



TANEY ENGINEERING

**ADDENDUM #3 TO THE
TECHNICAL DRAINAGE STUDY
FOR
Peaceful Ridge
Residential Development**

**CLARK COUNTY
NEVADA**

September 2013

Prepared by:

Taney Engineering
6030 S. Jones, Suite #100
Las Vegas, Nevada 89118
Telephone: (702) 362-8844
Fax: (702) 362-5233

Prepared for:

THM Enterprises, LLC
10655 Park Run Dr., Ste. 230
Las Vegas, NV 89144
Telephone: (702) 257-1188
Fax: (702) 257-1672

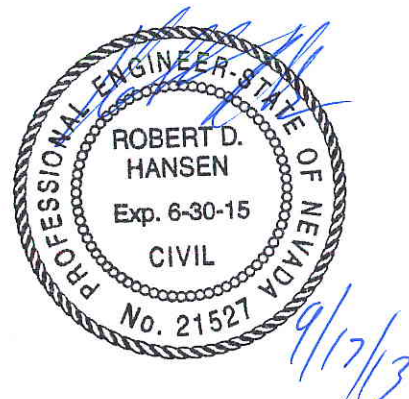


TANEY ENGINEERING

**ADDENDUM #3 TO THE
TECHNICAL DRAINAGE STUDY
FOR
Peaceful Ridge
Residential Development**

**CLARK COUNTY
NEVADA**

September 2013



Prepared by:

Taney Engineering
6030 S. Jones, Suite #100
Las Vegas, Nevada 89118
Telephone: (702) 362-8844
Fax: (702) 362-5233

Prepared for:

THM Enterprises, LLC
10655 Park Run Dr., Ste. 230
Las Vegas, NV 89144
Telephone: (702) 257-1188
Fax: (702) 257-1672

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL
DRAINAGE STUDY INFORMATION FORM

Name of Development: Peaceful Ridge Residential Development Date: Sep 16, 2013

Location of Development: a) Descriptive (Cross Streets) North/South: Kersee St
East/West: Stange Ave

b) Section: 1 Township: 20S Range: 59E

c) APN : 137-01-101-001, 009, 010, 011; 137-01-201-001, 002, 003, 011, 012;
137-01-301-001 and 002

Name of Owner: THM Enterprises, LLC

Telephone No.: 702-257-1188 Fax No.: 702-257-1672 E-Mail Address: Brad Boe (brad@TouchstoneLiving.com)

Address: 10655 Park Run Drive, #230, Las Vegas, NV 89144

Contact Person-Name: Rob Hansen, P.E. Telephone No.: (702) 362-8844

* E-Mail Address: robh@taneycorp.com Fax No.: (702) 362-5233

Firm: Taney Engineering

Address: 6030 S. Jones, Suite 100, Las Vegas NV. 89118

Type of Land Development/Land Disturbance Process:

☐	Rezoning	☒	Subdivision Map	☐	Clearing and Grading Only
☐	Parcel Map	☐	Planned Unit Development	☐	Other (Please specify below)
☐	Large Parcel Map	☐	Building Permit		

1. Total Owned Land Area: At Site: 55+/- acres Being Developed/Disturbed: 55+/- acres

2. Is a portion or all of the subject property located in a designated FEMA Flood Hazard Area? ☐ Yes** ☒ No

3. Is the property bordered or crossed by an existing or proposed Clark County Regional Flood Control District Master Planned Facility? ☒ Yes** ☐ No

4. Proposed type of development (Residential, Commercial, Etc.): Residential

5. Approximate upstream land area which drains to the subject site: 217+/- acres

6. Has the site drainage been evaluated in the past? ☐ YES ☒ NO If yes, please identify documentation: _____

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: The site will discharge to the east at multiple existing locations; matching historic drainage patterns.

8. Briefly describe your proposed schedule for the subject project: A.S.A.P



Engineer's Seal

Submit this form as part of the required drainage study to the local entity which has jurisdiction over the subject property. This form may provide sufficient information to serve as the Conceptual Drainage Study.

***New Required Field**

****Review and concurrence of the Clark County Regional Flood Control District is required.**

Local Entity File No.	Revision	Date

REFERENCE:

STANDARD FORM 1



TANEY ENGINEERING

6030 SOUTH JONES BLVD, SUITE 100

LAS VEGAS, NV 89118

TELEPHONE: 702-362-8844

Fax: 702-362-5233

September 17, 2013
Job No. AST-12-002

Albert Sung, P.E.
Flood Control
City of Las Vegas Public Works
333 N. Rancho Drive
Las Vegas, NV 89106

**Subject: Addendum #3 to the Technical Drainage Study Update for Peaceful Ridge
Residential Development
DS4600**

Dear Mr. Sung:

Taney Engineering is pleased to provide one (1) hard copy and (1) digital copy of Addendum #3 to the Technical Drainage Study for **Peaceful Ridge Residential Development**. This addendum includes a response to each comment from City of Las Vegas review memorandum dated August 29, 2013. This letter also addresses minor changes made to the plans.

The majority of the WSPG models have been updated to account for additional sediment load expected to be conveyed through the storm drain systems. During preliminary discussions with Clark County Public Works it was indicated the storm drain design must account for sediment loads. A Manning's roughness coefficient of 0.015 was used to account for sediment. This increase has caused a few pipe size changes. The storm drain between SDMH 204.3 and SDDI 204 between lots 35 and 36 has been increased to a 24" RCP. The 300 series storm drain mainline along Black Glacier Ridge and between lots 27 and 28 (SDMH 305 to SDMH 309) has been increased to a 54" RCP. A small section of pipe between SDMH 305 and SDMH 305.2 has been increased to a 42" RCP. These increases in pipe sizes were required to ensure the HGL remains a minimum of 1' below the finished grade. The only place this criteria is not met is slightly upstream of the proposed bubble (SDDI 302); which is to be expected due the restriction by the downstream pipe. The revised HGLs have been provided on all the profiles. The 400 and 500 series WSPG calculations were not modified as significant sediment is not expected to impact these systems since they do not capture runoff from undeveloped areas.



The comments been reproduced and addressed as follows:

Comment 1: The project proposes to build drainage facilities west of the subject development. Prior to final plan approval the developer must complete a maintenance and liability agreement for the proposed drainage improvements and post a minimum maintenance bond of \$25,000 or 25-percent of the construction cost for the improvements, whichever is greater. The engineer must submit an estimate of the quantities for constructing the facilities and an exhibit that adequately shows the location and limits of the drainage facilities to Flood Control for approval. Once the drainage study is conditionally approved, the engineer should contact the City's Land Development Section (229-6371) to begin the agreement process.

In order for the maintenance bond to be released in the future, a drainage update/letter will be required to justify that the offsite facilities are no longer necessary and can be removed.

Noted. Coordination with Land Development will begin after conditional drainage study approval. The drainage improvements west of the site will be permanent it is not expected they will ever be removed. The developer will maintain the drainage improvements until the site is significantly developed at which time the HOA will take over maintenance responsibilities.

Comment 2: Repeat condition: The project proposes a 30'-Trail corridor along the Pull alignment within the Bureau of Land Management (BLM) jurisdiction adjacent to the west of the subject development. Offsite gradings, flood control facilities and a varied width of public drainage easements are also proposed within the BLM land. Obtain permission from BLM prior to the final approval of the subject drainage study.

Noted. Permission from BLM for offsite grading shall be obtained before development. As discussed in meetings with CLV staff the BLM Permit is currently being processed.

Comment 3: Repeat condition: The site is adjacent to or crosses an existing or proposed Clark County Regional Flood Control District (CCRFCF) master planned facility. Therefore, CCRFCF concurrence is required prior to final approval of the drainage study.

Noted. Copies of this drainage study along with all addendums shall be submitted to CCRFCF for approval.

Comment 4: Repeat condition: The site is also adjacent to the jurisdiction of the County of Clark to the west. Obtain concurrence from the Clark County Public Works Department (CCPW) prior to the final approval of the drainage study.

Noted. Copies of this drainage study along with all addendums shall be submitted to CCPW for approval.



The following comments pertain to the Phase I Plans:

Comment 5: The last submittal presented Phase I Improvements with only a pump house and immediate interior roadway surrounding it. For the integrity and safety of the whole project, Phase I should address the overall flood protection of the project with construction of flood walls and drainage facilities along the western boundary and onsite drainage system. Address and provide pertinent plans for the flood protection infrastructure in the next submittal.

Phase 1 is only for the pump house and does not include any mass grading or overall construction for the project. The subject site natural elevations are too high to be served by an active LVVWD pressure zone. Therefore, the pump station must be constructed prior to the any significant construction for the project to ensure adequate water service can be provided.

Since the last submittal the pump station has been relocated to the opposite side of the street at the client's request. The storm drain facilities adjacent to the pump station will be constructed with the pump station. A 4' deep trapezoidal channel with a 15' bottom and 4:1 side slopes is proposed north of the pump station to provide temporary protection in the interim condition. Hydraulic cross section AR provides calculations for the temporary channel. Refer to Figure 15 for the interim Phase 1 drainage plan. The channel drains to Eagle Nest Peak which then drains to Stange Ave matching the existing drainage pattern. Rip rap is proposed at the transition between the channel and Eagle Nest Peak. The proposed pump house has been adequately protected from storm runoff in the interim condition. Phase 2 will construct the majority of the drainage infrastructure including the drainage facilities along the western boundary to protect the site prior to any homes being built.

Comment 6: Provide finished floor elevation of the pump house on the grading plan.

A finished floor elevation has been provided.

Comment 7: Show grading (contour lines) on both sides of Eagle Nest Peak Street to tie into the existing grades.

Scarping and daylight lines have been shown for the Eagle Nest Peak and the rest of Phase 1.



The following comments pertain to the Phase 2 Plans:

Comment 8: Per Detail Section O/GDI and P/GDI, there is no boundary wall /flood wall for protection along the west property line. Address how the site will be protected during interim condition

The western boundary wall will be constructing during Phase 2 of the project to provide

The plans have been revised. See Overall grading plans and Phase 2 grading plans.

Comment 9: Sheet G2 and Sheet G3: Provide a cross section at the east property line (at the scarp and the adjacent houses) to verify the design of a swale.

Please refer to sections M, N, Q, and U on sheet GD2 for the requested cross sections.

Comment 10: Sheet G4: A Detail Section T/GD1 is shown between the proposed houses and the existing houses. However, nowhere T/GD1 is found in the detail Sheet GD1. Provide T/GDI in the next submittal accordingly.

Section T/GD1 has been provided. This section is located along the eastern property line of lots 82 to 93.

Comment 11: Address when the proposed public drainage easements (privately maintained) are to be dedicated and recorded. Are they going to be dedicated per each Phase with a final map or they are to be dedicated all at once with an overall final map? Please clarify in the next submittal.

The drainage easements will be recorded with the phase that constructs the storm drain. A drainage easement will be dedicated with Phase 1 (pump station) for the storm drain proposed with Phase 1. The majority of the storm drain is proposed in Phase 2 of the project; therefore the majority of the drainage easements will be dedicated with Phase 2 of the project. Drainage easements have been shown on the Phase 2 plans. In areas where streets are not yet built a drainage easement is provided since the private streets will not be dedicated yet.

The following comments pertain to the Overall Development Plans:

Comment 12: Sheet 002: In Sections DDD, EEE, FFF and GGG, extend the coverage of shotcrete to the top of the “2:1 max.” slope for better protection of the underneath storm drain pipe. At the top of the slope, provide a 3’-cutoff wall to stabilize the shotcrete apron. Revise the details and all pertinent grading plans accordingly.

The shotcrete has been extended to the top of the slope and a cutoff wall has been added. No shotcrete is or was proposed for section FFF. The upstream area of section FFF is small and creates a peak flow of only 4cfs; therefore only riprap is proposed.



Comment 13: All drainage easements must be PUBLIC drainage easements to be privately maintained and common lots to be labeled on the grading plans and to be dedicated as such in the final map.

Noted. All drainage easements are public drainage easements to be privately maintained and common lots on the grading plans. A note is provided on all the grading sheets indicating all drainage easements are public drainage easements to be privately maintained. The final map will record the easements are requested.

Comment 14: The engineer must provide a table on the grading plans that shows a quantity estimate of all drainage improvements within Public Drainage Easements. All drainage improvements within Public Drainage Easements must be bonded and inspected.

The list of drainage quantities is rather large and would take up a significant amount of space on the grading plans. Therefore the quantity estimate has been provided on the Notes Sheet, C2. It is noted all drainage improvements within Public Drainage Easements must be bonded and inspected.

Comment 15: Private streets must be public drainage easements. Provide a note on the grading plans "Note: All private streets are P.U.E., Public Sewer Easements and Public Drainage Easements to be privately maintained by the HOA".

The requested note has been added to the grading plans.

Comment 16: Add a note in all pertinent sheets for the construction of all storm drain drop inlets per a newly adopted USDCCA Drawing No. 421 (Stormwater Quality Management Stamp and Sign Detail).

The requested note has been added to the plans as requested.

A copy of the City of Las Vegas Public Works comments has been provided directly following this letter. If you need any additional information, please do not hesitate to call our office.

Sincerely,

TANEY ENGINEERING

Rob Hansen, P.E.

