatically corrugated (crimped) intermediate netting with 0.5 x 0.5 inch (1.27 x 1.27 cm) openings, and covered by an heavy duty UV stabilized nettings with 0.50 x 0.50 inch (1.27 x 1.27 cm) openings. The middle corrugated netting shall form prominent closely spaced ridges across the entire width of the mat. The three nettings shall be stitched together on 1.50 inch (3.81cm) centers with UV stabilized polypropylene thread to form permanent three-dimensional turf reinforcement matting. All mats shall be manufactured with a colored thread stitched along both outer edges as an overlap guide for adjacent mats.

The SC250 shall meet Type 5A, 5B, and 5C specification requirements established by the Erosion Control Technology Council (ECTC) and Federal Highway Administration's (FHWA) FP-03 Section 713.18

Material Content		
Matrix	70% Straw Fiber	0.35 lb/sq yd (0.19 kg/sm)
	30% Coconut Fiber	0.15 lbs/sq yd (0.08 kg/sm)
Netting	Top and Bottom, UV-Stabilized Polypropylene	5 lb/1000 sq ft (2.44 kg/100 sm)
	Middle, Corrugated UV-Stabilized Polypropylene	24 lb/1000 sf (11.7 kg/100 sm)
Thread	Polypropylene, UV Stable	

Standard Roll Sizes		
Width	6.5 ft (2.0 m)	8 ft (2.44m)
Length	55.5 ft (16.9 m)	90 ft (27.4 m)
Weight ± 10%	34 lbs (15.42 kg)	70 lbs (31.8 kg)
Area	40 sq yd (33.4 sm)	80 sq. yd. (66.8 sm)

Index Property	Test Method	Typical
Thickness	ASTM D6525	0.62 in. (15.75 mm)
Resiliency	ASTM 6524	95.2%
Density	ASTM D792	0.891 g/cm^3
Mass/Unit Area	ASTM 6566	16.13 oz/sy (548 g/sm)
UV Stability	ASTM D4355/ 1000 HR	80%
Porosity	ECTC Guidelines	99%
Stiffness	ASTM D1388	222.65 oz-in.
Light Penetration	ASTM D6567	4.1%
Tensile Strength – MD	ASTM D6818	709 lbs/ft (10.51 kN/m)
Elongation – MD	ASTM D6818	23.9%
Tensile Strength – TD	ASTM D6818	712 lbs/ft (10.56 kN/m)
Elongation – TD	ASTM D6818	36.9%
Biomass Improvement	ASTM D7322	441%

Design Permissible Shear Stress		
	Short Duration	**Long Duration**
Phase 1: Unvegetated	3.0 psf (144 Pa)	2.5 psf (120 Pa)
Phase 2: Partially Veg.	8.0 psf (383 Pa)	8.0 psf (383 Pa)
Phase 3: Fully Veg.	10.0 psf (480 Pa)	8.0 psf (383 Pa)
Unvegetated Velocity	9.5 fps (2.9 m/s)	
Vegetated Velocity	15 fps (4.6 m/s)	

Slope Design Data: C Factors			
	Slope Gradients (S)		
Slope Length (L)	≤ 3:1	3:1 – 2.1	≥ 2:1
≤ 20 ft (6 m)	0.0010	0.0209	0.0507
20-50 ft	0.0081	0.0266	0.0574
≥ 50 ft (15.2 m)	0.0455	0.0555	0.081

Roughness Coefficients – Unveg.	
Flow Depth	Manning's n
≤ 0.50 ft (0.15 m)	0.040
0.50 – 2.0 ft	0.040-0.012
≥ 2.0 ft (0.60 m)	0.011

NORTH AMERICAN GREEN®

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800-772-2040

CONSTRUCTION PLANS

HOMESTEAD AT STERLING RANCH FILING NO. 2

COUNTY OF EL PASO, STATE OF COLORADO

SAND CREEK BANK STABILIZATION PLAN

JANUARY 2020

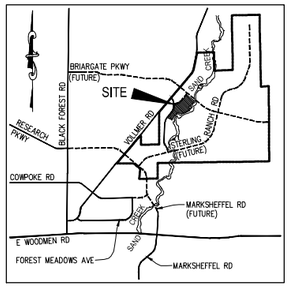
STANDARD CONSTRUCTION NOTES:

1. ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD LOCATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO SPRINGS.
3. CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOILS AND GEOTECHNICAL REPORT AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIME INCLUDING THE FOLLOWING:
   3.1 EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
   3.2 CITY OF COLORADO SPRINGS/EL PASO COUNTY ENGINEERING CRITERA MANUAL VOLUMES 1 AND 2.
   3.3 COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARDS SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION.
   3.4 CDOT M&S STANDARDS.
4. IT IS THE DESIGN ENGINEERS RESPONSIBILITY TO ACCURACY SHOW EXISTING CONDITION BOTH ONSITE AND OFFSITE ON THE CONSTRUCTION PLANS. ANY MODIFICATION NECESSARY DUE TO CONFLICT OMISSIONS OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPERS RESPONSIBILITY TO RECTIFY.
5. ONCE THE ESQCP HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL BMPS AS INDICATED ON THE GEC. A PRECONSTRUCTION MEETING BETWEEN THE CONTRACTOR, ENGINEER, AND EL PASO COUNTY WILL BE HELD PRIOR TO ANY CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE APPLICANT TO COORDINATE THE MEETING TIME AND PLACE WITH COUNTY DSD INSPECTIONS STAFF.
6. IT IS THE CONTRACTORS RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES AND TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORM WATER QUALITY CONTROL PERMIT (ESQCP), US ARMY CORPS OF ENGINEER ISSUED 401 AND/OR 404 PERMITS AND COUNTY AND STATE FUGITIVE DUST PERMITS.
7. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE CONSTRUCTION SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
8. ANY TEMPORARY SIGNAGE AND STRIPING SHALL COMPLY WITH EL PASO COUNTY DOW AND MUTCD CRITERIA.
9. CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRE BY EL PASO COUNTY DOT INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.
10. THE LIMITS OF CONSTRUCTION SHALL REMAIN WITHIN THE PROPERTY LINE UNLESS OTHERWISE NOTED. THE OWNER/DEVELOPER SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FROM ADJOINING PROPERTY OWNER(S) PRIOR TO ANY OFFSITE DISTURBANCE GRADING, OR CONSTRUCTION.

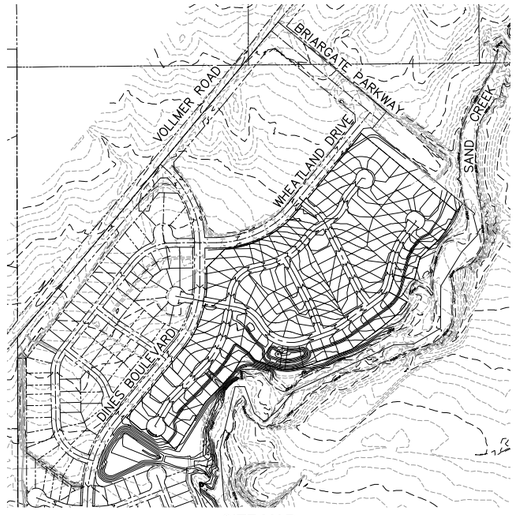
GRADING AND EROSION CONTROL NOTES:

1. STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.
2. NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
3. A SEPARATE STORMWATER MANAGEMENT PLAN (SWMP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. MANAGEMENT OF THE SWMP DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QUALIFIED STORMWATER MANAGER OR CERTIFIED EROSION CONTROL INSPECTOR. THE SWMP SHALL BE LOCATED ON SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.
4. ONCE THE ESQCP IS APPROVED AND A "NOTICE TO PROCEED" HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL MEASURES AS INDICATED ON THE APPROVED GEC. A PRECONSTRUCTION MEETING BETWEEN THE CONTRACTOR, ENGINEER, AND EL PASO COUNTY WILL BE HELD PRIOR TO ANY CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE APPLICANT TO COORDINATE THE MEETING TIME AND PLACE WITH COUNTY STAFF.
5. CONTROL MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF ACTIVITIES THAT COULD CONTRIBUTE POLLUTANTS TO STORMWATER. CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, AND DISTURBED LAND AREAS SHALL BE INSTALLED IMMEDIATELY UPON COMPLETION OF THE DISTURBANCE.
6. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE MAINTAINED AND REMAIN IN EFFECTIVE OPERATING CONDITION UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND FINAL STABILIZATION IS ESTABLISHED. ALL PERSONS ENGAGED IN LAND DISTURBANCE ACTIVITIES SHALL ASSESS THE ADEQUACY OF CONTROL MEASURES AT THE SITE AND IDENTIFY IF CHANGES TO THOSE CONTROL MEASURES ARE NEEDED TO ENSURE THE CONTINUED EFFECTIVE PERFORMANCE OF THE CONTROL MEASURES. ALL CHANGES TO TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES MUST BE INCORPORATED INTO THE STORMWATER MANAGEMENT PLAN.
7. TEMPORARY STABILIZATION SHALL BE IMPLEMENTED ON DISTURBED AREAS AND STOCKPILES WHERE GROUND DISTURBING CONSTRUCTION ACTIVITY HAS PERMANENTLY CEASED OR TEMPORARILY CEASED FOR LONGER THAN 14 DAYS.
8. FINAL STABILIZATION MUST BE IMPLEMENTED AT ALL APPLICABLE CONSTRUCTION SITES. FINAL STABILIZATION IS ACHIEVED WHEN ALL GROUND DISTURBING ACTIVITIES ARE COMPLETE AND ALL DISTURBED AREAS EITHER HAVE A UNIFORM VEGETATIVE COVER WITH INDIVIDUAL PLANT DENSITY OF 70 PERCENT OF PRE-DISTURBANCE LEVELS ESTABLISHED OR EQUIVALENT PERMANENT ALTERNATIVE STABILIZATION METHOD IS IMPLEMENTED. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED UPON FINAL STABILIZATION AND BEFORE PERMIT CLOSURE.
9. ALL PERMANENT STORMWATER MANAGEMENT FACILITIES SHALL BE INSTALLED AS DESIGNED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT EFFECT THE DESIGN OR FUNCTION OF PERMANENT STORMWATER MANAGEMENT STRUCTURES MUST BE APPROVED BY THE ECM ADMINISTRATOR PRIOR TO IMPLEMENTATION.
10. EARTH DISTURBANCES SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY MINIMIZE ACCELERATED SOIL EROSION AND RESULTING SEDIMENTATION. ALL DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED SO THAT THE EXPOSED AREA OF ANY DISTURBED LAND SHALL BE LIMITED TO THE SHORTEST PRACTICAL PERIOD OF TIME. PRE-EXISTING VEGETATION SHALL BE PROTECTED AND MAINTAINED WITHIN 50 HORIZONTAL FEET OF A WATERS OF THE STATE UNLESS SHOWN TO BE INFEASIBLE AND SPECIFICALLY REQUESTED AND APPROVED.
11. COMPACTION OF SOIL MUST BE PREVENTED IN AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES OR WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER. AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF COMPACTION PREVENTION IS NOT FEASIBLE DUE TO SITE CONSTRAINTS, ALL AREAS DESIGNATED FOR INFILTRATION AND VEGETATION CONTROL MEASURES MUST BE LOOSENED PRIOR TO INSTALLATION OF THE CONTROL MEASURE(S).
12. ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE A STABILIZED CONVEYANCE DESIGNED TO MINIMIZE EROSION AND THE DISCHARGE OF SEDIMENT OFF SITE.
13. CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO ENTER STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES. CONCRETE WASHOUTS SHALL NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY, CREEK OR STREAM.
14. DURING DEWATERING OPERATIONS OF UNCONTAMINATED GROUND WATER MAY BE DISCHARGED ON SITE, BUT SHALL NOT LEAVE THE SITE IN THE FORM OF SURFACE RUNOFF UNLESS AN APPROVED STATE DEWATERING PERMIT IS IN PLACE.
15. EROSION CONTROL BLANKETING OR OTHER PROTECTIVE COVERING SHALL BE USED ON SLOPES STEEPER THAN 3:1.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTES FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY REQUIREMENTS. NO CONSTRUCTION DEBRIS, TREE SLASH, BUILDING MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.
17. WASTE MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. CONTROL MEASURES MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.
18. TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.
19. THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, SOIL, AND SAND THAT MAY ACCUMULATE IN ROADS, STORM DRAINS AND OTHER DRAINAGE CONVEYANCE SYSTEMS AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT.
20. THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS.
21. NO CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED ONSITE UNLESS PERMISSION FOR THE USE OF SUCH CHEMICAL(S) IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN GRANTING APPROVAL FOR THE USE OF SUCH CHEMICAL(S), SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.
22. BULK STORAGE OF ALLOWED PETROLEUM PRODUCTS OR OTHER ALLOWED LIQUID CHEMICALS IN EXCESS OF 55 GALLONS SHALL REQUIRE ADEQUATE SECONDARY CONTAINMENT PROTECTION TO CONTAIN ALL SPILLS ONSITE AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR OTHER FACILITIES.
23. NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER OR DITCH EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.
24. OWNER/DEVELOPER AND THEIR AGENTS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 8, CRS), AND THE "CLEAN WATER ACT" (33 USC 1344), IN ADDITION TO THE REQUIREMENTS OF THE LAND DEVELOPMENT CODE, DCM VOLUME II AND THE ECM APPENDIX I. ALL APPROPRIATE PERMITS MUST BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION (1041, NPDES, FLOODPLAIN, 404, FUGITIVE DUST, ETC.). IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND OTHER LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, LOCAL, OR COUNTY AGENCIES, THE MOST RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.
25. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.
26. PRIOR TO CONSTRUCTION THE PERMITTEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
27. A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND SHALL BE UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
28. THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY CTL THOMPSON, INC., ENTITLED GEOTECHNICAL INVESTIGATION TIMBERLINE LANDSCAPING OFFICE AND WAREHOUSE, DATED MAY 5, 2017, AND SHALL BE CONSIDERED A PART OF THESE PLANS.
29. AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE (1) ACRE OR MORE, THE OWNER OR OPERATOR OF CONSTRUCTION ACTIVITY SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A STORMWATER MANAGEMENT PLAN (SWMP), OF WHICH THIS GRADING AND EROSION CONTROL PLAN MAY BE A PART. FOR INFORMATION OR APPLICATION MATERIALS CONTACT:

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
WATER QUALITY CONTROL DIVISION
WQCD - PERMITS
4300 CHERRY CREEK DRIVE SOUTH
DENVER, CO 80246-1530
ATTN: PERMITS UNIT



VICINITY MAP
N.T.S.



SITE MAP
N.T.S.

TIMING: FEBRUARY 2020
ANTICIPATED STARTING AND COMPLETION TIME PERIOD OF SITE GRADING: SEPTEMBER 2020
EXPECTED DATE ON WHICH THE FINAL STABILIZATION WILL BE COMPLETED:

AREAS 1.54 AC.
TOTAL AREA OF THE SITE TO BE CLEARED, EXCAVATED OR GRADED:

RECEIVING WATERS: SAND CREEK

LEGEND

- EXISTING INDEX CONTOUR (10')
- EXISTING NOMINAL CONTOUR (2')
- PROPOSED INDEX CONTOUR (10')
- PROPOSED NOMINAL CONTOUR (2')

BASIS OF BEARINGS:

THE SOUTH LINE OF THE SOUTHWEST QUARTER (SW1/4) OF SECTION 34, TOWNSHIP 12 SOUTH, RANGE 65 WEST OF THE 6TH P.M. AS MONUMENTED AT THE SOUTHWEST CORNER OF SAID SOUTHWEST QUARTER (SW1/4) BY A 2-1/2" ALUMINUM CAP STAMPED "LS 11624" AND AT THE SOUTHEAST CORNER OF SAID SOUTHWEST QUARTER (SW1/4) BY A 2-1/2" ALUMINUM CAP STAMPED "LS 11624", SAID LINE BEARS N 89°14'14" E, A DISTANCE OF 2,722.56 FEET.