CITY OF LAS VEGAS			DATE:
INTER-OFFICE MEMORANDUM			August 29, 2013
TO: Land Development Services Department of Public Works			FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for:		COPIES TO:
	Peaceful Ridge Residential Development		Taney Engineering
Cross Streets:	SEC of Puli Road & Lone Mountain Blvd.		THM Enterprises, LLC
File Number:	F:\Depot\DSMemos\DS4600C.doc		Bart Anderson, P.E., DevCo
Parcel Number:	137-01-101-001 & more		CCRFCD
Zoning Action:	TMP-48840; SDR-47610; VAR-47609; VAR-47607 & MOD-47606		CCPW
FEMA Flood Zone	YES	NO X	BLM
Proposed Storm Drain	YES X	NO	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	5/9/2013	5/23/2013	Not Approved	\$400.00	319303: \$400
2 nd Submittal	7/4/2013	7/18/2013	Not Approved	\$400.00	325317: \$400
3 rd Submittal	8/12/2013	8/29/2013	See Comments Below	\$400.00	329342: \$400
			TOTAL FEES (LDDRS):	\$1,200.00	----

REMARKS:

The Drainage Study for the subject project has been reviewed and:

	is approved subject to conformance to all City standards and the following conditions:
X	must be resubmitted or supplemented including the following:
	is conditionally approved subject to Clark County Regional Flood Control District concurrence.
	is conditionally approved subject to Clark County Public Works Department concurrence.

- The project proposes to build drainage facilities west of the subject development. Prior to final plan approval the developer must complete a maintenance and liability agreement for the proposed drainage improvements and post a minimum maintenance bond of \$25,000 or 25-percent of the construction cost for the improvements, whichever is greater. The engineer must submit an estimate of the quantities for constructing the facilities and an exhibit that adequately shows the location and limits of the drainage facilities to *Flood Control* for approval. Once the drainage study is conditionally approved, the engineer should contact the *City's Land Development Section (229-6371)* to begin the agreement process.

In order for the maintenance bond to be released in the future, a drainage update/letter will be required to justify that the offsite facilities are no longer necessary and can be removed.

- Repeat condition:** The project proposes a 30'-Trail corridor along the *Puli* alignment within the *Bureau of Land Management (BLM)* jurisdiction adjacent to the west of the subject development. Offsite gradings, flood control facilities and a varied width of public drainage easements are also proposed within the BLM land. Obtain permission from BLM prior to the final approval of the subject drainage study.

3. **Repeat condition:** The site is adjacent to or crosses an existing or proposed *Clark County Regional Flood Control District (CCRFCD)* master planned facility. Therefore, CCRFCD concurrence is required prior to final approval of the drainage study.
4. **Repeat condition:** The site is also adjacent to the jurisdiction of the *County of Clark* to the west. Obtain concurrence from the *Clark County Public Works Department (CCPW)* prior to the final approval of the drainage study.

The following comments pertain to the Phase 1 Plans:

5. The last submittal presented *Phase 1 Improvements* with only a pump house and immediate interior roadway surrounding it. For the integrity and safety of the whole project, *Phase 1* should address the overall flood protection of the project with construction of flood walls and drainage facilities along the western boundary and onsite drainage system. Address and provide pertinent plans for the flood protection infrastructure in the next submittal.
6. Provide finished floor elevation of the pump house on the grading plan.
7. Show grading (contour lines) on both sides of *Eagle Nest Peak Street* to tie into the existing grades.

The following comments pertain to the Phase 2 Plans:

8. Per **Detail Section O/GD1** and **P/GD1**, there is no boundary wall / flood wall for protection along the west property line. Address how the site will be protected during interim condition.
9. **Sheet G2 and Sheet G3:** Provide a cross section at the east property line (at the scarp and the adjacent houses) to verify the design of a swale.
10. **Sheet G4:** A **Detail Section T/GD1** is shown between the proposed houses and the existing houses. However, nowhere **T/GD1** is found in the detail **Sheet GD1**. Provide **T/GD1** in the next submittal accordingly.
11. Address when the proposed public drainage easements (privately maintained) are to be dedicated and recorded. Are they going to be dedicated per each Phase with a final map or they are to be dedicated all at once with an overall final map? Please clarify in the next submittal.

The following comments pertain to the Overall Development Plans:

12. **Sheet GD2:** In **Sections DDD, EEE, FFF and GGG**, extend the coverage of shotcrete to the top of the "2:1 max." slope for better protection of the underneath storm drain pipe. At the top of the slope, provide a 3'-cutoff wall to stabilize the shotcrete apron. Revise the details and all pertinent grading plans accordingly.

The following comments are repeated until they are complete:

13. All drainage easements must be **PUBLIC** drainage easements to be privately maintained and common lots to be labeled on the grading plans and to be dedicated as such in the final map.
14. The engineer must provide a table on the grading plans that shows a quantity estimate of all drainage improvements within Public Drainage Easements. All drainage improvements within Public Drainage Easements must be bonded and inspected.

15. Private streets must be public drainage easements. Provide a note on the grading plans "Note: All private streets are P.U.E., Public Sewer Easements and Public Drainage Easements to be privately maintained by the HOA".
16. Add a note in all pertinent sheets for the construction of all storm drain drop inlets per a newly adopted USDCCA Drawing No. 421 (*Stormwater Quality Management Stamp and Sign Detail*).

NOTE: Please be advised that all land surface area disturbances over 1 acre or any area adjacent to a water way must submit to the *Nevada Division of Environmental Protection* a "Notice of Intent" to discharge that certifies a stormwater pollution prevention plan has been developed and is maintained on site; for inclusion in the Stormwater General Permit No. NVR100000. A phased construction unit in a contiguous subdivision is considered under construction until all stripped or disturbed surface areas have been covered by paving, building construction or planting. For more information, including forms and applications see <http://ndep.nv.gov/bwpc/storm01.htm> or call (775) 687-9429.

END OF REMARKS

ays

T/R/S: T20S/R59E/01
AREA K-01



APPENDICES

APPENDIX A

Pump House Drainage Map
and Calculations

APPENDIX B

Updated WSPG Calculations

APPENDIX C

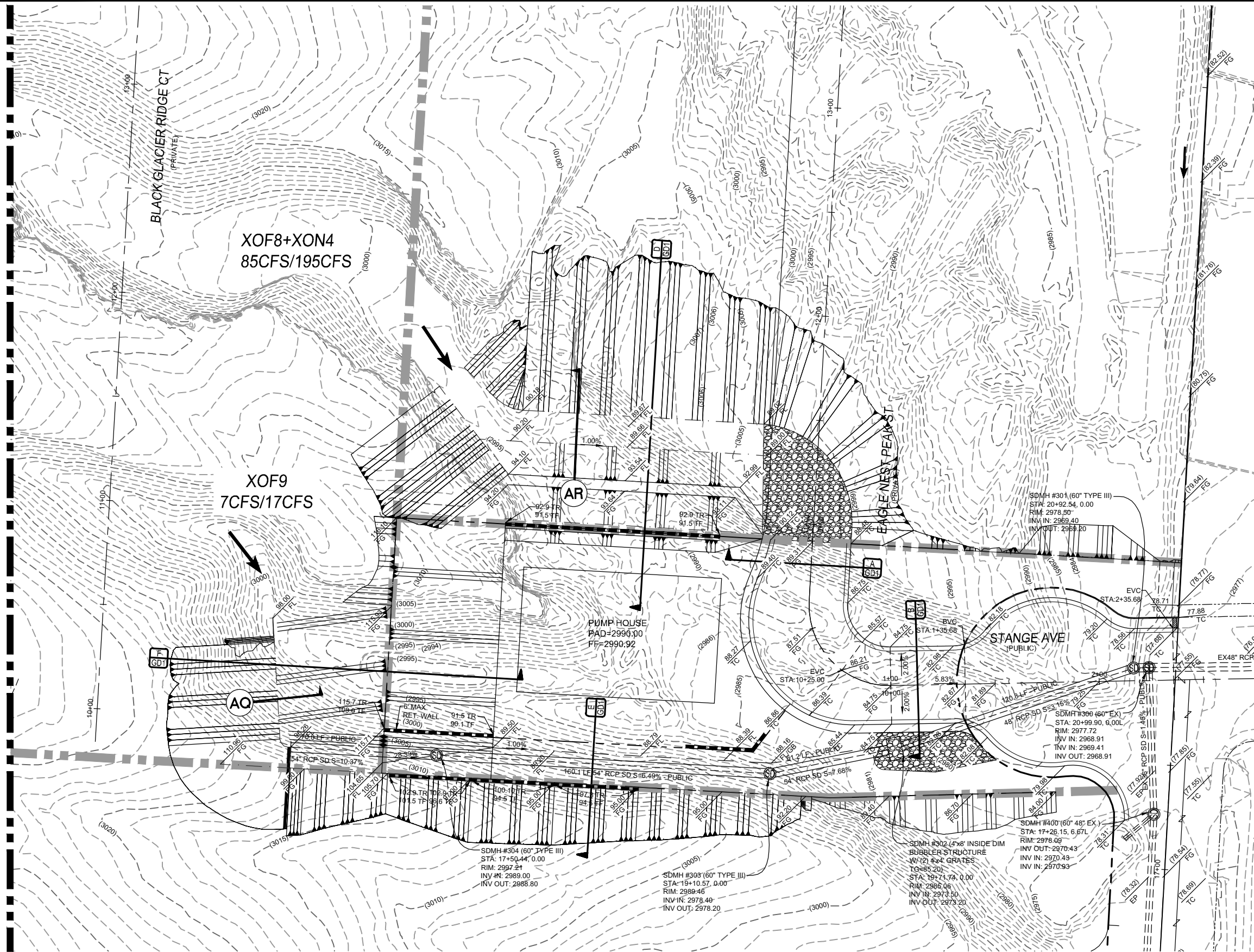
Improvement Plans



APPENDIX A

Pump House Drainage Map and Calculations

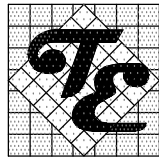
REFER TO FIGURE 6 FOR OFFSITE BASIN BOUNDARIES AND FLOW RATES



(IN FEET)
1 inch = 50 ft.

Cross Section	Description	Q (cfs)	Depth (ft)	Velocity (ft/s)	DxV
AQ	XOF9	17	1.17	6.22	7.28
AR	XOF8+XON4	195	1.49	6.42	9.57

DRAINAGE LEGEND	
XOF1	BASIN IDENTIFICATION
—	BASIN BOUNDARY
● C1	CONCENTRATION POINT
→	FLOW PATH
(A)	CROSS SECTION
XX/XXX	10-YR/100-YR FLOW (CFS)
(XX/XXX)	REFERENCE FLOW (CFS)



TANEY ENGINEERING
6030 S. JONES BLVD STE#100
LAS VEGAS, NV 89118
(702) 362-8844 FAX: (702) 362-5233

FIGURE 15
PHASE 1 INTERIM DRAINAGE
PEACEFUL RIDGE

Worksheet for AQ

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.025	
Channel Slope	2.60000	%
Left Side Slope	2.00	ft/ft (H:V)
Right Side Slope	2.00	ft/ft (H:V)
Discharge	17.00	ft ³ /s

Results

Normal Depth	1.17	ft
Flow Area	2.73	ft ²
Wetted Perimeter	5.23	ft
Hydraulic Radius	0.52	ft
Top Width	4.68	ft
Critical Depth	1.35	ft
Critical Slope	0.01205	ft/ft
Velocity	6.22	ft/s
Velocity Head	0.60	ft
Specific Energy	1.77	ft
Froude Number	1.43	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.17	ft
Critical Depth	1.35	ft
Channel Slope	2.60000	%
Critical Slope	0.01205	ft/ft

Cross Section for AQ

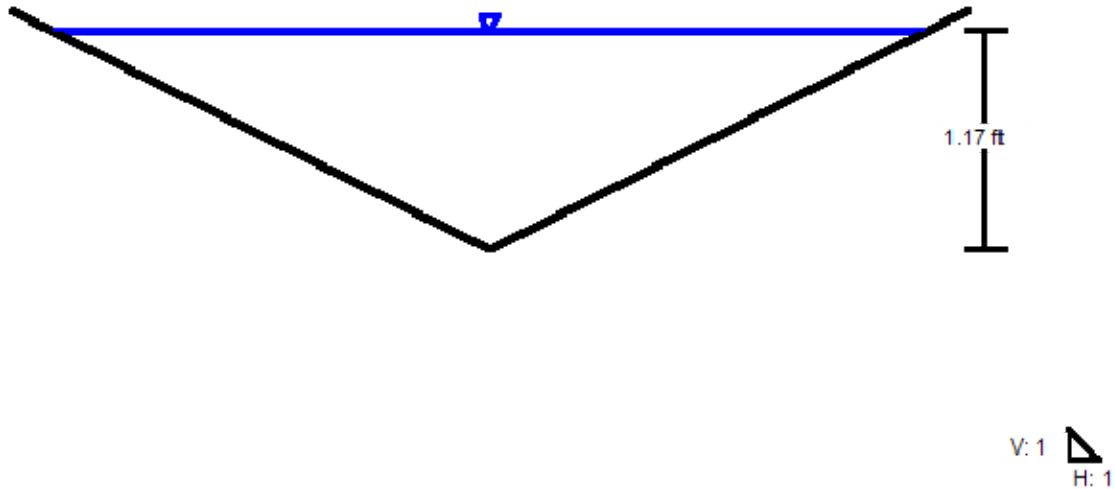
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.025
Channel Slope	2.60000 %
Normal Depth	1.17 ft
Left Side Slope	2.00 ft/ft (H:V)
Right Side Slope	2.00 ft/ft (H:V)
Discharge	17.00 ft ³ /s

Cross Section Image



Worksheet for AR

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.025	
Channel Slope	1.00000	%
Left Side Slope	4.00	ft/ft (H:V)
Right Side Slope	4.00	ft/ft (H:V)
Bottom Width	15.00	ft
Discharge	195.00	ft ³ /s

Results

Normal Depth	1.46	ft
Flow Area	30.36	ft ²
Wetted Perimeter	27.02	ft
Hydraulic Radius	1.12	ft
Top Width	26.66	ft
Critical Depth	1.51	ft
Critical Slope	0.00879	ft/ft
Velocity	6.42	ft/s
Velocity Head	0.64	ft
Specific Energy	2.10	ft
Froude Number	1.06	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.46	ft
Critical Depth	1.51	ft
Channel Slope	1.00000	%