BENCHMARKS:

1. THE TOP OF AN ALUMINUM SURVEYORS CAP, STAMPED "9853", AT THE SOUTHEAST BOUNDARY CORNER OF BARBARICK SUBDIVISION
   NORTHING = 411416.273
   EASTING = 235167.071
   ELEVATION = 7023.42
2. THE TOP OF A RED PLASTIC SURVEYORS CAP, ILLEGIBLE, AT THE NORTHWEST BOUNDARY CORNER OF PAWNEE RANCHEROS SUBDIVISION
   NORTHING = 410095.404
   EASTING = 235052.131
   ELEVATION = 7000.40
3. THE TOP OF A RED PLASTIC SURVEYORS CAP, STAMPED "38141", AT THE SOUTHWEST BOUNDARY CORNER OF BARBARICK SUBDISION
   NORTHING = 411399.962
   EASTING = 233849.817
   ELEVATION = 7030.82

AGENCIES

OWNER: SR LAND, LLC
20 BOULDER CRESCENT, SUITE 201
COLORADO SPRINGS, CO 80903
JIM MORLEY (719) 471-1742

CIVIL ENGINEER: M & S CIVIL CONSULTANTS, INC.
102 E. PIKES PEAK AVE., 5TH FLOOR
COLORADO SPRINGS, CO 80903
VIRGIL A. SANCHEZ P.E. (719) 955-5485

ENGINEERING DIVISION: EL PASO COUNTY PLANNING
AND COMMUNITY DEVELOPMENT
2880 INTERNATIONAL CIRCLE, SUITE 110
COLORADO SPRINGS, CO 80910
JEFF RICE, P.E. (719) 520-6300

TRAFFIC ENGINEERING: EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS
3275 AKERS DRIVE
COLORADO SPRINGS, CO 80922
JENNIFER IRVINE, P.E. (719) 520-6460

WATER RESOURCES STERLING RANCH METRO DISTRICT
JDS-HYDRO CONSULTANTS
545 E. PIKES PEAK AVE., SUITE 300
COLORADO SPRINGS, CO 80903
JOHN MCGINN (719) 668-8769

FIRE DISTRICT: BLACK FOREST FIRE PROTECTION DISTRICT
11445 TEACHOUT ROAD
COLORADO SPRINGS, CO 80908
CHIEF BRYAN JACK (719) 498-4300

GAS DEPARTMENT: COLORADO SPRINGS UTILITIES
7710 DURANT DR.
COLORADO SPRINGS, CO 80947
TIM WENDT (719) 668-3556

ELECTRIC DEPARTMENT: MOUNTAIN VIEW ELECTRIC
11140 E. WOODMEN ROAD
FALCON, CO 80831
(719) 495-2283

COMMUNICATIONS: QWEST COMMUNICATIONS
(U.N.C.C. LOCATORS) (800) 922-1987
AT&T (LOCATORS) (719) 635-3674

ENGINEER'S STATEMENT:

THIS GRADING AND EROSION CONTROL PLAN WAS PREPARED UNDER MY DIRECTION AND SUPERVISION AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. SAID PLAN HAS BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR GRADING AND EROSION CONTROL PLANS. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARING THIS PLAN.

VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160 — DATE
FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.

OWNER'S STATEMENT:

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN.

JAMES F. MORLEY — DATE

SR LAND, LLC.
20 BOULDER, SUITE 201
COLORADO SPRINGS, CO 80903

EL PASO COUNTY:

COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH COUNTY DESIGN CRITERIA. THE COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT.

FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL. AS AMMENDED.

IN ACCORDANCE WITH ECM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THESE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FRO APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTOR'S DISCRETION.

JENNIFER IRVINE, P.E. — DATE
COUNTY ENGINEER/ECM ADMINISTRATOR

SHEET INDEX

FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES
FOR BURIED UTILITY INFORMATION
48 HRS BEFORE YOU DIG
CALL 1-800-922-1987

HOMESTEAD AT STERLING RANCH FILING NO. 2
SAND CREEK BANK STABILIZATION PLANS
DATE: 01/15/2020
SHEET 1 OF 6
GR01
PROJECT NO. 09-007
SCALE: HORIZONTAL: N/A VERTICAL: N/A
DESIGNED BY: VAS
DRAWN BY: ELY
CHECKED BY: VAS

102 E. PIKES PEAK AVE. 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE 719.955.5485
CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.
VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160

REVISIONS: NO. | DATE: | BY: | DESCRIPTION: | APPV'D: | BY: | DATE:

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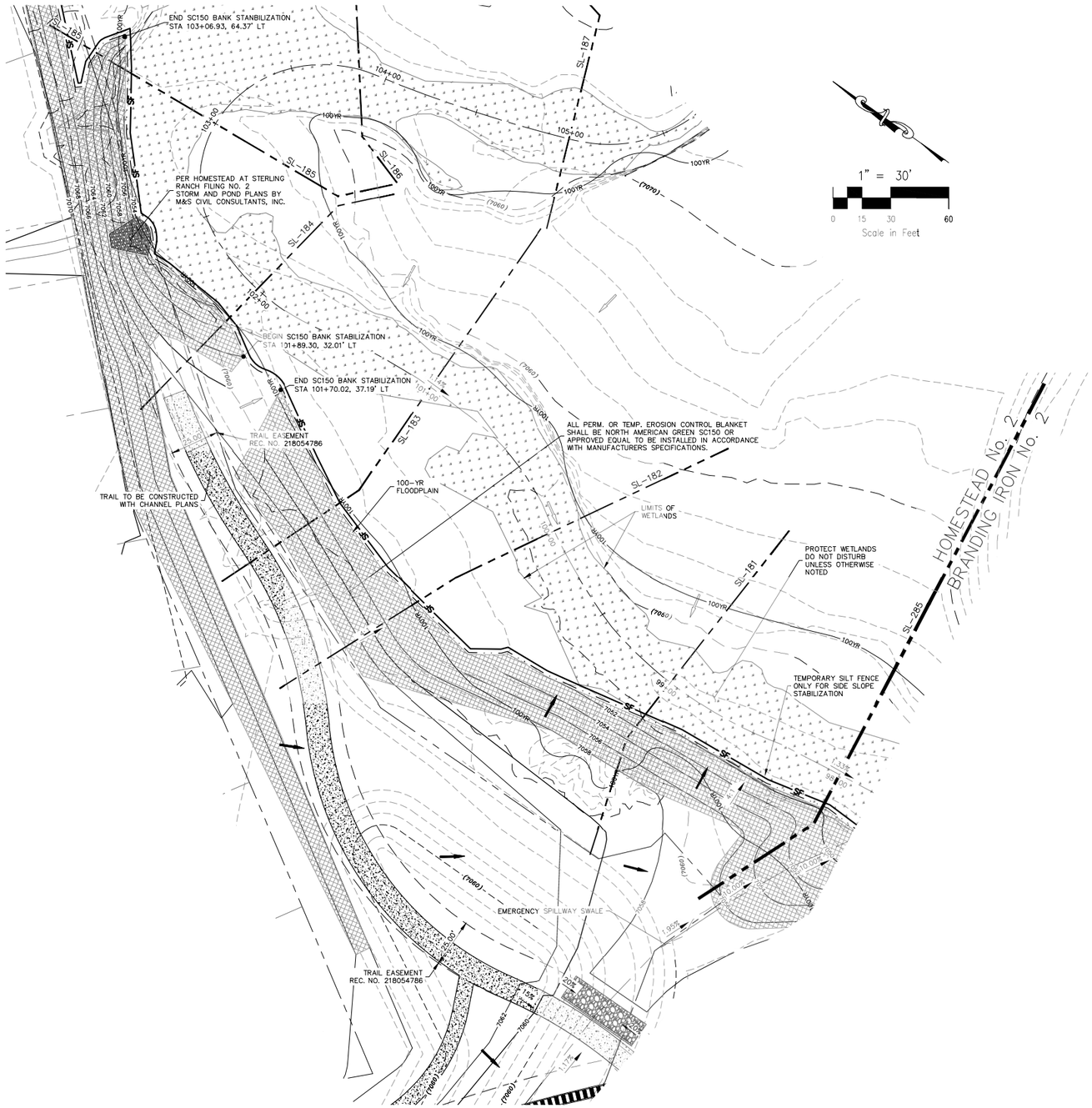
CAUTION

File: C:\0900ZA\Sterling Ranch District\dwg\Const Dwg\Grading & Erosion Control\Bank Stabilization\Homestead 2 bank plans\GR01.dwg Plotstamp: 1/16/2020 9:40 AM

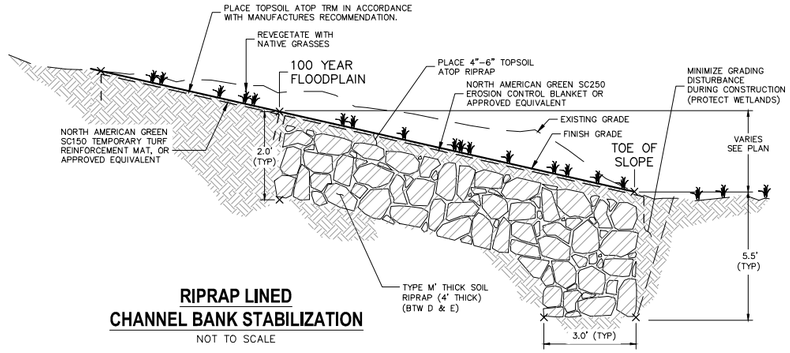


CHANNEL STABILIZATION STA: 98+00 TO 103+00

SCALE: 1"=30'

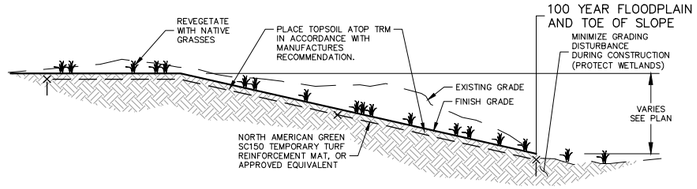
LEGEND

EX	EXISTING
FUT	FUTURE
PROP	PROPOSED
7070	PROP MAJ CONT
	PROP MIN CONT
(7070)	EXIST MAJ CONT
	EXIST MIN CONT
TRM	NORTH AMERICAN GREEN SC250 PERMANENT EROSION CONTROL BLANKET (OR APPROVED EQUAL)
TRM	NORTH AMERICAN GREEN SC150 TEMPORARY EROSION CONTROL BLANKET (OR APPROVED EQUAL)
	EX. FLOW ARROW
	PROP. FLOW ARROW
	PROPERTY LINE
SF	SILT FENCE / LIMITS OF DISTURBANCE
100YR	100-YR FLOOD PLAIN
	PROP STORM SEWER PIPE
	EX. WETLANDS
	WETLAND DISTURBANCE
	RIPRAP TYP.