Worksheet for AR

GVF Output Data

Critical Slope 0.00879 ft/ft

Cross Section for AR

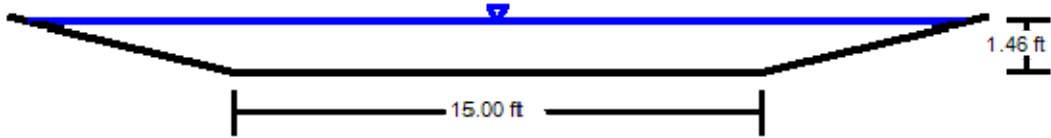
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.025
Channel Slope	1.00000 %
Normal Depth	1.46 ft
Left Side Slope	4.00 ft/ft (H:V)
Right Side Slope	4.00 ft/ft (H:V)
Bottom Width	15.00 ft
Discharge	195.00 ft ³ /s

Cross Section Image



V: 1
H: 1



APPENDIX B

Updated WSPG Calculations

0

Q	122.000	.0
---	---------	----

PEACEFUL RIDGE
AST-12-002
100 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-1405.600	2999.200	6.300	3005.500	134.00	13.93	3.01	3008.51	.00	3.33	.00	3.500	.000	.00	1 .0
37.980	.0237					.0236	.90	6.30	.00	2.86	.015	.00	.00	PIPE
-1367.620	3000.100	6.297	3006.397	134.00	13.93	3.01	3009.41	.00	3.33	.00	3.500	.000	.00	1 .0
.100	2.0000					.0236	.00	.00	.00	.78	.015	.00	.00	PIPE
-1367.520	3000.300	6.440	3006.740	134.00	13.93	3.01	3009.75	.00	3.33	.00	3.500	.000	.00	1 .0
103.110	.0233					.0236	2.44	6.44	.00	2.89	.015	.00	.00	PIPE
-1264.410	3002.700	6.476	3009.176	134.00	13.93	3.01	3012.19	.00	3.33	.00	3.500	.000	.00	1 .0
JUNCT STR	2.0000					.0216	.00	.00	.00		.015	.00	.00	PIPE
-1264.310	3002.900	7.123	3010.022	122.00	12.68	2.50	3012.52	.00	3.26	.00	3.500	.000	.00	1 .0
55.710	.0233					.0196	1.09	7.12	.00	2.64	.015	.00	.00	PIPE
-1208.600	3004.200	6.913	3011.113	122.00	12.68	2.50	3013.61	.00	3.26	.00	3.500	.000	.00	1 .0
.100	2.0000					.0196	.00	.00	.00	.74	.015	.00	.00	PIPE
-1208.500	3004.400	7.057	3011.457	122.00	12.68	2.50	3013.95	.00	3.26	.00	3.500	.000	.00	1 .0
27.522	.0648					.0196	.54	7.06	.00	1.85	.015	.00	.00	PIPE
-1180.978	3006.182	5.812	3011.995	122.00	12.68	2.50	3014.49	.00	3.26	.00	3.500	.000	.00	1 .0
HYDRAULIC JUMP														
-1180.978	3006.182	1.977	3008.159	122.00	21.78	7.36	3015.52	.00	3.26	3.47	3.500	.000	.00	1 .0
21.725	.0648					.0509	1.11	1.98	3.02	1.85	.015	.00	.00	PIPE

PEACEFUL RIDGE
AST-12-002
100 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/or I.D.	ZL	No Wth Prs/Pip

SD-100.OUT														
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-1159.253	3007.589	2.013	3009.602	122.00	21.30	7.04	3016.65	.00	3.26	3.46	3.500	.000	.00	1 .0
30.817	.0648	-	-	-	-	.0466	1.44	2.01	2.92	1.85	.015	.00	.00	PIPE
-1128.437	3009.584	2.094	3011.678	122.00	20.31	6.40	3018.08	.00	3.26	3.43	3.500	.000	.00	1 .0
21.109	.0648	-	-	-	-	.0412	.87	2.09	2.70	1.85	.015	.00	.00	PIPE
-1107.327	3010.951	2.180	3013.131	122.00	19.36	5.82	3018.95	.00	3.26	3.39	3.500	.000	.00	1 .0
15.533	.0648	-	-	-	-	.0366	.57	2.18	2.50	1.85	.015	.00	.00	PIPE
-1091.794	3011.957	2.271	3014.228	122.00	18.46	5.29	3019.52	.00	3.26	3.34	3.500	.000	.00	1 .0
11.883	.0648	-	-	-	-	.0325	.39	2.27	2.31	1.85	.015	.00	.00	PIPE
-1079.912	3012.727	2.369	3015.095	122.00	17.60	4.81	3019.91	.00	3.26	3.27	3.500	.000	.00	1 .0
9.281	.0648	-	-	-	-	.0289	.27	2.37	2.13	1.85	.015	.00	.00	PIPE
-1070.631	3013.327	2.474	3015.801	122.00	16.78	4.37	3020.18	.00	3.26	3.19	3.500	.000	.00	1 .0
7.301	.0648	-	-	-	-	.0258	.19	2.47	1.96	1.85	.015	.00	.00	PIPE
-1063.330	3013.800	2.587	3016.387	122.00	16.00	3.98	3020.36	3.50	3.26	3.07	3.500	.000	.00	1 .0
.100	2.0000	-	-	-	-	.0233	.00	3.50	1.79	.74	.015	.00	.00	PIPE
-1063.230	3014.000	2.687	3016.687	122.00	13.59	2.87	3019.56	.00	3.32	3.76	4.000	.000	.00	1 .0
13.200	.0211	-	-	-	-	.0148	.20	2.69	1.55	2.41	.015	.00	.00	PIPE
-1050.030	3014.279	2.751	3017.030	122.00	13.24	2.72	3019.75	.00	3.32	3.71	4.000	.000	.00	1 .0
16.515	.0211	-	-	-	-	.0136	.22	2.75	1.48	2.41	.015	.00	.00	PIPE

♀ FILE: SD-100.WSW

W S P G W - CIVILDESIGN Version 14.06

Program Package Serial Number: 7042

WATER SURFACE PROFILE LISTING

Date: 9-11-2013 Time: 8:40:14

PEACEFUL RIDGE

AST-12-002

100 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope													
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-1033.515	3014.627	2.874	3017.501	122.00	12.62	2.47	3019.98	.00	3.32	3.60	4.000	.000	.00	1 .0
10.187	.0211	-	-	-	-	.0121	.12	2.87	1.36	2.41	.015	.00	.00	PIPE
-1023.328	3014.843	3.008	3017.850	122.00	12.04	2.25	3020.10	.00	3.32	3.46	4.000	.000	.00	1 .0
5.626	.0211	-	-	-	-	.0109	.06	3.01	1.24	2.41	.015	.00	.00	PIPE

SD-100.OUT

-1017.703	3014.961	3.155	3018.116	122.00	11.48	2.04	3020.16	.00	3.32	3.27	4.000	.000	.00	1	.0
1.833	.0211					.0099	.02	3.15	1.12	2.41	.015	.00	.00	PIPE	
-1015.870	3015.000	3.321	3018.321	122.00	10.94	1.86	3020.18	.00	3.32	3.00	4.000	.000	.00	1	.0

♀

SD-150.WSW

0

T1 PEACEFUL RIDGE

T2 AST-12-002

T3 150 SERIES SD

SO -1413.5503006.500 1 3007.620

R -1218.1703009.300 1 .015 .000 .000 1

R -1119.7903011.900 1 .015 .000 -7.000 1

R -1034.5603013.500 1 .015 .000 5.000 1

SH -1034.5603013.500 1 3018.500

CD 1 4 1 .000 2.500 .000 .000 .000 .00 .00

Q 45.000 .0

PEACEFUL RIDGE
 AST-12-002
 150 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-1413.550	3006.500	2.212	3008.712	45.00	9.79	1.49	3010.20	.00	2.23	1.60	2.500	.000	.00	1 .0
46.655	.0143					.0143	.67	2.21	1.02	2.21	.015	.00	.00	PIPE
-1366.896	3007.168	2.212	3009.381	45.00	9.79	1.49	3010.87	.00	2.23	1.60	2.500	.000	.00	1 .0
31.156	.0143					.0146	.46	2.21	1.02	2.21	.015	.00	.00	PIPE
-1335.740	3007.615	2.141	3009.756	45.00	10.06	1.57	3011.33	.00	2.23	1.75	2.500	.000	.00	1 .0
34.798	.0143					.0156	.54	2.14	1.11	2.21	.015	.00	.00	PIPE
-1300.942	3008.114	2.029	3010.142	45.00	10.55	1.73	3011.87	.00	2.23	1.96	2.500	.000	.00	1 .0
26.267	.0143					.0172	.45	2.03	1.26	2.21	.015	.00	.00	PIPE
-1274.675	3008.490	1.931	3010.421	45.00	11.06	1.90	3012.32	.00	2.23	2.10	2.500	.000	.00	1 .0
21.577	.0143					.0191	.41	1.93	1.40	2.21	.015	.00	.00	PIPE
-1253.099	3008.800	1.843	3010.642	45.00	11.60	2.09	3012.73	.00	2.23	2.20	2.500	.000	.00	1 .0
18.538	.0143					.0213	.39	1.84	1.54	2.21	.015	.00	.00	PIPE
-1234.561	3009.065	1.762	3010.827	45.00	12.17	2.30	3013.13	.00	2.23	2.28	2.500	.000	.00	1 .0
16.391	.0143					.0238	.39	1.76	1.68	2.21	.015	.00	.00	PIPE
-1218.170	3009.300	1.688	3010.988	45.00	12.76	2.53	3013.52	.00	2.23	2.34	2.500	.000	.00	1 .0
55.353	.0264					.0240	1.33	1.69	1.83	1.66	.015	.00	.00	PIPE
-1162.817	3010.763	1.750	3012.512	45.00	12.26	2.34	3014.85	.00	2.23	2.29	2.500	.000	.00	1 .0
27.895	.0264					.0217	.60	1.75	1.71	1.66	.015	.00	.00	PIPE

PEACEFUL RIDGE
 AST-12-002
 150 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SD-150.OUT															
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type	Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-1134.922	3011.500	1.829	3013.329	45.00	11.69	2.12	3015.45	.00	2.23	2.22	2.500	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.132	.0264					.0194	.29	1.83	1.56	1.66	.015	.00	.00	PIPE	
-1119.790	3011.900	1.916	3013.816	45.00	11.15	1.93	3015.75	.00	2.23	2.12	2.500	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
58.278	.0188					.0176	1.03	1.92	1.42	1.90	.015	.00	.00	PIPE	
-1061.512	3012.994	1.992	3014.986	45.00	10.73	1.79	3016.77	.00	2.23	2.01	2.500	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.406	.0188					.0161	.35	1.99	1.31	1.90	.015	.00	.00	PIPE	
-1040.105	3013.396	2.098	3015.494	45.00	10.23	1.62	3017.12	.00	2.23	1.84	2.500	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.545	.0188					.0148	.08	2.10	1.16	1.90	.015	.00	.00	PIPE	
-1034.560	3013.500	2.225	3015.725	45.00	9.75	1.48	3017.20	.00	2.23	1.56	2.500	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

♀

SD-200.WSW

0

T1 PEACEFUL RIDGE

T2 AST-12-002

T3 200 SERIES SD

SO -2372.0402957.000 1

2956.000

R -2220.7002965.500 1 .015

.000 .000 1

R -2220.6002965.700 1 .015

.000 2.000 1

R -1821.1802977.400 1 .015

.000 .000 0

R -1821.0802977.600 1 .015

.000 4.000 1

R -1722.9602985.100 1 .015

.000 .000 1

R -1547.9203007.200 1 .015

.000 .000 0

TS -1547.9103007.201 2 .015

.000 .000 0

JX -1543.9203007.400 2 4 4.015 20.000 16.0003008.9003014.50 -28.0 .0 .000

R -1543.8203007.401 2 .015

30.000 .000 0

R -1515.1103007.800 1 .015

.000 .000 0

R -1515.0103008.000 1 .015

60.000 .000 1

R -1258.2803010.600 1 .015

.000 .000 0

R -1258.1803010.800 1 .015

-90.000 .000 1

R -1090.0903017.000 1 .015

.000 .000 0

R -1090.0003017.200 1 .015

-41.000 .000 1

R -1057.9503023.300 1 .015

.000 .000 0

SH -1057.9503023.300 1 3027.500

CD 1 4 1 .000 3.000 .000 .000 .000 .00

CD 2 3 0 .000 15.000 10.000 .000 .000 .00

CD 3 4 1 .000 2.500 .000 .000 .000 .00

CD 4 4 1 .000 1.500 .000 .000 .000 .00

Q 53.000 .0

PEACEFUL RIDGE
 AST-12-002
 200 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-2372.040	2957.000	1.802	2958.802	89.00	20.08	6.26	2965.06	.00	2.84	2.94	3.000	.000	.00	1 .0
23.238	.0562					.0517	1.20	1.80	2.88	1.76	.015	.00	.00	PIPE
-2348.802	2958.305	1.816	2960.121	89.00	19.89	6.14	2966.26	.00	2.84	2.93	3.000	.000	.00	1 .0
60.796	.0562					.0482	2.93	1.82	2.84	1.76	.015	.00	.00	PIPE
-2288.006	2961.720	1.891	2963.611	89.00	18.96	5.58	2969.19	.00	2.84	2.90	3.000	.000	.00	1 .0
31.913	.0562					.0428	1.36	1.89	2.63	1.76	.015	.00	.00	PIPE
-2256.093	2963.512	1.971	2965.483	89.00	18.08	5.08	2970.56	.00	2.84	2.85	3.000	.000	.00	1 .0
20.703	.0562					.0380	.79	1.97	2.42	1.76	.015	.00	.00	PIPE
-2235.390	2964.675	2.056	2966.731	89.00	17.24	4.61	2971.35	.00	2.84	2.79	3.000	.000	.00	1 .0
14.690	.0562					.0339	.50	2.06	2.23	1.76	.015	.00	.00	PIPE
-2220.700	2965.500	2.148	2967.647	89.00	16.44	4.20	2971.84	.00	2.84	2.71	3.000	.000	.00	1 .0
.100	2.0024					.0308	.00	2.15	2.05	.67	.015	.00	.00	PIPE
-2220.600	2965.700	2.214	2967.914	89.00	15.91	3.93	2971.85	.00	2.84	2.64	3.000	.000	.00	1 .0
65.275	.0293					.0298	1.95	2.21	1.93	2.22	.015	.00	.00	PIPE
-2155.325	2967.612	2.202	2969.814	89.00	16.01	3.98	2973.79	.00	2.84	2.65	3.000	.000	.00	1 .0
120.865	.0293					.0318	3.84	2.20	1.95	2.22	.015	.00	.00	PIPE
-2034.460	2971.152	2.106	2973.258	89.00	16.79	4.38	2977.63	.00	2.84	2.74	3.000	.000	.00	1 .0
55.138	.0293					.0356	1.96	2.11	2.13	2.22	.015	.00	.00	PIPE

PEACEFUL RIDGE
 AST-12-002
 200 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SD-200.OUT															
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type	Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-1979.322	2972.768	2.017	2974.785	89.00	17.61	4.81	2979.60	.00	2.84	2.82	3.000	.000	.00	1	.0
37.131	.0293	-	-	-	-	.0400	1.49	2.02	2.32	2.22	.015	.00	.00	PIPE	
-1942.191	2973.855	1.935	2975.790	89.00	18.47	5.30	2981.09	.00	2.84	2.87	3.000	.000	.00	1	.0
28.617	.0293	-	-	-	-	.0451	1.29	1.93	2.51	2.22	.015	.00	.00	PIPE	
-1913.574	2974.693	1.857	2976.550	89.00	19.37	5.82	2982.38	.00	2.84	2.91	3.000	.000	.00	1	.0
23.599	.0293	-	-	-	-	.0509	1.20	1.86	2.72	2.22	.015	.00	.00	PIPE	
-1889.975	2975.385	1.784	2977.168	89.00	20.31	6.41	2983.58	.00	2.84	2.95	3.000	.000	.00	1	.0
20.267	.0293	-	-	-	-	.0575	1.17	1.78	2.94	2.22	.015	.00	.00	PIPE	
-1869.708	2975.978	1.715	2977.693	89.00	21.30	7.05	2984.74	.00	2.84	2.97	3.000	.000	.00	1	.0
17.868	.0293	-	-	-	-	.0651	1.16	1.72	3.17	2.22	.015	.00	.00	PIPE	
-1851.840	2976.502	1.650	2978.152	89.00	22.34	7.75	2985.90	.00	2.84	2.99	3.000	.000	.00	1	.0
16.049	.0293	-	-	-	-	.0737	1.18	1.65	3.41	2.22	.015	.00	.00	PIPE	
-1835.791	2976.972	1.588	2978.560	89.00	23.44	8.53	2987.09	.00	2.84	2.99	3.000	.000	.00	1	.0
14.611	.0293	-	-	-	-	.0836	1.22	1.59	3.67	2.22	.015	.00	.00	PIPE	
-1821.180	2977.400	1.529	2978.929	89.00	24.58	9.38	2988.31	.00	2.84	3.00	3.000	.000	.00	1	.0
.100	2.0000	-	-	-	-	.0876	.01	1.53	3.94	.67	.015	.00	.00	PIPE	
-1821.080	2977.600	1.542	2979.142	89.00	24.32	9.18	2988.32	.00	2.84	3.00	3.000	.000	.00	1	.0
22.917	.0764	-	-	-	-	.0882	2.02	1.54	3.88	1.60	.015	.00	.00	PIPE	

♀ FILE: SD-200.WSW

W S P G W - CIVILDESIGN Version 14.06

Program Package Serial Number: 7042

WATER SURFACE PROFILE LISTING

Date: 9-11-2013 Time: 8:40:27

PEACEFUL RIDGE
AST-12-002
200 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip	
L/Elem	Ch Slope														
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-1798.163	2979.352	1.523	2980.875	89.00	24.70	9.48	2990.35	.00	2.84	3.00	3.000	.000	.00	1	.0
45.101	.0764	-	-	-	-	.0962	4.34	1.52	3.97	1.60	.015	.00	.00	PIPE	
-1753.062	2982.799	1.467	2984.266	89.00	25.91	10.42	2994.69	.00	2.84	3.00	3.000	.000	.00	1	.0
30.102	.0764	-	-	-	-	.1093	3.29	1.47	4.27	1.60	.015	.00	.00	PIPE	

SD-200.OUT

-1722.960	2985.100	1.414	2986.514	89.00	27.17	11.47	2997.98	.00	2.84	3.00	3.000	.000	.00	1	.0
47.630	.1263					.1113	5.30	1.41	4.58	1.38	.015	.00	.00	PIPE	
-1675.330	2991.114	1.451	2992.564	89.00	26.28	10.72	3003.29	.00	2.84	3.00	3.000	.000	.00	1	.0
34.950	.1263					.0999	3.49	1.45	4.36	1.38	.015	.00	.00	PIPE	
-1640.380	2995.526	1.506	2997.032	89.00	25.06	9.75	3006.78	.00	2.84	3.00	3.000	.000	.00	1	.0
21.667	.1263					.0880	1.91	1.51	4.06	1.38	.015	.00	.00	PIPE	
-1618.713	2998.262	1.564	2999.825	89.00	23.89	8.86	3008.69	.00	2.84	3.00	3.000	.000	.00	1	.0
15.307	.1263					.0776	1.19	1.56	3.78	1.38	.015	.00	.00	PIPE	
-1603.406	3000.194	1.624	3001.819	89.00	22.78	8.06	3009.88	.00	2.84	2.99	3.000	.000	.00	1	.0
11.566	.1263					.0684	.79	1.62	3.51	1.38	.015	.00	.00	PIPE	
-1591.840	3001.655	1.688	3003.343	89.00	21.72	7.33	3010.67	.00	2.84	2.98	3.000	.000	.00	1	.0
9.095	.1263					.0604	.55	1.69	3.26	1.38	.015	.00	.00	PIPE	
-1582.745	3002.803	1.756	3004.559	89.00	20.71	6.66	3011.22	.00	2.84	2.96	3.000	.000	.00	1	.0
7.336	.1263					.0535	.39	1.76	3.03	1.38	.015	.00	.00	PIPE	

♀ FILE: SD-200.WSW

W S P G W - CIVILDESIGN Version 14.06

PAGE 4

Program Package Serial Number: 7042

WATER SURFACE PROFILE LISTING

Date: 9-11-2013 Time: 8:40:27

PEACEFUL RIDGE
AST-12-002
200 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-1575.408	3003.729	1.827	3005.556	89.00	19.75	6.05	3011.61	.00	2.84	2.93	3.000	.000	.00	1 .0
6.016	.1263					.0473	.28	1.83	2.80	1.38	.015	.00	.00	PIPE
-1569.392	3004.489	1.903	3006.391	89.00	18.83	5.50	3011.89	.00	2.84	2.89	3.000	.000	.00	1 .0
4.981	.1263					.0420	.21	1.90	2.59	1.38	.015	.00	.00	PIPE
-1564.411	3005.118	1.983	3007.101	89.00	17.95	5.00	3012.10	.00	2.84	2.84	3.000	.000	.00	1 .0
4.147	.1263					.0373	.15	1.98	2.39	1.38	.015	.00	.00	PIPE
-1560.265	3005.641	2.069	3007.710	89.00	17.11	4.55	3012.26	.00	2.84	2.78	3.000	.000	.00	1 .0
3.449	.1263					.0333	.11	2.07	2.20	1.38	.015	.00	.00	PIPE
-1556.816	3006.077	2.162	3008.239	89.00	16.32	4.13	3012.37	.00	2.84	2.69	3.000	.000	.00	1 .0

SD-200.OUT

2.850	.1263					.0298	.08	2.16	2.02	1.38	.015	.00	.00	PIPE
-1553.966	3006.437	2.263	3008.699	89.00	15.56	3.76	3012.46	.00	2.84	2.58	3.000	.000	.00	1 .0
2.318	.1263					.0267	.06	2.26	1.84	1.38	.015	.00	.00	PIPE
-1551.648	3006.729	2.374	3009.103	89.00	14.83	3.42	3012.52	.00	2.84	2.44	3.000	.000	.00	1 .0
1.818	.1263					.0242	.04	2.37	1.67	1.38	.015	.00	.00	PIPE
-1549.830	3006.959	2.499	3009.458	89.00	14.14	3.11	3012.56	.00	2.84	2.24	3.000	.000	.00	1 .0
1.305	.1263					.0222	.03	2.50	1.49	1.38	.015	.00	.00	PIPE
-1548.525	3007.124	2.646	3009.769	89.00	13.49	2.82	3012.59	.00	2.84	1.94	3.000	.000	.00	1 .0
.605	.1263					.0209	.01	2.65	1.29	1.38	.015	.00	.00	PIPE
♀ FILE: SD-200.WSW														W S P G W - CIVILDESIGN Version 14.06
														Program Package Serial Number: 7042
														WATER SURFACE PROFILE LISTING
														Date: 9-11-2013 Time: 8:40:27

PEACEFUL RIDGE
AST-12-002
200 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-1547.920	3007.200	2.840	3010.040	89.00	12.86	2.57	3012.61	.00	2.84	1.35	3.000	.000	.00	1 .0
TRANS STR	.0976					.0001	.00	2.84	1.00		.015	.00	.00	PIPE
-1547.910	3007.201	6.005	3013.206	89.00	1.48	.03	3013.24	.00	1.35	10.00	15.000	10.000	.00	0 .0
JUNCT STR	.0499					.0001	.00	9.57	.11		.015	.00	.00	BOX
-1543.920	3007.400	5.828	3013.228	53.00	.91	.01	3013.24	1.34	.96	10.00	15.000	10.000	.00	0 .0
.100	.0098					.0000	.00	7.17	.07	.73	.015	.00	.00	BOX
-1543.820	3007.401	5.827	3013.228	53.00	7.50	.87	3014.10	.00	2.37	.00	3.000	.000	.00	1 .0
28.710	.0139					.0084	.24	5.83	.00	1.99	.015	.00	.00	PIPE
-1515.110	3007.800	5.670	3013.470	53.00	7.50	.87	3014.34	.00	2.37	.00	3.000	.000	.00	1 .0
.100	2.0000					.0084	.00	.00	.00	.52	.015	.00	.00	PIPE
-1515.010	3008.000	5.657	3013.657	53.00	7.50	.87	3014.53	.00	2.37	.00	3.000	.000	.00	1 .0
256.730	.0101					.0084	2.16	5.66	.00	2.25	.015	.00	.00	PIPE
-1258.280	3010.600	5.215	3015.815	53.00	7.50	.87	3016.69	.00	2.37	.00	3.000	.000	.00	1 .0
.100	2.0000					.0084	.00	.00	.00	.52	.015	.00	.00	PIPE

SD-200.OUT

-1258.180	3010.800	5.234	3016.034	53.00	7.50	.87	3016.91	.00	2.37	.00	3.000	.000	.00	1	.0
47.502	.0369					.0084	.40	5.23	.00	1.46	.015	.00	.00	PIPE	
-1210.678	3012.552	3.880	3016.433	53.00	7.50	.87	3017.31	.00	2.37	.00	3.000	.000	.00	1	.0

HYDRAULIC JUMP

♀ FILE: SD-200.WSW

W S P G W - CIVILDESIGN Version 14.06

PAGE 6

Program Package Serial Number: 7042

WATER SURFACE PROFILE LISTING

Date: 9-11-2013 Time: 8:40:27

PEACEFUL RIDGE

AST-12-002

200 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-1210.678	3012.552	1.385	3013.937	53.00	16.62	4.29	3018.23	.00	2.37	2.99	3.000	.000	.00	1 .0
19.562	.0369					.0452	.88	1.38	2.84	1.46	.015	.00	.00	PIPE
-1191.116	3013.273	1.369	3014.642	53.00	16.87	4.42	3019.06	.00	2.37	2.99	3.000	.000	.00	1 .0
31.662	.0369					.0493	1.56	1.37	2.90	1.46	.015	.00	.00	PIPE
-1159.453	3014.441	1.320	3015.761	53.00	17.69	4.86	3020.62	.00	2.37	2.98	3.000	.000	.00	1 .0
22.860	.0369					.0561	1.28	1.32	3.11	1.46	.015	.00	.00	PIPE
-1136.594	3015.285	1.273	3016.558	53.00	18.56	5.35	3021.90	.00	2.37	2.97	3.000	.000	.00	1 .0
18.149	.0369					.0639	1.16	1.27	3.33	1.46	.015	.00	.00	PIPE
-1118.444	3015.954	1.228	3017.182	53.00	19.46	5.88	3023.06	.00	2.37	2.95	3.000	.000	.00	1 .0
15.195	.0369					.0728	1.11	1.23	3.57	1.46	.015	.00	.00	PIPE
-1103.249	3016.515	1.185	3017.700	53.00	20.41	6.47	3024.17	.00	2.37	2.93	3.000	.000	.00	1 .0
13.159	.0369					.0829	1.09	1.19	3.82	1.46	.015	.00	.00	PIPE
-1090.090	3017.000	1.144	3018.144	53.00	21.41	7.12	3025.26	3.00	2.37	2.91	3.000	.000	.00	1 .0
.090	2.2225					.0866	.01	3.00	4.09	.50	.015	.00	.00	PIPE
-1090.000	3017.200	1.156	3018.356	53.00	21.10	6.91	3025.27	.00	2.37	2.92	3.000	.000	.00	1 .0
1.103	.1903					.0838	.09	1.16	4.01	.93	.015	.00	.00	PIPE
-1088.898	3017.410	1.164	3018.574	53.00	20.91	6.79	3025.36	.00	2.37	2.92	3.000	.000	.00	1 .0
5.104	.1903					.0777	.40	1.16	3.96	.93	.015	.00	.00	PIPE