RIPRAP LINED CHANNEL BANK STABILIZATION

NOT TO SCALE



TURF REINFORCEMENT MAT LINED CHANNEL BANK STABILIZATION

NOT TO SCALE

HOMESTEAD AT STERLING RANCH FILING NO. 2
SAND CREEK BANK STABILIZATION PLANS
DATE: 01/15/2020
SHEET 2 OF 6
GR02
SCALE: HORIZONTAL: N/A VERTICAL: N/A
PROJECT NO. 09-007
DESIGNED BY: VAS
DRAWN BY: ELY
CHECKED BY: VAS

102 E. PIKES PEAK AVE. 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE 719.955.5485
CIVIL CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160
FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.

REVISIONS:

NO.	DATE:	BY:	DESCRIPTION:	APPR'D. BY:	DATE:

FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES
FOR BURIED UTILITY INFORMATION
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CALL 1-800-922-1987

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CAUTION

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LEGEND

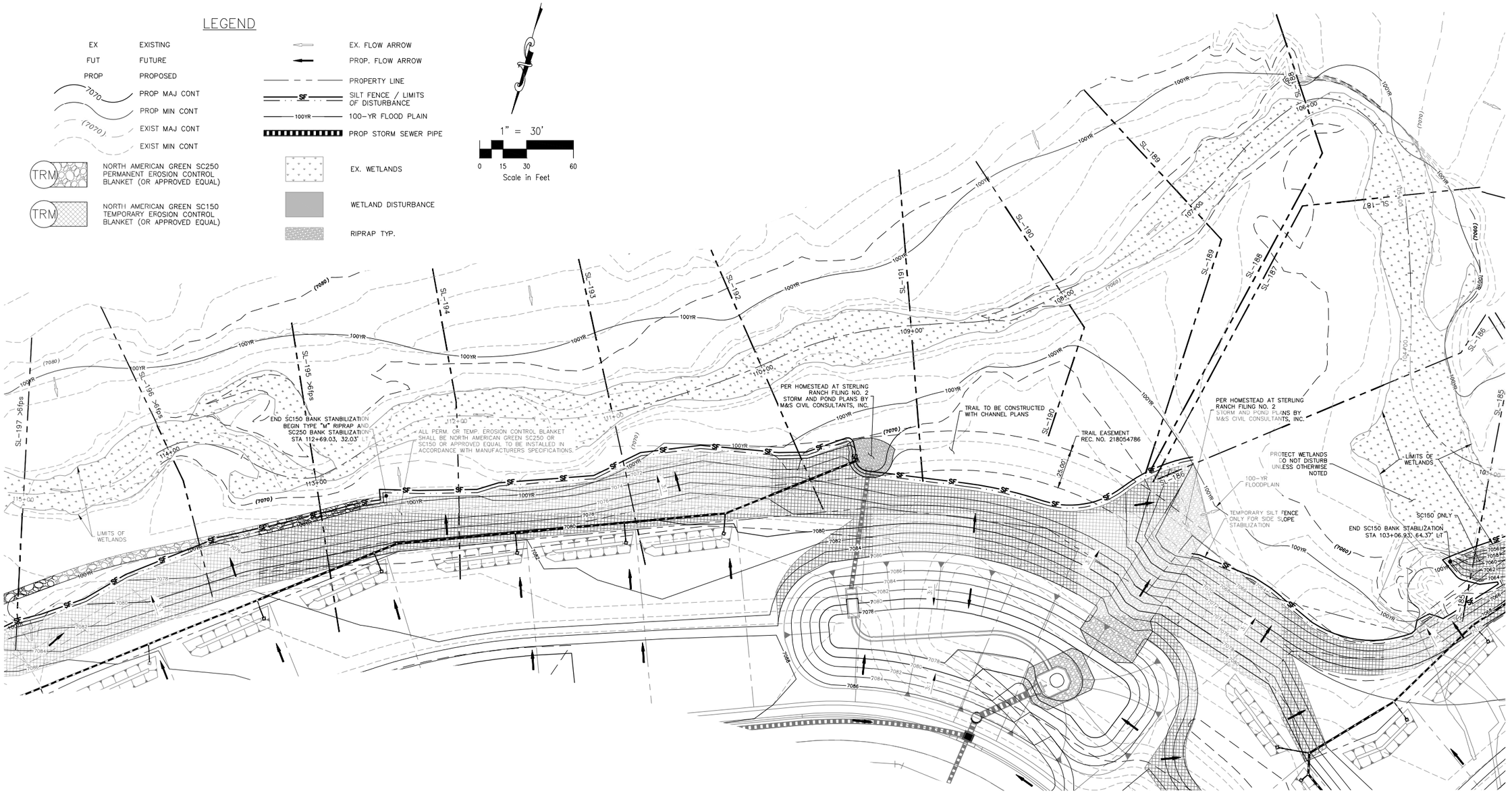
EX	EXISTING
FUT	FUTURE
PROP	PROPOSED
7070	PROP MAJ CONT
	PROP MIN CONT
(7070)	EXIST MAJ CONT
	EXIST MIN CONT
TRM	NORTH AMERICAN GREEN SC250 PERMANENT EROSION CONTROL BLANKET (OR APPROVED EQUAL)
TRM	NORTH AMERICAN GREEN SC150 TEMPORARY EROSION CONTROL BLANKET (OR APPROVED EQUAL)

	EX. FLOW ARROW
	PROP. FLOW ARROW
	PROPERTY LINE
SF	SILT FENCE / LIMITS OF DISTURBANCE
100YR	100-YR FLOOD PLAIN
	PROP STORM SEWER PIPE
	EX. WETLANDS
	WETLAND DISTURBANCE
	RIPRAP TYP.

1" = 30'

0 15 30 60

Scale in Feet



CHANNEL STABILIZATION STA: 103+00 TO 115+00

SCALE: 1"=30'

FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES

FOR BURIED UTILITY INFORMATION
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CALL 1-800-922-1987

HOMESTEAD AT STERLING RANCH FILING NO. 2

SAND CREEK BANK STABILIZATION PLANS

PROJECT NO. 09-007 | DESIGNED BY: VAS | DRAWN BY: ELY | CHECKED BY: VAS

SCALE: HORIZONTAL: N/A VERTICAL: N/A

DATE: 01/15/2020

SHEET 3 OF 6

GR03

102 E. PIKES PEAK AVE. 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE 719.955.5485

CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160

REVISIONS:				
NO.	DATE:	BY:	DESCRIPTION:	APPR'D. BY: DATE:

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CAUTION

File: G:\09002A\Sterling Ranch District\dwg\Const Dwg\Grading & Erosion Control\Bank Stabilization\Homestead 2 bank plans\GR03.dwg Plotstamp: 1/16/2020 1:04 PM

1" = 30'

0 15 30 60

Scale in Feet

PROTECT WETLANDS DO NOT DISTURB UNLESS OTHERWISE NOTED

LIMITS OF WETLANDS

ALL PERM. OR TEMP. EROSION CONTROL BLANKET SHALL BE NORTH AMERICAN GREEN SC250 OR SC150 OR APPROVED EQUAL TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.

BEGIN SC250 BANK STABILIZATION STA 124+08.37, 89.77' LT

END SC250 BANK STABILIZATION STA 125+43.11, 29.13' LT

ALL PERM. OR TEMP. EROSION CONTROL BLANKET SHALL BE NORTH AMERICAN GREEN SC250 OR SC150 OR APPROVED EQUAL TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.

END SC150 BANK STABILIZATION STA 121+00.66, 74.25' LT

TEMPORARY SILT FENCE ONLY FOR SIDE SLOPE STABILIZATION

BEGIN SC150 BANK STABILIZATION STA 120+55.84, 71.21' LT

END SC150 BANK STABILIZATION STA 124+43.88, 140.68' LT

BEGIN SC150 BANK STABILIZATION STA 121+70.71, 92.67' LT

END SC150 BANK STABILIZATION STA 120+25.00, 116.92' LT

TRAIL EASEMENT REC. NO. 218054786

TRAIL TO BE CONSTRUCTED WITH CHANNEL PLANS

100-YR FLOODPLAIN

PROTECT WETLANDS DO NOT DISTURB UNLESS OTHERWISE NOTED

ALL PERM. OR TEMP. EROSION CONTROL BLANKET SHALL BE NORTH AMERICAN GREEN SC250 OR SC150 OR APPROVED EQUAL TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.

END SC250 BANK STABILIZATION STA 118+53.42, 139.43' LT

END SC150 BANK STABILIZATION STA 119+00.47, 145.63' LT

LIMITS OF WETLANDS

BEGIN SC150 BANK STABILIZATION STA 119+74.37, 179.32' LT

SL-197 >6cfs

SL-198 >6cfs

SL-199 >6cfs

SL-200

SL-201

SL-202

SL-203

SL-204

SL-205

SL-206 >6cfs

SL-207 >6cfs

SL-208

CHANNEL STABILIZATION STA: 115+00 TO 126+00

SCALE: 1"=30'

LEGEND

EX	EXISTING
FUT	FUTURE
PROP	PROPOSED
7070	PROP MAJ CONT
	PROP MIN CONT
(7070)	EXIST MAJ CONT
	EXIST MIN CONT
TRM	NORTH AMERICAN GREEN SC250 PERMANENT EROSION CONTROL BLANKET (OR APPROVED EQUAL)
TRM	NORTH AMERICAN GREEN SC150 TEMPORARY EROSION CONTROL BLANKET (OR APPROVED EQUAL)
	EX. FLOW ARROW
	PRCP. FLOW ARROW
	PRCPERTY LINE
SF	SILT FENCE / LIMITS OF DISTURBANCE
100YR	100-YR FLOOD PLAIN
	PROP STORM SEWER PIPE
	EX. WETLANDS
	WETLAND DISTURBANCE
	RIPRAP TYP.

HOMESTEAD AT STERLING RANCH FILING NO. 2

SAND CREEK BANK STABILIZATION PLANS

PROJECT NO. 09-007
DESIGNED BY: VAS
DRAWN BY: ELY
CHECKED BY: VAS
DATE: 01/15/2020
SCALE: HORIZONTAL: N/A VERTICAL: N/A
SHEET 4 OF 6
GR04

102 E. PIKES PEAK AVE. 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE 719.955.5485

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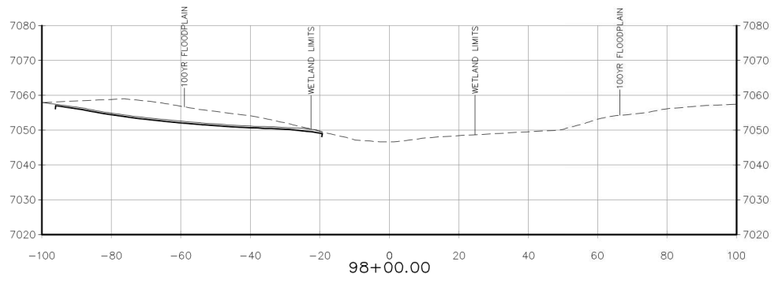
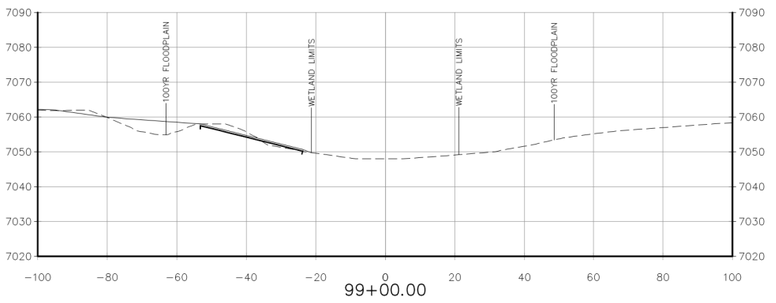
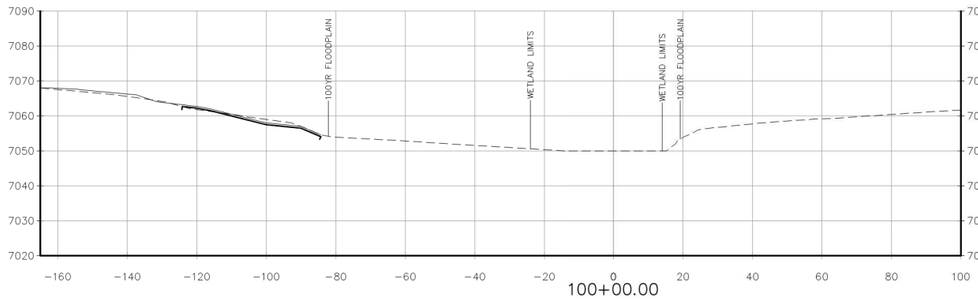
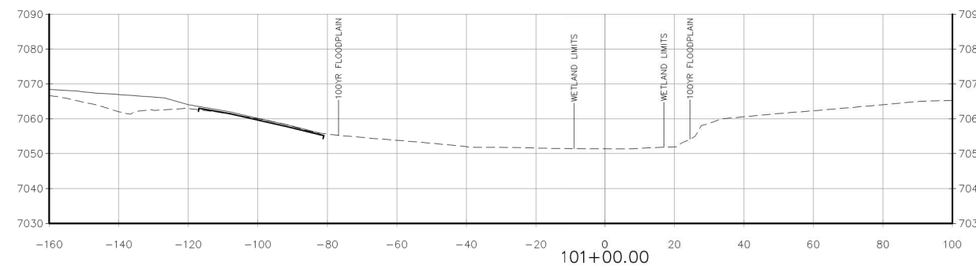
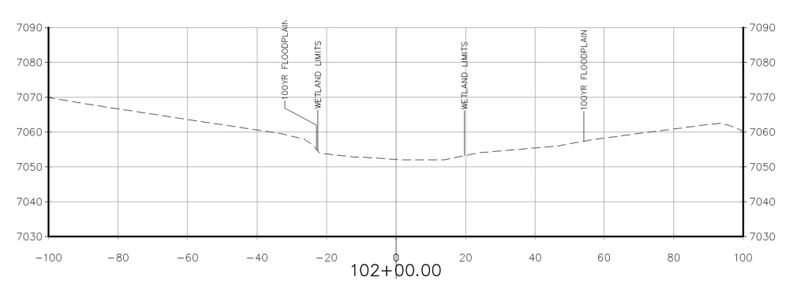
CAUTION











LEGEND

- D50=24" SOIL RIPRAP
- EROSION CONTROL MAT
- EXISTING GROUND
- PROPOSED FINISH GRADE

NORTH AMERICAN GREEN
A Tensar Company

TRM

North American Green
14649 Highway 41 North
Evansville, IN 47725
800-772-2040
FAX: 812-867-0247
www.nagreen.com

Material and Performance Specification Sheet

SC150 Erosion Control Blanket

The extended-term double net erosion control blanket shall be a machine-produced mat of 70% agricultural straw and 30% coconut fiber with a functional longevity of up to 24 months. (NOTE: functional longevity may vary depending upon climatic conditions, soil, geographical location, and elevation). The blanket shall be of consistent thickness with the straw and coconut evenly distributed over the entire area of the mat. The blanket shall be covered on the top side with a heavyweight photodegradable polypropylene netting having ultraviolet additives to delay breakdown and an approximate 0.63 x 0.63 (1.59 x 1.59 cm) mesh, and on the bottom side with a lightweight photodegradable polypropylene netting with an approximate 0.50 x 0.50 in (1.27 x 1.27 cm) mesh. The blanket shall be sewn together on 1.50 inch (3.81 cm) centers with degradable thread.

The SC150 shall meet requirements established by the Erosion Control Technology Council (ECTC) Specification and the US Department of Transportation, Federal Highway Administration's (FHWA) *Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-03 Section 713.17 as a type 3.9 Extended-term Erosion Control Blanket.*

The SC150 is also available with the DOT System™, which consists of installation staple patterns clearly marked on the erosion control blanket with environmentally safe paint. The blanket shall be manufactured with a colored thread stitched along both outer edges (approximately 2-5 inches [5-12.5 cm] from the edge) as an overlap guide for adjacent mats.