♀ FILE: SD-200.WSW

W S P G W - CIVILDESIGN Version 14.06

PAGE 7

Program Package Serial Number: 7042

Page 5

SD-200.OUT
WATER SURFACE PROFILE LISTING

Date: 9-11-2013 Time: 8:40:27

PEACEFUL RIDGE
AST-12-002
200 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-1083.793	3018.381	1.206	3019.588	53.00	19.93	6.17	3025.76	.00	2.37	2.94	3.000	.000	.00	1 .0
4.233	.1903					.0682	.29	1.21	3.70	.93	.015	.00	.00	PIPE
-1079.561	3019.187	1.250	3020.437	53.00	19.01	5.61	3026.05	.00	2.37	2.96	3.000	.000	.00	1 .0
3.558	.1903					.0599	.21	1.25	3.45	.93	.015	.00	.00	PIPE
-1076.003	3019.864	1.296	3021.160	53.00	18.12	5.10	3026.26	.00	2.37	2.97	3.000	.000	.00	1 .0
3.019	.1903					.0526	.16	1.30	3.22	.93	.015	.00	.00	PIPE
-1072.984	3020.439	1.344	3021.783	53.00	17.28	4.64	3026.42	.00	2.37	2.98	3.000	.000	.00	1 .0
2.577	.1903					.0462	.12	1.34	3.00	.93	.015	.00	.00	PIPE
-1070.407	3020.929	1.394	3022.323	53.00	16.47	4.21	3026.54	.00	2.37	2.99	3.000	.000	.00	1 .0
2.210	.1903					.0407	.09	1.39	2.80	.93	.015	.00	.00	PIPE
-1068.197	3021.350	1.447	3022.796	53.00	15.71	3.83	3026.63	.00	2.37	3.00	3.000	.000	.00	1 .0
1.899	.1903					.0358	.07	1.45	2.61	.93	.015	.00	.00	PIPE
-1066.298	3021.711	1.501	3023.213	53.00	14.98	3.48	3026.70	.00	2.37	3.00	3.000	.000	.00	1 .0
1.631	.1903					.0315	.05	1.50	2.43	.93	.015	.00	.00	PIPE
-1064.667	3022.022	1.559	3023.581	53.00	14.28	3.17	3026.75	.00	2.37	3.00	3.000	.000	.00	1 .0
1.399	.1903					.0278	.04	1.56	2.26	.93	.015	.00	.00	PIPE
-1063.268	3022.288	1.620	3023.907	53.00	13.62	2.88	3026.79	.00	2.37	2.99	3.000	.000	.00	1 .0
1.194	.1903					.0245	.03	1.62	2.10	.93	.015	.00	.00	PIPE

♀ FILE: SD-200.WSW

W S P G W - CIVILDESIGN Version 14.06

Program Package Serial Number: 7042

WATER SURFACE PROFILE LISTING

Date: 9-11-2013 Time: 8:40:27

PEACEFUL RIDGE
AST-12-002
200 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch

SD-200.OUT

-1062.074	3022.515	1.683	3024.198	53.00	12.98	2.62	3026.82	.00	2.37	2.98	3.000	.000	.00	1	.0
1.013	.1903					.0216	.02	1.68	1.95	.93	.015	.00	.00	PIPE	
-1061.062	3022.708	1.750	3024.458	53.00	12.38	2.38	3026.84	.00	2.37	2.96	3.000	.000	.00	1	.0
.849	.1903					.0191	.02	1.75	1.81	.93	.015	.00	.00	PIPE	
-1060.213	3022.869	1.821	3024.691	53.00	11.80	2.16	3026.85	.00	2.37	2.93	3.000	.000	.00	1	.0
.700	.1903					.0169	.01	1.82	1.68	.93	.015	.00	.00	PIPE	
-1059.513	3023.003	1.897	3024.899	53.00	11.25	1.97	3026.87	.00	2.37	2.89	3.000	.000	.00	1	.0
.563	.1903					.0150	.01	1.90	1.55	.93	.015	.00	.00	PIPE	
-1058.950	3023.110	1.977	3025.086	53.00	10.73	1.79	3026.87	.00	2.37	2.84	3.000	.000	.00	1	.0
.434	.1903					.0134	.01	1.98	1.43	.93	.015	.00	.00	PIPE	
-1058.516	3023.192	2.062	3025.255	53.00	10.23	1.62	3026.88	.00	2.37	2.78	3.000	.000	.00	1	.0
.311	.1903					.0119	.00	2.06	1.32	.93	.015	.00	.00	PIPE	
-1058.205	3023.251	2.155	3025.406	53.00	9.75	1.48	3026.88	.00	2.37	2.70	3.000	.000	.00	1	.0
.190	.1903					.0106	.00	2.15	1.21	.93	.015	.00	.00	PIPE	
-1058.016	3023.288	2.255	3025.542	53.00	9.30	1.34	3026.89	.00	2.37	2.59	3.000	.000	.00	1	.0
.066	.1903					.0096	.00	2.25	1.11	.93	.015	.00	.00	PIPE	
-1057.950	3023.300	2.366	3025.666	53.00	8.86	1.22	3026.89	.00	2.37	2.45	3.000	.000	.00	1	.0

♀

T1 PEACEFUL RIDGE

T2 AST-12-002

T3 204 SERIES SD

SO -1308.2303008.400 1

3013.210

R -1274.2103010.300 1 .015

.000 .000 0

R -1274.1103010.500 1 .015

.000 33.000 1

R -1115.9703018.000 1 .015

.000 .000 0

R -1115.9703018.200 1 .015

.000 -50.000 1

R -1064.1503026.000 1 .015

.000 .000 0

SH -1064.1503026.000 1

3029.000

CD 1 4 1 .000 2.000 .000 .000 .000 .00

Q 20.000 .0

PEACEFUL RIDGE
 AST-12-002
 204 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-1308.230	3008.400	4.810	3013.210	20.00	6.37	.63	3013.84	.00	1.61	.00	2.000	.000	.00	1 .0
34.020	.0559					.0104	.35	4.81	.00	.92	.015	.00	.00	PIPE
-1274.210	3010.300	3.264	3013.564	20.00	6.37	.63	3014.19	.00	1.61	.00	2.000	.000	.00	1 .0
.100	2.0000					.0104	.00	3.26	.00	.36	.015	.00	.00	PIPE
-1274.110	3010.500	3.165	3013.665	20.00	6.37	.63	3014.29	.00	1.61	.00	2.000	.000	.00	1 .0
15.522	.0474					.0104	.16	3.17	.00	.96	.015	.00	.00	PIPE
-1258.588	3011.236	2.590	3013.826	20.00	6.37	.63	3014.46	.00	1.61	.00	2.000	.000	.00	1 .0
HYDRAULIC JUMP														
-1258.588	3011.236	.959	3012.195	20.00	13.44	2.81	3015.00	.00	1.61	2.00	2.000	.000	.00	1 .0
2.189	.0474					.0481	.11	.96	2.75	.96	.015	.00	.00	PIPE
-1256.400	3011.340	.959	3012.298	20.00	13.44	2.81	3015.10	.00	1.61	2.00	2.000	.000	.00	1 .0
61.758	.0474					.0514	3.17	.96	2.75	.96	.015	.00	.00	PIPE
-1194.642	3014.269	.924	3015.193	20.00	14.10	3.09	3018.28	.00	1.61	1.99	2.000	.000	.00	1 .0
24.972	.0474					.0585	1.46	.92	2.95	.96	.015	.00	.00	PIPE
-1169.670	3015.453	.891	3016.344	20.00	14.79	3.39	3019.74	.00	1.61	1.99	2.000	.000	.00	1 .0
16.119	.0474					.0665	1.07	.89	3.16	.96	.015	.00	.00	PIPE
-1153.551	3016.218	.859	3017.076	20.00	15.51	3.73	3020.81	.00	1.61	1.98	2.000	.000	.00	1 .0
12.127	.0474					.0757	.92	.86	3.39	.96	.015	.00	.00	PIPE

PEACEFUL RIDGE
 AST-12-002
 204 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SD-204.OUT

L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-1141.423	3016.793	.829	3017.621	20.00	16.26	4.11	3021.73	.00	1.61	1.97	2.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.831	.0474					.0862	.85	.83	3.63	.96	.015	.00	.00	PIPE
-1131.592	3017.259	.799	3018.058	20.00	17.06	4.52	3022.58	.00	1.61	1.96	2.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.340	.0474					.0983	.82	.80	3.89	.96	.015	.00	.00	PIPE
-1123.252	3017.655	.772	3018.426	20.00	17.89	4.97	3023.40	.00	1.61	1.95	2.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.282	.0474					.1120	.82	.77	4.16	.96	.015	.00	.00	PIPE
-1115.970	3018.200	.744	3018.944	20.00	18.79	5.48	3024.43	.00	1.61	1.93	2.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.916	.1505					.1156	.92	.74	4.46	.70	.015	.00	.00	PIPE
-1108.054	3019.391	.759	3020.150	20.00	18.30	5.20	3025.35	.00	1.61	1.94	2.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.701	.1505					.1046	1.01	.76	4.30	.70	.015	.00	.00	PIPE
-1098.353	3020.852	.786	3021.637	20.00	17.45	4.73	3026.37	.00	1.61	1.95	2.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.833	.1505					.0918	.63	.79	4.02	.70	.015	.00	.00	PIPE
-1091.520	3021.880	.815	3022.695	20.00	16.64	4.30	3026.99	.00	1.61	1.97	2.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.163	.1505					.0806	.42	.81	3.75	.70	.015	.00	.00	PIPE
-1086.357	3022.657	.844	3023.501	20.00	15.86	3.91	3027.41	.00	1.61	1.98	2.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.065	.1505					.0708	.29	.84	3.50	.70	.015	.00	.00	PIPE
-1082.292	3023.269	.875	3024.144	20.00	15.13	3.55	3027.70	.00	1.61	1.98	2.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.288	.1505					.0622	.20	.88	3.27	.70	.015	.00	.00	PIPE

♀ FILE: SD-204.WSW

W S P G W - CIVILDESIGN Version 14.06

Program Package Serial Number: 7042

WATER SURFACE PROFILE LISTING

Date: 9-11-2013 Time: 1:37: 1

PEACEFUL RIDGE
AST-12-002
204 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope													
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-1079.004	3023.764	.908	3024.672	20.00	14.42	3.23	3027.90	.00	1.61	1.99	2.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.710	.1505					.0547	.15	.91	3.05	.70	.015	.00	.00	PIPE
-1076.294	3024.172	.942	3025.114	20.00	13.75	2.94	3028.05	.00	1.61	2.00	2.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.259	.1505					.0481	.11	.94	2.84	.70	.015	.00	.00	PIPE

SD-204.OUT

-1074.035	3024.512	.977	3025.489	20.00	13.11	2.67	3028.16	.00	1.61	2.00	2.000	.000	.00	1	.0
1.898	.1505					.0423	.08	.98	2.65	.70	.015	.00	.00	PIPE	
-1072.137	3024.798	1.015	3025.812	20.00	12.50	2.43	3028.24	.00	1.61	2.00	2.000	.000	.00	1	.0
1.604	.1505					.0373	.06	1.01	2.46	.70	.015	.00	.00	PIPE	
-1070.533	3025.039	1.054	3026.093	20.00	11.92	2.21	3028.30	.00	1.61	2.00	2.000	.000	.00	1	.0
1.355	.1505					.0329	.04	1.05	2.29	.70	.015	.00	.00	PIPE	
-1069.178	3025.243	1.095	3026.338	20.00	11.36	2.01	3028.34	.00	1.61	1.99	2.000	.000	.00	1	.0
1.145	.1505					.0290	.03	1.09	2.13	.70	.015	.00	.00	PIPE	
-1068.033	3025.416	1.138	3026.553	20.00	10.84	1.82	3028.38	.00	1.61	1.98	2.000	.000	.00	1	.0
.961	.1505					.0256	.02	1.14	1.98	.70	.015	.00	.00	PIPE	
-1067.071	3025.560	1.184	3026.744	20.00	10.33	1.66	3028.40	.00	1.61	1.97	2.000	.000	.00	1	.0
.801	.1505					.0227	.02	1.18	1.83	.70	.015	.00	.00	PIPE	
-1066.271	3025.681	1.232	3026.913	20.00	9.85	1.51	3028.42	.00	1.61	1.95	2.000	.000	.00	1	.0
.657	.1505					.0201	.01	1.23	1.70	.70	.015	.00	.00	PIPE	

♀ FILE: SD-204.WSW

W S P G W - CIVILDESIGN Version 14.06

PAGE 4

Program Package Serial Number: 7042

WATER SURFACE PROFILE LISTING

Date: 9-11-2013 Time: 1:37: 1

PEACEFUL RIDGE
AST-12-002
204 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-1065.614	3025.780	1.283	3027.063	20.00	9.39	1.37	3028.43	.00	1.61	1.92	2.000	.000	.00	1 .0
.527	.1505					.0178	.01	1.28	1.57	.70	.015	.00	.00	PIPE
-1065.087	3025.859	1.338	3027.197	20.00	8.96	1.25	3028.44	.00	1.61	1.88	2.000	.000	.00	1 .0
.406	.1505					.0159	.01	1.34	1.45	.70	.015	.00	.00	PIPE
-1064.681	3025.920	1.396	3027.316	20.00	8.54	1.13	3028.45	.00	1.61	1.84	2.000	.000	.00	1 .0
.291	.1505					.0141	.00	1.40	1.33	.70	.015	.00	.00	PIPE
-1064.391	3025.964	1.460	3027.424	20.00	8.14	1.03	3028.45	.00	1.61	1.78	2.000	.000	.00	1 .0
.178	.1505					.0127	.00	1.46	1.22	.70	.015	.00	.00	PIPE
-1064.212	3025.991	1.529	3027.519	20.00	7.76	.94	3028.46	.00	1.61	1.70	2.000	.000	.00	1 .0