Material Content		
Matrix	70% Straw Fiber	0.35 lbs/yd² (0.19 kg/m²)
	30% Coconut Fiber	0.15 lbs/yd² (0.08 kg/m²)
Nettings	Top – Heavyweight photodegradable with UV additives	3.0 lb/1000 ft² (1.47 kg/100 m²)
	Bottom – Lightweight Photodegradable	1.5 lb/1000 ft² (0.73 kg/100 m²)
Thread	Degradable	

SC150 is available in the following standard roll sizes:

Width	6.67 ft (2.03 m)	16 ft (4.87 m)
Length	108 ft (32.92 m)	108 ft (32.92 m)
Weight ± 10%	44 lbs (19.95 kg)	105.6 lbs (47.9 kg)
Area	80.0 yd² (66.9 m²)	192 yd² (165.5 m²)

Index Value Properties:

Property	Test Method	Typical
Thickness	ASTM D6525	0.39 in (9.91 mm)
Resiliency	ECTC Guidelines	75%
Water Absorbency	ASTM D1117	285%
Mass/Unit Area	ASTM 6475	11.44 oz/yd² (388 g/m²)
Swell	ECTC Guidelines	30%
Smolder Resistance	ECTC Guidelines	Yes
Stiffness	ASTM D1388	1.11 oz-in
Light Penetration	ECTC Guidelines	8.7%
Tensile Strength –MD	ASTM D6818	146.6 lbs/ft (2.17 kN/m)
Elongation – MD	ASTM D6818	26.9%
Tensile Strength – TD	ASTM D6818	147.6 lbs/ft (2.19 kN/m)
Elongation – TD	ASTM D6818	25.2%

Bench Scale Testing* (NTPEP):

Test Method	Parameters	Results
ECTC Method 2 Rainfall	50 mm (2 in)/hr for 30 min	SLR** = 5.47
	100mm (4 in)/hr for 30 min	SLR** = 5.67
	150 mm (6 in)/hr for 30 min	SLR** = 5.88
ECTC Method 3 Shear Resistance	**Shear at 0.50 inch soil loss**	**2.72 lbs/ft²**
ECTC Method 4 Germination	Top Soil, Fescue, 21 day incubation	538% improvement of biomass

* Bench Scale tests should not be used for design purposes
** Soil Loss Ratio = Soil loss with Bare Soil/Soil Loss with RECP (soil loss is based on regression analysis)

Performance Design Values:

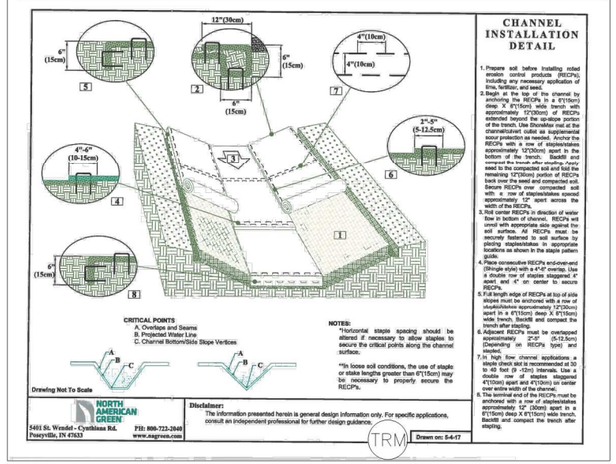
Maximum Permissible Shear Stress	
Unvegetated Shear Stress	2.00 lbs/ft² (96 Pa)
Unvegetated Velocity	8.00 ft/s (2.44 m/s)

Slope Design Data: C Factors			
	Slope Gradients (S)		
Slope Length (L)	≤ 3:1	3:1 – 2:1	≥ 2:1
≤ 20 ft (6 m)	0.001	0.048	0.100
20-50 ft	0.051	0.079	0.145
≥ 50 ft (15.2 m)	0.10	0.110	0.190

Roughness Coefficients- Unveg.	
Flow Depth	Manning's n
≤ 0.50 ft (0.15 m)	0.050
0.50 – 2.0 ft	0.050 – 0.018
≥ 2.0 ft (0.60 m)	0.018

Product Participant of: QDOR

Updated 3/09



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14649 Highway 41 North
Evansville, IN 47725
800-772-2040
FAX: 812-867-0247
www.nagreen.com

Material and Performance Specification Sheet

SC250 Turf Reinforcement Mat

The composite turf reinforcement mat (C-TRM) shall be a machine-produced mat of 70% straw and 30% coconut fiber matrix incorporated into a permanent three-dimensional turf reinforcement matting. The matrix shall be evenly distributed across the entire width of the matting and stitch corrugated (crimped) intermediate netting with 0.5 x 0.5 inch (1.27 x 1.27 cm) openings, an ultra heavy UV stabilized, dramatically 0.50 x 0.50 inch (1.27 x 1.27 cm) openings, and covered by an heavy duty UV stabilized nettings with mat. The three nettings shall be stitched together on 1.50 inch (3.81cm) centers with UV stabilized polypropylene thread to form a permanent three-dimensional turf reinforcement matting.

The SC250 shall meet requirements established by the Erosion Control Technology Council (ECTC) Specification and the US Department of Transportation, Federal Highway Administration's (FHWA) *Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-03 Section 713.18 as a type 5A, B, and C Permanent Turf Reinforcement Mat.*

Installation staple patterns shall be clearly marked on the turf reinforcement matting with environmentally safe paint. All mats shall be manufactured with a colored thread stitched along both outer edges (approximately 2-5 inches [5-12.5 cm] from the edge) as an overlap guide for adjacent mats.

Material Content		
Matrix	70% Straw / 30% Coconut fibers	0.35 lbs/yd² (0.19 kg/m²) / 0.15 lbs/yd² (0.08 kg/m²)
Nettings	Top and Bottom, UV stabilized Polypropylene	.5 lb/1000 ft² (2.44 kg/100 m²)
	Middle, corrugated UV stabilized Polypropylene	.24 lb/1000 ft² (11.7 kg/100 m²)
Thread	Polypropylene, UV stabilized	

SC250 is available in the following roll sizes:

Width	6.5 ft (2.0 m)
Length	55.5 ft (16.9 m)
Weight ± 10%	34 lbs (15.42 kg)
Area	40.0 yd² (33.4 m²)

Index Value Properties:

Property	Test Method	Typical	Net Only
Thickness	ASTM D6525	0.72 in (18.3 mm)	0.48 in
Resiliency	ASTM 6524	95.2%	—
Density	ASTM D792	0.53 oz/in³	—
Mass/Unit Area	ASTM 6566	17.88 oz/yd² (606 g/m²)	—
Porosity	ECTC Guidelines	99%	—
Stiffness	ASTM D1388	222.65 oz-in	—
Light Penetration	ECTC Guidelines	8.9%	—
UV Stability	ASTM D4355/ 1000 hr	100%	100%
Tensile Strength MD	ASTM D6818	620 lbs/ft (9.05 kN/m)	655 lbs/ft
Elongation MD	ASTM D6818	35%	25%
Tensile Strength TD	ASTM D6818	737 lbs/ft (10.75 kN/m)	666 lbs/ft
Elongation TD	ASTM D6818	16%	16%

Bench Scale Testing* (NTPEP):

Test Method	Parameters	Results
ECTC Method 2 Rainfall	50 mm (2 in)/hr for 30 min	SLR** = 18.25
	100mm (4 in)/hr for 30 min	SLR** = 20.97
	150 mm (6 in)/hr for 30 min	SLR** = 22.74
ECTC Method 3 Shear Resistance	**Shear at 0.50 inch soil loss**	**1.7 lbs/ft²**
ECTC Method 4 Germination	Top Soil, Fescue, 21 day incubation	123% improvement of biomass

* Bench Scale tests should not be used for design purposes
** Soil Loss Ratio = Soil loss with Bare Soil/Soil Loss with RECP (soil loss is based on regression analysis)

Performance Design Values:

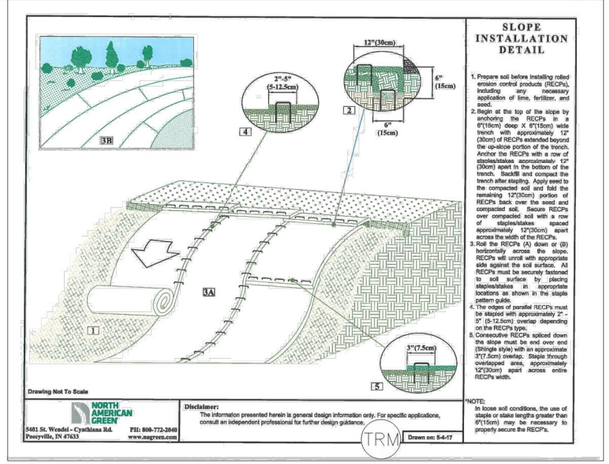
Maximum Permissible Shear Stress		
	Short Duration	Long Duration
Phase 1 Unvegetated	3.0 lbs/ft² (144 Pa)	2.5 lbs/ft² (120 Pa)
Phase 2 Partially Veg.	8.0 lbs/ft² (383 Pa)	8.0 lbs/ft² (383 Pa)
Phase 3 Fully Veg.	10.0 lbs/ft² (480 Pa)	8.0 lbs/ft² (383 Pa)
Velocity Unveg	9.5 ft/s (2.9 m/s)	
Velocity Veg.	15 ft/s (4.6 m/s)	

Slope Design Data: C Factors			
	Slope Gradients (S)		
Slope Length (L)	≤ 3:1	3:1 – 2:1	≥ 2:1
≤ 20 ft (6 m)	0.0010	0.0209	0.0507
20-50 ft	0.0081	0.0266	0.0574
≥ 50 ft (15.2 m)	0.0455	0.0555	0.081

Roughness Coefficients- Unveg.	
Flow Depth	Manning's n
≤ 0.50 ft (0.15 m)	0.040
0.50 – 2.0 ft	0.040 – 0.012
≥ 2.0 ft (0.60 m)	0.011

Product Participant of: QDOR

Updated 3/09



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HOMESTEAD AT STERLING RANCH FILING NO. 2
SAND CREEK BANK STABILIZATION PLANS

PROJECT NO. 09-007 | DESIGNED BY: VAS | DRAWN BY: ELY | CHECKED BY: VAS
SCALE: HORIZONTAL: N/A VERTICAL: N/A
DATE: 01/15/2020
SHEET 5 OF 6
GR05

102 E. PIKES PEAK AVE. 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE 719.955.5485
CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.
VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160

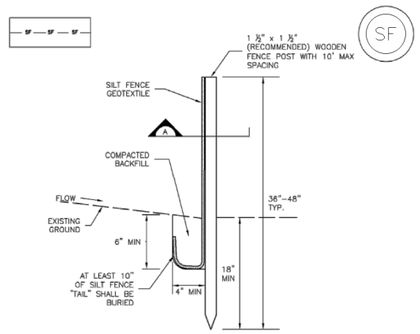
REVISIONS:

NO.	DATE:	BY:	DESCRIPTION:	APPR'D. BY:	DATE:

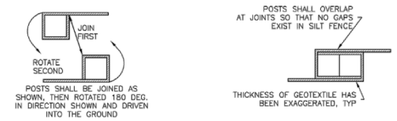
CAUTION

File: O:\09002A\Sterling Ranch District\Engr\Const Dwg\Grading & Erosion Control\Bank Stabilization\Homestead 2 bank plans\GR05.dwg Plotstamp: 1/16/2020 10:46 AM

Silt Fence (SF) SC-1



SILT FENCE



SECTION A

SF–1, SILT FENCE

SM

MULCHING NOTES

INSTALLATION REQUIREMENTS

1. ALL DISTURBED AREAS MUST BE MULCHED WITHIN 21 DAYS AFTER FINAL GRADE AND SEEDED AREAS ARE TO BE MULCHED WITHIN 24 HOURS AFTER SEEDING.

2. MATERIAL USED FOR MULCH CAN BE CERTIFIED CLEAN, WEED- AND SEED-FREE LONG STEMMED FIELD OR MARSH HAY, OR STRAW OF OATS, BARLEY, WHEAT, RYE, OR TRITICALE CERTIFIED BY THE COLORADO DEPARTMENT OF AGRICULTURE WEED FREE FORAGE CERTIFICATION PROGRAM.

3. HYDRAULIC MULCHING MATERIAL SHALL CONSIST OF VIRGIN WOOD FIBER MANUFACTURED FROM CLEAN WHOLE WOOD CHIPS. WOOD CHIPS CANNOT CONTAIN ANY GROWTH OR GERMINATION INHIBITORS OR BE PRODUCED FROM RECYCLED MATERIAL. GRAVEL CAN ALSO BE USED.

4. MULCH IS TO BE APPLIED EVENLY AT A RATE OF 2 TONS PER ACRE.

5. MULCH IS TO BE ANCHORED EITHER BY CRIMPING (TUCKING MULCH FIBERS 4 INCHES INTO THE SOIL), USING NETTING (USED ON SMALL AREAS WITH STEEP SLOPES), OR WITH A TACKIFIER.

6. HYDRAULIC MULCHING AND TACKIFIERS ARE NOT TO BE USED IN THE PRESENCE OF FREE SURFACE WATER.

MAINTENANCE REQUIREMENTS

1. REGULAR INSPECTIONS ARE TO BE MADE OF ALL MULCHED AREAS.

2. MULCH IS TO BE REPLACED IMMEDIATELY IN THOSE AREAS IT HAS BEEN REMOVED, AND IF NECESSARY THE AREA SHOULD BE RESEEDED.

City of Colorado Springs Stormwater Quality	Figure MU-1 Mulching Construction Detail and Maintenance Requirements

SM

RECOMMENDED ANNUAL GRASSES

SPECIES (COMMON NAME)	GROWTH SEASON	SEEDING DATE	POUNDS OF PURE LIVE SEED (PLS) (PLS/ACRE)	PLANTING DEPTH (INCHES)
1. OATS	COOL	MARCH 16 - APRIL 30	35-50	1-2
2. SPRING WHEAT	COOL	MARCH 16 - APRIL 30	25-35	1-2
3. SPRING BARLEY	COOL	MARCH 16 - APRIL 30	25-35	1-2
4. ANNUAL RYEGRASS	COOL	MARCH 16 - JUNE 30	10-15	1/2
5. MILLET	WARM	MAY 16 - JULY 15	3-15	1/2-3/4
6. SUDANGRASS	WARM	MAY 16 - JULY 15	5-10	1/2-3/4
7. SORGHUM	WARM	MAY 16 - JULY 15	5-10	1/2-3/4
8. WINTER WHEAT	COOL	SEPTEMBER 1 - 30	20-35	1-2
9. WINTER BARLEY	COOL	SEPTEMBER 1 - 30	20-35	1-2
10. WINTER RYE	COOL	SEPTEMBER 1 - 30	20-35	1-2
11. TRITICALE	COOL	SEPTEMBER 1 - 30	25-40	1-2

THIS TABLE WAS TAKEN FROM UDFCD FOR RECOMMENDED ANNUAL GRASSES FOR THE DENVER METROPOLITAN AREA. THIS TABLE MAY BE USED UNLESS A SITE-SPECIFIC SEED MIX IS REQUESTED AND APPROVED.

GROUND SEED MIX

TABLE TS-1

TEMPORARY SEEDING NOTES

INSTALLATION REQUIREMENTS

1. DISTURBED AREAS ARE TO BE SEEDED WITHIN 21 DAYS AFTER CONSTRUCTION ACTIVITY OR GRADING ENDS IF SEASON ALLOWS.

2. IF NECESSARY, SOIL IS TO BE CONDITIONED FOR PLANT GROWTH BY APPLYING TOPSOIL, FERTILIZER, OR LIME.

3. SOIL IS TO BE TILLED IMMEDIATELY PRIOR TO APPLYING SEEDS. COMPACT SOILS ESPECIALLY NEED TO BE LOOSENED.

4. SEEDBED DEPTH IS TO BE 4 INCHES FOR SLOPES FLATTER THAN 2:1, AND 1 INCH FOR SLOPES STEEPER THAN 2:1.

5. ANNUAL GRASSES LISTED IN TABLE TS-1 ARE TO BE USED FOR TEMPORARY SEEDING. SEED MIXES ARE NOT TO CONTAIN ANY NUXIOUS WEED SEEDS INCLUDING RUSSIAN OR CANADIAN THISTLE, KNAPWEED, PURPLE LOOSESTRIFE, EUROPEAN BINDWEED, JOHNSON GRASS, AND LEAFY SPURGE.

6. TABLE TS-1 ALSO PROVIDES REQUIREMENTS FOR SEEDING RATES, SEEDING DATES, AND PLANTING DEPTHS FOR THE APPROVED TYPES OF ANNUAL GRASSES.

7. SEEDING IS TO BE APPLIED USING MECHANICAL TYPE DRILLS EXCEPT WHERE SLOPES ARE STEEP OR ACCESS IS LIMITED THEN HYDRAULIC SEEDING MAY BE USED.

8. ALL SEEDED AREAS ARE TO BE MULCHED (SEE FACTSHEET ON MULCHING).

9. IF HYDRAULIC SEEDING IS USED THEN HYDRAULIC MULCHING SHALL BE DONE SEPARATELY TO AVOID SEEDS BECOMING ENCAPSULATED IN THE MULCH.

MAINTENANCE REQUIREMENTS

1. REGULAR INSPECTIONS ARE TO BE MADE OF ALL SEEDED AREAS TO ENSURE GROWTH.

2. AREAS WHERE GROWTH IS NOT OCCURRING QUICKLY OR THE MULCH HAS BEEN REMOVED SHALL BE RE-SEEDED AS SOON AS POSSIBLE AND RE-MULCHED IF NEEDED.