SD-204.OUT

.062	.1505					.0114	.00	1.53	1.11	.70	.015	.00	.00	PIPE
-1064.150	3026.000	1.606	3027.606	20.00	7.40	.85	3028.46	.00	1.61	1.59	2.000	.000	.00	1 .0

♀

SD-300L.WSW

0

T1 PEACEFUL RIDGE

T2 AST-12-002

T3 300 LOWER SERIES SD

SO -2207.8302963.320 1

2973.130

R -2099.8702968.900 1 .015

.000 .000 0

JX -2099.7702968.910 1 2 .015 12.000

2969.410

-90.0 .000

R -2092.5102969.200 1 .015

.000 .000 0

R -2092.4102969.400 1 .015

-17.000 .000 1

R -1971.7102973.200 1 .015

.000 .000 0

SH -1971.7102973.200 1

3085.200

CD 1 4 1 .000 4.000 .000 .000 .000 .00

CD 2 4 1 .000 3.000 .000 .000 .000 .00

Q 200.000 .0

PEACEFUL RIDGE

AST-12-002

300 LOWER SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-2207.830	2963.320	9.810	2973.130	212.00	16.87	4.42	2977.55	.00	3.88	.00	4.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
107.960	.0517					.0290	3.13	9.81	.00	2.58	.015	.00	.00	PIPE
-2099.870	2968.900	7.361	2976.261	212.00	16.87	4.42	2980.68	.00	3.88	.00	4.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JUNCT STR	.1000					.0274	.00	7.36	.00		.015	.00	.00	PIPE
-2099.770	2968.910	8.326	2977.236	200.00	15.92	3.93	2981.17	.00	3.85	.00	4.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.260	.0400					.0258	.19	8.33	.00	2.72	.015	.00	.00	PIPE
-2092.510	2969.200	8.223	2977.423	200.00	15.92	3.93	2981.36	.00	3.85	.00	4.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.100	1.9976					.0258	.00	.00	.00	.91	.015	.00	.00	PIPE
-2092.410	2969.400	8.565	2977.965	200.00	15.92	3.93	2981.90	.00	3.85	.00	4.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
120.700	.0315					.0258	3.12	8.56	.00	2.98	.015	.00	.00	PIPE
-1971.710	2973.200	7.880	2981.080	200.00	15.92	3.93	2985.01	.00	3.85	.00	4.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

T1 PEACEFUL RIDGE

T2 AST-12-002

T3 300 UPPER SERIES SD

SO -1971.7102973.500 2

2986.370

R -1910.5302978.200 2 .015

.000 .000 0

R -1910.4302978.400 2 .015

.000 14.000 1

R -1750.4002988.900 2 .015

.000 .000 0

R -1612.5503003.300 2 .015

.000 .000 1

JX -1612.4503003.500 2 1 3.015 9.800 88.0003009.5003004.50 90.0 .0 .000

R -1612.3503003.501 2 .015

.000 50.000 1

R -1557.3703004.200 2 .015

.000 0.000 0

R -1557.2703004.400 2 .015

.000 40.000 1

R -1476.3603006.000 2 .015

.000 0.000 0

JX -1476.2603006.200 2 3 3.015 4.000 17.0003009.5003009.50 80.0-90.0 .000

R -1261.8503009.000 2 .015

.000 .000 0

R -1261.7503009.200 2 .015

.000 -90.000 1

R -1101.5903018.000 2 .015

.000 .000 1

TS -1101.4903018.200 4 .015

.000 .000 0

R -1063.3203019.000 4 .015

.000 .000 0

SH -1063.3203019.000 4 3025.500

CD 1 4 0 .000 3.000 .000 .000 .000 .00

CD 2 4 1 .000 4.500 .000 .000 .000 .00

CD 3 4 1 .000 1.500 .000 .000 .000 .00

CD 4 4 1 .000 5.000 .000 .000 .000 .00

Q 178.000 .0

PEACEFUL RIDGE
 AST-12-002
 300 UPPER SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-1971.710	2973.500	12.870	2986.370	296.80	18.66	5.41	2991.78	.00	4.38	.00	4.500	.000	.00	1 .0
61.180	.0768					.0303	1.86	12.87	.00	2.59	.015	.00	.00	PIPE
-1910.530	2978.200	10.026	2988.226	296.80	18.66	5.41	2993.63	.00	4.38	.00	4.500	.000	.00	1 .0
.100	2.0000					.0303	.00	10.03	.00	1.07	.015	.00	.00	PIPE
-1910.430	2978.400	10.349	2988.749	296.80	18.66	5.41	2994.16	.00	4.38	.00	4.500	.000	.00	1 .0
23.691	.0656					.0303	.72	10.35	.00	2.72	.015	.00	.00	PIPE
-1886.739	2979.954	9.508	2989.462	296.80	18.66	5.41	2994.87	.00	4.38	.00	4.500	.000	.00	1 .0
HYDRAULIC JUMP														
-1886.739	2979.954	2.686	2982.640	296.80	29.97	13.95	2996.59	.00	4.38	4.41	4.500	.000	.00	1 .0
136.339	.0656					.0701	9.56	2.69	3.53	2.72	.015	.00	.00	PIPE
-1750.400	2988.900	2.640	2991.540	296.80	30.60	14.54	3006.08	.00	4.38	4.43	4.500	.000	.00	1 .0
8.570	.1045					.0710	.61	2.64	3.65	2.35	.015	.00	.00	PIPE
-1741.830	2989.795	2.664	2992.459	296.80	30.27	14.23	3006.69	.00	4.38	4.42	4.500	.000	.00	1 .0
30.824	.1045					.0660	2.03	2.66	3.58	2.35	.015	.00	.00	PIPE
-1711.005	2993.015	2.773	2995.787	296.80	28.86	12.94	3008.72	.00	4.38	4.38	4.500	.000	.00	1 .0
23.071	.1045					.0585	1.35	2.77	3.32	2.35	.015	.00	.00	PIPE
-1687.934	2995.425	2.888	2998.313	296.80	27.52	11.76	3010.07	.00	4.38	4.32	4.500	.000	.00	1 .0
18.005	.1045					.0519	.93	2.89	3.07	2.35	.015	.00	.00	PIPE

PEACEFUL RIDGE
 AST-12-002
 300 UPPER SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/or I.D.	ZL	No Wth Prs/Pip

SD-300U.OUT															
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type	Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-1669.929	2997.306	3.011	3000.317	296.80	26.24	10.69	3011.01	.00	4.38	4.23	4.500	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.415	.1045					.0462	.67	3.01	2.83	2.35	.015	.00	.00	PIPE	
-1655.514	2998.812	3.143	3001.955	296.80	25.02	9.72	3011.67	.00	4.38	4.13	4.500	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.716	.1045					.0412	.48	3.14	2.60	2.35	.015	.00	.00	PIPE	
-1643.798	3000.036	3.286	3003.321	296.80	23.86	8.84	3012.16	.00	4.38	4.00	4.500	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.591	.1045					.0369	.35	3.29	2.38	2.35	.015	.00	.00	PIPE	
-1634.207	3001.038	3.441	3004.479	296.80	22.75	8.03	3012.51	.00	4.38	3.82	4.500	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.836	.1045					.0332	.26	3.44	2.17	2.35	.015	.00	.00	PIPE	
-1626.371	3001.856	3.613	3005.469	296.80	21.69	7.30	3012.77	.00	4.38	3.58	4.500	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.305	.1045					.0301	.19	3.61	1.95	2.35	.015	.00	.00	PIPE	
-1620.067	3002.515	3.808	3006.323	296.80	20.68	6.64	3012.96	.00	4.38	3.25	4.500	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.821	.1045					.0277	.13	3.81	1.73	2.35	.015	.00	.00	PIPE	
-1615.245	3003.019	4.042	3007.060	296.80	19.72	6.04	3013.10	.00	4.38	2.72	4.500	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.695	.1045					.0268	.07	4.04	1.48	2.35	.015	.00	.00	PIPE	
-1612.550	3003.300	4.382	3007.682	296.80	18.80	5.49	3013.17	.00	4.38	1.44	4.500	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JUNCT STR	1.9976							4.38	1.00		.015	.00	.00	PIPE	
-1612.450	3003.500	3.398	3006.898	199.00	15.45	3.70	3010.60	.00	4.03	3.87	4.500	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.100	.0098					.0161	.00	3.40	1.49	4.50	.015	.00	.00	PIPE	

♀ FILE: SD-300U.WSW

W S P G W - CIVILDESIGN Version 14.06

Program Package Serial Number: 7042

WATER SURFACE PROFILE LISTING

Date: 9-11-2013 Time: 1:46:31

PEACEFUL RIDGE
AST-12-002
300 UPPER SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type	Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-1612.350	3003.501	3.397	3006.898	199.00	15.45	3.71	3010.60	.00	4.03	3.87	4.500	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.922	.0127					.0162	.10	3.40	1.49	3.85	.015	.00	.00	PIPE	
-1606.428	3003.576	3.380	3006.957	199.00	15.53	3.74	3010.70	.00	4.03	3.89	4.500	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
49.058	.0127					.0173	.85	3.38	1.51	3.85	.015	.00	.00	PIPE	

SD-300U.OUT

-1557.370	3004.200	3.230	3007.430	199.00	16.29	4.12	3011.55	.00	4.03	4.05	4.500	.000	.00	1	.0
.100	2.0000					.0174	.00	3.23	1.65	.87	.015	.00	.00	PIPE	
-1557.270	3004.400	3.360	3007.760	199.00	15.62	3.79	3011.55	.00	4.03	3.91	4.500	.000	.00	1	.0
24.569	.0198					.0162	.40	3.36	1.53	3.13	.015	.00	.00	PIPE	
-1532.701	3004.885	3.432	3008.318	199.00	15.29	3.63	3011.95	.00	4.03	3.83	4.500	.000	.00	1	.0
33.364	.0198					.0150	.50	3.43	1.46	3.13	.015	.00	.00	PIPE	
-1499.338	3005.545	3.603	3009.149	199.00	14.58	3.30	3012.45	.00	4.03	3.60	4.500	.000	.00	1	.0
17.230	.0198					.0136	.23	3.60	1.32	3.13	.015	.00	.00	PIPE	
-1482.107	3005.886	3.797	3009.683	199.00	13.90	3.00	3012.68	.00	4.03	3.27	4.500	.000	.00	1	.0
5.747	.0198					.0125	.07	3.80	1.17	3.13	.015	.00	.00	PIPE	
-1476.360	3006.000	4.029	3010.029	199.00	13.25	2.73	3012.75	.00	4.03	2.76	4.500	.000	.00	1	.0
JUNCT STR	2.0000					.0115	.00	4.03	1.00		.015	.00	.00	PIPE	
-1476.260	3006.200	5.122	3011.322	178.00	11.19	1.95	3013.27	.00	3.87	.00	4.500	.000	.00	1	.0
40.258	.0131					.0109	.44	5.12	.00	3.38	.015	.00	.00	PIPE	

♀ FILE: SD-300U.WSW

W S P G W - CIVILDESIGN Version 14.06

PAGE 4

Program Package Serial Number: 7042

WATER SURFACE PROFILE LISTING

Date: 9-11-2013 Time: 1:46:31

PEACEFUL RIDGE

AST-12-002

300 UPPER SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-1436.002	3006.726	5.034	3011.760	178.00	11.19	1.95	3013.71	.00	3.87	.00	4.500	.000	.00	1 .0
HYDRAULIC JUMP														
-1436.002	3006.726	2.837	3009.563	178.00	16.85	4.41	3013.97	.00	3.87	4.34	4.500	.000	.00	1 .0
10.220	.0131					.0211	.22	2.84	1.90	3.38	.015	.00	.00	PIPE
-1425.781	3006.859	2.810	3009.669	178.00	17.04	4.51	3014.18	.00	3.87	4.36	4.500	.000	.00	1 .0
34.878	.0131					.0228	.80	2.81	1.94	3.38	.015	.00	.00	PIPE
-1390.904	3007.314	2.699	3010.014	178.00	17.87	4.96	3014.97	.00	3.87	4.41	4.500	.000	.00	1 .0
30.785	.0131					.0258	.79	2.70	2.10	3.38	.015	.00	.00	PIPE
-1360.119	3007.717	2.595	3010.311	178.00	18.74	5.46	3015.77	.00	3.87	4.45	4.500	.000	.00	1 .0

SD-300U.OUT

27.743	.0131					.0292	.81	2.59	2.26	3.38	.015	.00	.00	PIPE
-1332.375	3008.079	2.496	3010.574	178.00	19.66	6.00	3016.58	.00	3.87	4.47	4.500	.000	.00	1 .0
25.344	.0131					.0330	.84	2.50	2.43	3.38	.015	.00	.00	PIPE
-1307.031	3008.410	2.401	3010.811	178.00	20.62	6.60	3017.41	.00	3.87	4.49	4.500	.000	.00	1 .0
23.403	.0131					.0374	.88	2.40	2.62	3.38	.015	.00	.00	PIPE
-1283.628	3008.716	2.312	3011.028	178.00	21.62	7.26	3018.29	.00	3.87	4.50	4.500	.000	.00	1 .0
21.778	.0131					.0425	.93	2.31	2.82	3.38	.015	.00	.00	PIPE
-1261.850	3009.000	2.227	3011.227	178.00	22.68	7.99	3019.21	.00	3.87	4.50	4.500	.000	.00	1 .0
.100	2.0000					.0444	.00	2.23	3.03	.83	.015	.00	.00	PIPE

♀ FILE: SD-300U.WSW

W S P G W - CIVILDESIGN Version 14.06

Program Package Serial Number: 7042

WATER SURFACE PROFILE LISTING

Date: 9-11-2013 Time: 1:46:31

PEACEFUL RIDGE

AST-12-002

300 UPPER SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-1261.750	3009.200	2.251	3011.452	178.00	22.37	7.77	3019.22	.00	3.87	4.50	4.500	.000	.00	1 .0
31.380	.0549					.0418	1.31	2.25	2.96	2.10	.015	.00	.00	PIPE
-1230.370	3010.925	2.307	3013.232	178.00	21.68	7.30	3020.53	.00	3.87	4.50	4.500	.000	.00	1 .0
33.366	.0549					.0377	1.26	2.31	2.83	2.10	.015	.00	.00	PIPE
-1197.004	3012.758	2.396	3015.154	178.00	20.68	6.64	3021.79	.00	3.87	4.49	4.500	.000	.00	1 .0
23.512	.0549					.0333	.78	2.40	2.63	2.10	.015	.00	.00	PIPE
-1173.492	3014.050	2.490	3016.540	178.00	19.71	6.03	3022.57	.00	3.87	4.47	4.500	.000	.00	1 .0
17.584	.0549					.0294	.52	2.49	2.45	2.10	.015	.00	.00	PIPE
-1155.908	3015.016	2.589	3017.604	178.00	18.80	5.49	3023.09	.00	3.87	4.45	4.500	.000	.00	1 .0
13.604	.0549					.0260	.35	2.59	2.27	2.10	.015	.00	.00	PIPE
-1142.304	3015.763	2.693	3018.456	178.00	17.92	4.99	3023.44	.00	3.87	4.41	4.500	.000	.00	1 .0
10.722	.0549					.0230	.25	2.69	2.10	2.10	.015	.00	.00	PIPE
-1131.582	3016.353	2.803	3019.156	178.00	17.09	4.53	3023.69	.00	3.87	4.36	4.500	.000	.00	1 .0
8.522	.0549					.0204	.17	2.80	1.95	2.10	.015	.00	.00	PIPE

SD-300U.OUT

-1123.060	3016.821	2.921	3019.742	178.00	16.29	4.12	3023.86	.00	3.87	4.30	4.500	.000	.00	1	.0
6.762	.0549					.0181	.12	2.92	1.80	2.10	.015	.00	.00	PIPE	
-1116.298	3017.192	3.046	3020.239	178.00	15.53	3.75	3023.99	.00	3.87	4.21	4.500	.000	.00	1	.0
5.303	.0549					.0161	.09	3.05	1.66	2.10	.015	.00	.00	PIPE	

♀ FILE: SD-300U.WSW W S P G W - CIVILDESIGN Version 14.06
 Program Package Serial Number: 7042
 WATER SURFACE PROFILE LISTING

PAGE 6

Date: 9-11-2013 Time: 1:46:31

PEACEFUL RIDGE

AST-12-002

300 UPPER SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-1110.995	3017.484	3.181	3020.665	178.00	14.81	3.41	3024.07	.00	3.87	4.10	4.500	.000	.00	1 .0
4.041	.0549					.0144	.06	3.18	1.52	2.10	.015	.00	.00	PIPE
-1106.954	3017.706	3.327	3021.032	178.00	14.12	3.10	3024.13	.00	3.87	3.95	4.500	.000	.00	1 .0
2.903	.0549					.0129	.04	3.33	1.39	2.10	.015	.00	.00	PIPE
-1104.051	3017.865	3.486	3021.351	178.00	13.46	2.82	3024.17	.00	3.87	3.76	4.500	.000	.00	1 .0
1.810	.0549					.0116	.02	3.49	1.27	2.10	.015	.00	.00	PIPE
-1102.241	3017.964	3.663	3021.628	178.00	12.84	2.56	3024.19	.00	3.87	3.50	4.500	.000	.00	1 .0
.651	.0549					.0106	.01	3.66	1.14	2.10	.015	.00	.00	PIPE
-1101.590	3018.000	3.868	3021.868	178.00	12.24	2.33	3024.19	.00	3.87	3.13	4.500	.000	.00	1 .0
TRANS STR	2.0000					.0080	.00	3.87	1.00		.015	.00	.00	PIPE
-1101.490	3018.200	4.980	3023.180	178.00	9.07	1.28	3024.46	.00	3.82	.63	5.000	.000	.00	1 .0
20.828	.0210					.0057	.12	4.98	.29	2.63	.015	.00	.00	PIPE
-1080.662	3018.636	4.534	3023.170	178.00	9.51	1.40	3024.58	.00	3.82	2.91	5.000	.000	.00	1 .0
8.032	.0210					.0056	.05	4.53	.66	2.63	.015	.00	.00	PIPE
-1072.630	3018.805	4.276	3023.081	178.00	9.95	1.54	3024.62	.00	3.82	3.52	5.000	.000	.00	1 .0
HYDRAULIC JUMP														
-1072.630	3018.805	3.403	3022.208	178.00	12.51	2.43	3024.64	.00	3.82	4.66	5.000	.000	.00	1 .0
3.967	.0210					.0092	.04	3.40	1.26	2.63	.015	.00	.00	PIPE

♀ FILE: SD-300U.WSW W S P G W - CIVILDESIGN Version 14.06
 Program Package Serial Number: 7042

PAGE 7

SD-300U.OUT
WATER SURFACE PROFILE LISTING

Date: 9-11-2013 Time: 1:46:31

PEACEFUL RIDGE
AST-12-002
300 UPPER SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-1068.664	3018.888	3.490	3022.378	178.00	12.16	2.30	3024.67	.00	3.82	4.59	5.000	.000	.00	1 .0
4.045	.0210					.0085	.03	3.49	1.20	2.63	.015	.00	.00	PIPE
-1064.619	3018.973	3.649	3022.621	178.00	11.59	2.09	3024.71	.00	3.82	4.44	5.000	.000	.00	1 .0
1.299	.0210					.0076	.01	3.65	1.10	2.63	.015	.00	.00	PIPE
-1063.320	3019.000	3.822	3022.822	178.00	11.05	1.90	3024.72	.00	3.82	4.24	5.000	.000	.00	1 .0

SD-305.WSW

0

T1 PEACEFUL RIDGE

T2 AST-12-002

T3 305 SERIES SD

SO -1745.8703004.000 3

3007.680

R -1745.8703004.000 3 .015

.000 .000 0

R -1691.7003004.650 3 .015

.000 .000 0

R -1691.6003005.150 1 .015

.000 -64.000 1

R -1631.4003006.000 1 .015

.000 .000 0

R -1631.3003006.200 1 .015

.000 -25.000 1

R -1452.7703009.000 1 .015

.000 .000 0

JX -1452.7703009.200 1 2 .015 17.000

3010.000

90.0 .000

R -1232.7603012.000 1 .015

.000 .000 0

R -1232.6603012.200 1 .015

.000 90.000 1

R -1081.0703024.000 1 .015

.000 .000 0

SH -1081.0703024.000 1

3031.000

CD 1 4 1 .000 3.000

.000 .000 .000 .00

CD 2 4 1 .000 2.000

.000 .000 .000 .00

CD 3 4 1 .000 3.500

.000 .000 .000 .00

Q 71.000 .0

PEACEFUL RIDGE
 AST-12-002
 305 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-1745.870	3004.000	3.680	3007.680	88.00	9.15	1.30	3008.98	.00	2.92	.00	3.500	.000	.00	1 .0
54.170	.0120					.0102	.55	3.68	.00	2.65	.015	.00	.00	PIPE
-1691.700	3004.650	3.582	3008.232	88.00	12.45	2.41	3010.64	.00	2.83	.00	3.000	.000	.00	1 .0
.100	5.0012					.0232	.00	3.58	.00	.53	.015	.00	.00	PIPE
-1691.600	3005.150	3.713	3008.863	88.00	12.45	2.41	3011.27	.00	2.83	.00	3.000	.000	.00	1 .0
60.200	.0141					.0232	1.40	3.71	.00	3.00	.015	.00	.00	PIPE
-1631.400	3006.000	4.258	3010.258	88.00	12.45	2.41	3012.66	.00	2.83	.00	3.000	.000	.00	1 .0
.100	2.0000					.0232	.00	4.26	.00	.66	.015	.00	.00	PIPE
-1631.300	3006.200	4.379	3010.579	88.00	12.45	2.41	3012.99	.00	2.83	.00	3.000	.000	.00	1 .0
178.530	.0157					.0232	4.14	4.38	.00	3.00	.015	.00	.00	PIPE
-1452.770	3009.000	5.717	3014.717	88.00	12.45	2.41	3017.12	.00	2.83	.00	3.000	.000	.00	1 .0
JUNCT STR	.0000					.0191	.00	5.72	.00		.015	.00	.00	PIPE
-1452.770	3009.200	7.197	3016.397	71.00	10.04	1.57	3017.96	.00	2.67	.00	3.000	.000	.00	1 .0
220.010	.0127					.0151	3.32	7.20	.00	3.00	.015	.00	.00	PIPE
-1232.760	3012.000	7.716	3019.716	71.00	10.04	1.57	3021.28	.00	2.67	.00	3.000	.000	.00	1 .0
.100	2.0000					.0151	.00	7.72	.00	.60	.015	.00	.00	PIPE
-1232.660	3012.200	8.061	3020.261	71.00	10.04	1.57	3021.83	.00	2.67	.00	3.000	.000	.00	1 .0
48.537	.0778					.0151	.73	8.06	.00	1.39	.015	.00	.00	PIPE

PEACEFUL RIDGE
 AST-12-002
 305 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/or I.D.	ZL	No Wth Prs/Pip
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SD-305.OUT														
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-1184.123	3015.978	5.015	3020.993	71.00	10.04	1.57	3022.56	.00	2.67	.00	3.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HYDRAULIC JUMP														
-1184.123	3015.978	1.487	3017.465	71.00	20.32	6.41	3023.87	.00	2.67	3.00	3.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.094	.0778					.0603	1.03	1.49	3.32	1.39	.015	.00	.00	PIPE
-1167.029	3017.309	1.514	3018.823	71.00	19.85	6.12	3024.94	.00	2.67	3.00	3.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.807	.0778					.0550	1.20	1.51	3.20	1.39	.015	.00	.00	PIPE
-1145.222	3019.006	1.572	3020.579	71.00	18.93	5.56	3026.14	.00	2.67	3.00	3.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.143	.0778					.0485	.73	1.57	2.98	1.39	.015	.00	.00	PIPE
-1130.079	3020.185	1.633	3021.818	71.00	18.05	5.06	3026.88	.00	2.67	2.99	3.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.278	.0778					.0428	.48	1.63	2.77	1.39	.015	.00	.00	PIPE
-1118.801	3021.063	1.698	3022.761	71.00	17.21	4.60	3027.36	.00	2.67	2.97	3.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.741	.0778					.0378	.33	1.70	2.57	1.39	.015	.00	.00	PIPE
-1110.060	3021.743	1.766	3023.509	71.00	16.41	4.18	3027.69	.00	2.67	2.95	3.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.936	.0778					.0334	.23	1.77	2.39	1.39	.015	.00	.00	PIPE
-1103.124	3022.283	1.838	3024.121	71.00	15.64	3.80	3027.92	.00	2.67	2.92	3.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.580	.0778					.0296	.17	1.84	2.21	1.39	.015	.00	.00	PIPE
-1097.544	3022.718	1.914	3024.632	71.00	14.92	3.45	3028.09	.00	2.67	2.88	3.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.513	.0778					.0263	.12	1.91	2.05	1.39	.015	.00	.00	PIPE

♀ FILE: SD-305.WSW

W S P G W - CIVILDESIGN Version 14.06

Program Package Serial Number: 7042

WATER SURFACE PROFILE LISTING

Date: 9-11-2013 Time: 2:18:17

PEACEFUL RIDGE

AST-12-002

305 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
L/Elem	Ch Slope													
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-1093.031	3023.069	1.995	3025.064	71.00	14.22	3.14	3028.20	.00	2.67	2.83	3.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.644	.0778					.0234	.09	2.00	1.89	1.39	.015	.00	.00	PIPE
-1089.387	3023.353	2.082	3025.435	71.00	13.56	2.86	3028.29	.00	2.67	2.76	3.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.906	.0778					.0208	.06	2.08	1.74	1.39	.015	.00	.00	PIPE

SD-305.OUT															
-1086.482	3023.579	2.176	3025.755	71.00	12.93	2.60	3028.35	.00	2.67	2.68	3.000	.000	.00	1	.0
2.259	.0778					.0186	.04	2.18	1.59	1.39	.015	.00	.00	PIPE	
-1084.222	3023.755	2.278	3026.033	71.00	12.33	2.36	3028.39	.00	2.67	2.56	3.000	.000	.00	1	.0
1.665	.0778					.0168	.03	2.28	1.45	1.39	.015	.00	.00	PIPE	
-1082.557	3023.884	2.391	3026.275	71.00	11.75	2.15	3028.42	.00	2.67	2.41	3.000	.000	.00	1	.0
1.076	.0778					.0152	.02	2.39	1.31	1.39	.015	.00	.00	PIPE	
-1081.481	3023.968	2.519	3026.487	71.00	11.21	1.95	3028.44	.00	2.67	2.20	3.000	.000	.00	1	.0
.411	.0778					.0139	.01	2.52	1.16	1.39	.015	.00	.00	PIPE	
-1081.070	3024.000	2.671	3026.671	71.00	10.68	1.77	3028.44	.00	2.67	1.88	3.000	.000	.00	1	.0