3. SEEDED AREAS ARE NOT TO BE DRIVEN OVER WITH CONSTRUCTION EQUIPMENT OR VEHICLES.

City of Colorado Springs Stormwater Quality	Figure TS-1 Temporary Seeding Construction Detail and Maintenance Requirements

EROSION CONTROL CRITERIA:

EROSION CONTROL MEASURES SHALL BE IMPLEMENTED IN A MANNER THAT WILL PROTECT PROPERTIES AND PUBLIC FACILITIES FROM THE ADVERSE EFFECTS OF EROSION AND SEDIMENTATION AS A RESULT OF CONSTRUCTION AND EARTHWORK ACTIVITIES WITHIN THE PROJECT SITE.

1. PRIOR TO START OF GRADING OPERATIONS, LOCATE AND SET THE SILT FENCE AND VEHICLE TRACKING CONTROL AS SHOWN ON THE EROSION CONTROL PLAN.

2. THE SILT FENCE SHALL BE KEPT IN PLACE AND MAINTAINED UNTIL EROSION AND SEDIMENTATION POTENTIAL IS MITIGATED. REMOVAL OF SILT AND SEDIMENT COLLECTED BY THE SILT FENCES IS REQUIRED ONCE IT REACHES HALF THE HEIGHT OF THE SILT FENCES.

3. EROSION CONTROL DEVICES SHOULD BE CHECKED AFTER EVERY STORM OR NOT MORE THAN EVERY 14 DAYS. REPAIRS OR REPLACEMENT SHOULD BE MADE AS NECESSARY TO MAINTAIN PROPER PROTECTION.

SOIL EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN TWENTY-ONE (21) CALENDAR DAYS AFTER FINAL GRADING, OR FINAL EARTH DISTURBANCE HAS BEEN COMPLETED. DISTURBED AREAS AND STOCKPILES WHICH ARE NOT AT THE FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 30 DAYS SHALL ALSO BE MULCHED WITHIN 21 DAYS AFTER INTERIM GRADING. AN AREA THAT IS GOING TO REMAIN IN AN INTERIM STATE FOR MORE THAN 60 DAYS SHALL ALSO BE SEEDED. ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND BMP'S SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED.

SEEDING GUIDELINES:

SEEDBED PREPARATION

1. THE SEEDBED SHOULD BE WELL-SETTLED AND FIRM, BUT FRIABLE ENOUGH THAT THE SEED CAN BE PLACED AT THE SPECIFIED DEPTHS. COMPETITIVE STANDS OF WEEDS THAT ARE PRESENT BEFORE SEEDING MUST BE CONTROLLED BY SHALLOW TILLAGE OR BY APPLICATION OF HERBICIDES. SOILS THAT HAVE BEEN OVER-COMPACTED BY TRAFFIC OR EQUIPMENT, ESPECIALLY WHEN WET, SHOULD BE TILLED TO BREAK UP ROOTING-RESTRICTIVE LAYERS, THAN HARROWED, ROLLED, OR PACKED TO PREPARE THE REQUIRED FIRM SEEDBED.

FERTILIZER

2. FERTILIZER SHOULD BE APPLIED AT A RATE OF 50 POUNDS OF AVAILABLE NITROGEN PER ACRE AND 40 POUNDS OF AVAILABLE PHOSPATE PER ACRE. THE TIMING OF APPLICATION SHOULD BE IMMEDIATELY PRIOR TO SEEDING, AT THE TIME OF SEEDING, OR IMMEDIATELY FOLLOWING SEEDING, DEPENDING ON THE KIND OF FERTILIZER AND TYPE OF EQUIPMENT USED.

SEEDING

3. SEED SHOULD BE PLANTED WITH A GRASS DRILL ON ALL SLOPES OF 33% (3:1) OR FLATTER. SEED MAY BE BROADCAST BY HAND, BY MECHANICAL SPREADER, OR BY HYDRAULIC EQUIPMENT ON AREAS THAT ARE SMALL, TOO STEEP, OR NOT ACCESSIBLE FOR SEED DRILL OPERATIONS. SEED PLANTED WITH A DRILL SHOULD BE COVERED WITH SOIL TO A DEPTH OF 1/4 TO 3/4 INCH. SEED PLANTED BY THE BROADCAST METHOD SHALL BE INCORPORATED INTO THE SOIL SURFACE, NOT TO EXCEED A DEPTH OF 3/4 INCH, BY RAKING, HARROWING, OR OTHER PROVEN METHOD.

THE TIMING OF SEEDING IS FROM OCTOBER 15TH – MAY 31ST. SEED PLANTED IN THE LATE FALL WILL REMAIN DORMANT UNTIL SPRING, WHEN IT WILL GERMINATE.

MULCHING

4. SEEDED AREAS SHOULD BE MULCHED TO CONSERVE MOISTURE; PREVENT SURFACE COMPACTION OR CRUSTING; REDUCE RUNOFF AND EROSION; CONTROL INSECTS; AND HELP ESTABLISH PLANT COVER.

NATIVE HAY OR STRAW SHOULD BE APPLIED AT A RATE OF 4,000 POUNDS PER ACRE AND CRIMPED INTO THE GROUND. ON SLOPES GREATER THAN 3:1, AN AGRONOMY BLANKET SHOULD BE USED.

SUPPLEMENTAL WATER

5. IN LOW RAINFALL AREAS, WHERE WATER IS AVAILABLE AND WHERE RAPID ESTABLISHMENT IS NEEDED, IRRIGATION OF NEW SEEDING SHOULD BE PERFORMED DURING THE FIRST GROWING SEASON. WATER SHOULD BE APPLIED AT APPROXIMATELY ONE WEEK INTERVALS, AT A RATE OF 3/4 TO 1 INCH PER APPLICATION, WHEN RAINFALL IS DEFICIENT FOR PLANT DEVELOPMENT.

EROSION PROTECTION & REVEGETATION REQUIREMENTS "PER U.S.D.A. SOIL CONSERVATION SERVICE GUIDELINES"

1. PRACTICE NO. & NAME _____ 342 – CRITICAL AREA TREATMENT
   RANGE SITE _____ SANDY FOOTHILLS
2. PLANNED:

SEEDED PREP:
A METHOD _____
B DATES _____ OCT 15 – MAY 31
C CLEAN TILLED _____ XX
FIRM SEEDBED _____ XX
STUBBLE COVER _____
INTERSEED _____
OTHER _____

SEEDING OPERATION:
A METHOD:
DRILL _____ XX
INTERSEED _____
BROADCAST _____
B DRILL SPACING _____ 6–12"
TYPE _____ GRASS W/AGITATOR
C DATE _____ OCT 15 – MAY 31
D PLANTING DEPTH ___1/4 – 1/2"

FERTILIZER:
POUNDS ACTUAL PER ACRE N2 _____
(AVAILABLE) P205 _____
K _____

WEED CONTROL: N/A
MOWING _____
CHEMICAL _____
DATES _____
SEE S.C.S. FOR SPECIFIC RECOMMENDATIONS AT HERBICIDE APPLICATION TIME.

MULCH:
KIND _____ LONG – STEM NATIVE HAY
AMOUNT _____ 4,000 POUNDS/ACRE
HOW APPLIED _____ N/A
HOW ANCHORED _____ CRIMPED
ANCHORAGE DEPTH _____ 4"

SEED:

VARIETY	SPECIES	REQUIRED PLS RATES PER ACRES (100%)
GOSHEN	PRAIRIE SANDREED	6.5
VAUGHN	SIDEOATS GRAMMA	9.0
LOVINGTON	BLUE GRAMMA	3.0
BLACKWELL	SWITCH GRASS	4.5
PASTURA	LITTLE BLUESTEM	7.0

(2) % OF SPECIES IN MIXTURE	PLS SEEDING RATE PER SPECIES/ACRE (1) X (2)	(4) PLANNED ACRE	(5) TOTAL PLS LBS/ (3) X (4)
15	0.98	28.8	28.2
25	2.25	28.8	64.8
15	0.45	28.8	13.0
20	0.90	28.8	25.9
25	1.75	28.8	50.4

NOTE
SEE URBAN DRAINAGE CRITERIA MANUAL (VOL 3) FOR INSTALLATION AND MAINTENANCE (TYP)

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HOMESTEAD AT STERLING RANCH FILING NO. 2
SAND CREEK BANK STABILIZATION PLANS
PROJECT NO. 09-007 | DESIGNED BY: VAS | DRAWN BY: ELY | CHECKED BY: VAS
SCALE: HORIZONTAL: N/A VERTICAL: N/A
DATE: 01/15/2020
SHEET 6 OF 6
GR06

102 E. PIKES PEAK AVE. 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485
CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.
VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160

REVISIONS: NO. | DATE: | BY: | DESCRIPTION: | APRV'D. BY: | DATE:

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE OR LIABLE FOR UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

CAUTION

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