♀

SD-305-4.WSW									
T1	PEACEFUL RIDGE								
T2	AST-12-002								
T3	305.4 SERIES SD								
SO	-1207.440	10.000	1					16.400	
R	-1057.680	23.300	1	.015					.000 .000 0
SH	-1057.680	23.300	1					25.900	
CD	1 4 1	.000	2.000	.000	.000	.000	.000	.00	
Q		17.000	.0						

PEACEFUL RIDGE
 AST-12-002
 305.4 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-1207.440	10.000	6.400	16.400	17.00	5.41	.45	16.85	.00	1.49	.00	2.000	.000	.00	1 .0
43.311	.0888					.0075	.33	6.40	.00	.74	.015	.00	.00	PIPE
-1164.129	13.846	2.876	16.722	17.00	5.41	.45	17.18	.00	1.49	.00	2.000	.000	.00	1 .0
HYDRAULIC JUMP														
-1164.129	13.846	.742	14.589	17.00	16.03	3.99	18.58	.00	1.49	1.93	2.000	.000	.00	1 .0
45.496	.0888					.0820	3.73	.74	3.81	.74	.015	.00	.00	PIPE
-1118.633	17.887	.769	18.656	17.00	15.28	3.63	22.28	.00	1.49	1.95	2.000	.000	.00	1 .0
17.878	.0888					.0719	1.29	.77	3.56	.74	.015	.00	.00	PIPE
-1100.755	19.475	.797	20.271	17.00	14.57	3.30	23.57	.00	1.49	1.96	2.000	.000	.00	1 .0
10.537	.0888					.0631	.67	.80	3.33	.74	.015	.00	.00	PIPE
-1090.218	20.410	.826	21.236	17.00	13.89	3.00	24.23	.00	1.49	1.97	2.000	.000	.00	1 .0
7.254	.0888					.0554	.40	.83	3.11	.74	.015	.00	.00	PIPE
-1082.964	21.055	.856	21.910	17.00	13.24	2.72	24.63	.00	1.49	1.98	2.000	.000	.00	1 .0
5.383	.0888					.0487	.26	.86	2.90	.74	.015	.00	.00	PIPE
-1077.581	21.533	.887	22.420	17.00	12.63	2.48	24.90	.00	1.49	1.99	2.000	.000	.00	1 .0
4.174	.0888					.0428	.18	.89	2.70	.74	.015	.00	.00	PIPE
-1073.407	21.903	.920	22.824	17.00	12.04	2.25	25.07	.00	1.49	1.99	2.000	.000	.00	1 .0
3.322	.0888					.0376	.12	.92	2.52	.74	.015	.00	.00	PIPE

PEACEFUL RIDGE
 AST-12-002
 305.4 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/or I.D.	ZL	No Wth Prs/Pip
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SD-305-4.OUT															
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type	Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-1070.085	22.198	.955	23.153	17.00	11.48	2.05	25.20	.00	1.49	2.00	2.000	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.692	.0888					.0331	.09	.96	2.35	.74	.015	.00	.00	PIPE	
-1067.394	22.437	.991	23.428	17.00	10.95	1.86	25.29	.00	1.49	2.00	2.000	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.199	.0888					.0291	.06	.99	2.19	.74	.015	.00	.00	PIPE	
-1065.194	22.633	1.029	23.662	17.00	10.44	1.69	25.35	.00	1.49	2.00	2.000	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.805	.0888					.0257	.05	1.03	2.04	.74	.015	.00	.00	PIPE	
-1063.389	22.793	1.069	23.862	17.00	9.95	1.54	25.40	.00	1.49	2.00	2.000	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.479	.0888					.0227	.03	1.07	1.90	.74	.015	.00	.00	PIPE	
-1061.910	22.924	1.111	24.035	17.00	9.49	1.40	25.43	.00	1.49	1.99	2.000	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.206	.0888					.0200	.02	1.11	1.76	.74	.015	.00	.00	PIPE	
-1060.704	23.031	1.155	24.186	17.00	9.05	1.27	25.46	.00	1.49	1.98	2.000	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.969	.0888					.0177	.02	1.15	1.63	.74	.015	.00	.00	PIPE	
-1059.735	23.117	1.201	24.319	17.00	8.63	1.16	25.47	.00	1.49	1.96	2.000	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.760	.0888					.0156	.01	1.20	1.52	.74	.015	.00	.00	PIPE	
-1058.975	23.185	1.251	24.436	17.00	8.22	1.05	25.49	.00	1.49	1.94	2.000	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.573	.0888					.0139	.01	1.25	1.40	.74	.015	.00	.00	PIPE	
-1058.401	23.236	1.303	24.539	17.00	7.84	.95	25.49	.00	1.49	1.91	2.000	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.401	.0888					.0123	.00	1.30	1.30	.74	.015	.00	.00	PIPE	

♀ FILE: SD-305-4.WSW

W S P G W - CIVILDESIGN Version 14.06

Program Package Serial Number: 7042

WATER SURFACE PROFILE LISTING

Date: 9-11-2013 Time: 2:20:16

PEACEFUL RIDGE

AST-12-002

305.4 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type	Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-1058.000	23.272	1.359	24.631	17.00	7.48	.87	25.50	.00	1.49	1.87	2.000	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.239	.0888					.0110	.00	1.36	1.19	.74	.015	.00	.00	PIPE	
-1057.761	23.293	1.420	24.712	17.00	7.13	.79	25.50	.00	1.49	1.82	2.000	.000	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.081	.0888					.0098	.00	1.42	1.10	.74	.015	.00	.00	PIPE	

							SD-305-4.OUT										
-1057.680	23.300	1.486	24.786	17.00	6.79	.72	25.50	.00	1.49	1.75	2.000	.000	.00	1	.0		
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		

♀

0

Q	17.000	.0
---	--------	----

PEACEFUL RIDGE
 AST-12-002
 307 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-1228.640	3009.500	1.044	3010.543	17.00	12.95	2.61	3013.15	.00	1.44	1.38	1.500	.000	.00	1 .0
56.127	.0501					.0526	2.95	1.04	2.34	1.05	.015	.00	.00	PIPE
-1172.513	3012.312	1.014	3013.325	17.00	13.37	2.78	3016.10	.00	1.44	1.40	1.500	.000	.00	1 .0
29.788	.0501					.0580	1.73	1.01	2.48	1.05	.015	.00	.00	PIPE
-1142.724	3013.804	.972	3014.776	17.00	14.02	3.05	3017.83	.00	1.44	1.43	1.500	.000	.00	1 .0
17.482	.0501					.0653	1.14	.97	2.69	1.05	.015	.00	.00	PIPE
-1125.242	3014.679	.933	3015.613	17.00	14.71	3.36	3018.97	.00	1.44	1.45	1.500	.000	.00	1 .0
12.674	.0501					.0737	.93	.93	2.91	1.05	.015	.00	.00	PIPE
-1112.568	3015.314	.897	3016.211	17.00	15.43	3.70	3019.91	.00	1.44	1.47	1.500	.000	.00	1 .0
10.087	.0501					.0833	.84	.90	3.14	1.05	.015	.00	.00	PIPE
-1102.481	3015.820	.862	3016.681	17.00	16.18	4.07	3020.75	.00	1.44	1.48	1.500	.000	.00	1 .0
8.462	.0501					.0942	.80	.86	3.39	1.05	.015	.00	.00	PIPE
-1094.019	3016.243	.829	3017.072	17.00	16.97	4.47	3021.54	.00	1.44	1.49	1.500	.000	.00	1 .0
7.340	.0501					.1068	.78	.83	3.65	1.05	.015	.00	.00	PIPE
-1086.679	3016.611	.798	3017.409	17.00	17.80	4.92	3022.33	.00	1.44	1.50	1.500	.000	.00	1 .0
6.513	.0501					.1211	.79	.80	3.93	1.05	.015	.00	.00	PIPE
-1080.167	3016.937	.768	3017.705	17.00	18.67	5.41	3023.12	.00	1.44	1.50	1.500	.000	.00	1 .0
5.874	.0501					.1374	.81	.77	4.22	1.05	.015	.00	.00	PIPE

PEACEFUL RIDGE
 AST-12-002
 307 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SD-307.OUT

L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-1074.292	3017.231	.740	3017.971	17.00	19.58	5.95	3023.92	.00	1.44	1.50	1.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.362	.0501					.1561	.84	.74	4.53	1.05	.015	.00	.00	PIPE
-1068.930	3017.500	.713	3018.213	17.00	20.53	6.55	3024.76	.00	1.44	1.50	1.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.100	1.9976					.1628	.02	.71	4.87	.37	.015	.00	.00	PIPE
-1068.830	3017.700	.721	3018.421	17.00	16.66	4.31	3022.73	.00	1.49	1.92	2.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.283	.1406					.0923	.58	.72	4.03	.65	.015	.00	.00	PIPE
-1062.547	3018.584	.742	3019.326	17.00	16.03	3.99	3023.31	.00	1.49	1.93	2.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.726	.1406					.0820	.47	.74	3.81	.65	.015	.00	.00	PIPE
-1056.822	3019.389	.769	3020.158	17.00	15.28	3.63	3023.78	.00	1.49	1.95	2.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.391	.1406					.0719	.32	.77	3.56	.65	.015	.00	.00	PIPE
-1052.430	3020.007	.797	3020.803	17.00	14.57	3.30	3024.10	.00	1.49	1.96	2.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.491	.1406					.0631	.22	.80	3.33	.65	.015	.00	.00	PIPE
-1048.939	3020.498	.826	3021.323	17.00	13.89	3.00	3024.32	.00	1.49	1.97	2.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.842	.1406					.0554	.16	.83	3.11	.65	.015	.00	.00	PIPE
-1046.098	3020.897	.856	3021.753	17.00	13.24	2.72	3024.48	.00	1.49	1.98	2.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.349	.1406					.0487	.11	.86	2.90	.65	.015	.00	.00	PIPE
-1043.749	3021.228	.887	3022.115	17.00	12.63	2.48	3024.59	.00	1.49	1.99	2.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.963	.1406					.0428	.08	.89	2.70	.65	.015	.00	.00	PIPE

♀ FILE: SD-307.WSW

W S P G W - CIVILDESIGN Version 14.06

Program Package Serial Number: 7042

WATER SURFACE PROFILE LISTING

Date: 9-11-2013 Time: 1:59:44

PEACEFUL RIDGE
AST-12-002
307 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-1041.786	3021.504	.920	3022.424	17.00	12.04	2.25	3024.68	.00	1.49	1.99	2.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.651	.1406					.0376	.06	.92	2.52	.65	.015	.00	.00	PIPE
-1040.135	3021.736	.955	3022.691	17.00	11.48	2.05	3024.74	.00	1.49	2.00	2.000	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.394	.1406					.0331	.05	.96	2.35	.65	.015	.00	.00	PIPE

SD-307.OUT

-1038.741	3021.932	.991	3022.923	17.00	10.95	1.86	3024.78	.00	1.49	2.00	2.000	.000	.00	1	.0
1.177	.1406					.0291	.03	.99	2.19	.65	.015	.00	.00	PIPE	
-1037.564	3022.097	1.029	3023.126	17.00	10.44	1.69	3024.82	.00	1.49	2.00	2.000	.000	.00	1	.0
.991	.1406					.0257	.03	1.03	2.04	.65	.015	.00	.00	PIPE	
-1036.573	3022.237	1.069	3023.306	17.00	9.95	1.54	3024.84	.00	1.49	2.00	2.000	.000	.00	1	.0
.829	.1406					.0227	.02	1.07	1.90	.65	.015	.00	.00	PIPE	
-1035.744	3022.354	1.111	3023.464	17.00	9.49	1.40	3024.86	.00	1.49	1.99	2.000	.000	.00	1	.0
.688	.1406					.0200	.01	1.11	1.76	.65	.015	.00	.00	PIPE	
-1035.056	3022.450	1.155	3023.605	17.00	9.05	1.27	3024.88	.00	1.49	1.98	2.000	.000	.00	1	.0
.560	.1406					.0177	.01	1.15	1.63	.65	.015	.00	.00	PIPE	
-1034.495	3022.529	1.201	3023.730	17.00	8.63	1.16	3024.89	.00	1.49	1.96	2.000	.000	.00	1	.0
.445	.1406					.0156	.01	1.20	1.52	.65	.015	.00	.00	PIPE	
-1034.051	3022.592	1.251	3023.842	17.00	8.22	1.05	3024.89	.00	1.49	1.94	2.000	.000	.00	1	.0
.339	.1406					.0139	.00	1.25	1.40	.65	.015	.00	.00	PIPE	

♀ FILE: SD-307.WSW

W S P G W - CIVILDESIGN Version 14.06

PAGE 4

Program Package Serial Number: 7042

WATER SURFACE PROFILE LISTING

Date: 9-11-2013 Time: 1:59:44

 PEACEFUL RIDGE
 AST-12-002
 307 SERIES SD

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
-1033.712	3022.639	1.303	3023.942	17.00	7.84	.95	3024.90	.00	1.49	1.91	2.000	.000	.00	1 .0
.239	.1406					.0123	.00	1.30	1.30	.65	.015	.00	.00	PIPE
-1033.473	3022.673	1.359	3024.032	17.00	7.48	.87	3024.90	.00	1.49	1.87	2.000	.000	.00	1 .0
.143	.1406					.0110	.00	1.36	1.19	.65	.015	.00	.00	PIPE
-1033.329	3022.693	1.420	3024.113	17.00	7.13	.79	3024.90	.00	1.49	1.82	2.000	.000	.00	1 .0
.049	.1406					.0098	.00	1.42	1.10	.65	.015	.00	.00	PIPE
-1033.280	3022.700	1.486	3024.186	17.00	6.79	.72	3024.90	.00	1.49	1.75	2.000	.000	.00	1 .0



APPENDIX C

Improvement Plans