FINAL REPORT

FEASIBILITY STUDY
SIPPO CREEK RESERVOIR DAM
ODNR FILE NO. 0614-012

CITY OF MASSILLON, OHIO

Prepared for the
City of Massillon
Stark County, Ohio

July 2013

URS

1375 Euclid Avenue
Cleveland, Ohio 44115
216-622-2400
Project No. 13814498

July 31, 2013

Mr. Keith Dylewski, P.E., P.S.
City Engineer
City of Massillon – Engineering Department
151 Lincoln Way East
Massillon, OH 44646

RE: Sippo Creek Reservoir Dam
Final Feasibility Report

Dear Mr. Dylewski:

URS Corporation has completed an assessment of the hydraulic capacity of the Sippo Creek Reservoir Dam, its pool, and outlet works, and has presented its conclusions in a report entitled "Sippo Creek Reservoir Dam Hydrologic and Hydraulic Analysis". The report was submitted to the Ohio Department of Natural Resources (ODNR) on November 11, 2011 and ODNR comments were issued April 4, 2012. URS submitted the responses to the initial ODNR comments to ODNR on June 21, 2012 for review and comment. The report and review comments were submitted to the City of Massillon Engineering Department and the Parks and Recreations Department. ODNR issued a final determination for the design flood on December 31, 2012.

This letter and the attached Final Feasibility Study presents the findings of a concept-level feasibility study that examines possible dam modifications that will allow the dam to safely pass the design flood. Incorporated are final design considerations after meeting with ODNR representatives at the site, and their approval of the concept level designs.

ASSUMED CONDITIONS

URS assumed the below listed conditions as a basis for this study:

- Sippo Creek Reservoir would be maintained at its current pool level, El. 1101.64.
- The dam crest would be leveled with about one foot of fill to an elevation of 1107.0 to pass the 100-year flood with minimal overtopping.
- Alternatively, the dam spillway and crest could be lowered to reduce or remove ODNR design flood regulations. It is assumed the spillway would be 2-feet lower than the proposed dam crest.
- The entire lake would be dredged as necessary, before dam modifications are constructed. The cost of dredging is estimated to be approximately $120,000 and is not included under costs in each scenario.
- A sheet pile cutoff wall will be required for all rehabilitation options. The cost of the sheet pile wall is included under spillway improvements in each scenario.

It is possible that other combinations of solutions to the dam's deficient spillway capacity can be developed if alternative spillway types and sizes are considered, but these options were eliminated due to complexity and high cost. Breaching of the dam was not considered feasible due to the City's request that the lake be retained. However, a summary of its attributes and a conceptual cost estimate were developed for the removal option for comparison purposes.

DESIGN FLOOD

The flood analyses concluded that the revised design flood for the dam is the Probable Maximum Flood (PMF) with a peak flow rate of approximately 31,590 cubic feet per second (cfs). This design flood is the ODNR approved regulatory dam discharge. As stated in the ODNR response letter, a PMF with a peak flow rate of approximately 21,087 cubic feet per second (cfs) may be acceptable after a study of revised Probable Maximum Precipitation (PMP) values are accepted by ODNR. However, this PMF discharge cannot be finalized and approved until the new PMP values have been approved by ODNR. In addition, due to the unique hydraulic situation that exists for the dam (i.e. it is submerged by larger flood due to backwater flooding by the Lincoln Way embankment), a smaller discharge has been proven to be the worst-case situation for the dam. As a result, this feasibility study used a worst-case peak flow rate of 3,000 cfs as a basis for the conceptual designs that were evaluated. Floods larger than 3,000 cfs submerge the dam, which reduces stresses on the structure.

ALTERNATIVE SOLUTIONS

URS concluded that six viable alternatives could be developed to modify the dam to safely pass the design flood.
These include:

- Option 1: Lower dam/spillway to be exempt from ODNR regulations
- Option 2: Lower dam/spillway to reduce Hazard Classification and Design Flood
- Option 3: Armor the dam with Articulated Blocks (AB)
- Option 4: Armor the dam with roller-compacted concrete (RCC)
- Option 5: Increase Spillway Capacity
- Option 6: Remove Dam

The preferred alternatives are: leave the lake as-is, and add overtopping protection so that the lake maintains its current functionality and appearance.

The alternatives that are less favorable are complete removal of the dam, or lowering the dam to reduce its hazard classification, or exempt it from ODNR regulations, as the lake does not maintain its current functionality.

The alternatives are discussed below. An existing conditions map is provided in Attachment 1 - Figures. In addition, conceptual sketches Figures 2 and 3 depicting Options 3 and 4 are included for reference. Cost estimate calculations and Table 1- Cost Comparison are provided in Attachment 2 – Construction Cost Estimates. Other supporting data is included in Attachment 3 – Background Data.

Doing nothing is not considered an alternative due to the Hazard Classification of the dam and the ODNR requirement to upgrade the dam.

Option 1:

LOWER THE DAM/SPILLWAY TO BE EXEMPT FROM ODNR REGULATIONS

Option 1 lowers the dam and spillway to remove the structure from ODNR regulations. To be exempt from ODNR regulations, the dam must:

- be ≤ 6 feet in height regardless of storage capacity;
- have ≤ 15 acre-feet of storage capacity regardless of height; or
- be ≤ 10 feet in height and have ≤ 50 acre-feet of storage capacity

The current top of dam is estimated to have an average elevation of 1006.0. The toe of the dam has an elevation of 987.7, which is the invert at the end of the spillway slab. The total height of the dam is therefore 18.3-feet. The primary spillway overflow elevation is 1001.64, which controls the normal pool elevation of the reservoir. The current lake water surface covers approximately 6.7 acres, with a normal pool storage of 38 acre-feet. The lake has a maximum storage capacity of 83 acre-feet at the current top of dam.

Requirements for Exemption

- To satisfy the ≤6 foot height criteria, the dam crest would need to be lowered to an elevation of 993.7, and the spillway would be set at 991.7, which would leave a minimal lake of about 1.5 acres, with 4.3 acre-feet of pool storage.
- To satisfy the ≤15-acre-feet of storage criteria, the dam would need to be lowered to elevation of 996.9, and the spillway would be set at 994.9, which would leave a slightly larger lake of about 2.2 acres, with 10 acre-feet of pool storage.
- To satisfy the ≤10-foot in height, and ≤50 acre-feet of storage criteria, the dam would need to be lowered to elevation of 997.6, and the spillway would be set at 995.6, which would leave a slightly larger lake of about 2.4 acres, with 11.8-acre-feet of storage.

- The largest lake possible while keeping the dam exempt from ODNR regulations is 2.4 acres. This option requires that the lake be dredged to maintain a healthy depth for a larger biodiversity and fishing amenities. In addition, dredging is required to install the upstream erosion protection and the new spillway.

In all of these scenarios, the existing primary spillway would need to be partially or wholly demolished and replaced, as would the spillway sidewalls. Portions of the cutoff wall along the dam crest would need to be removed, and the dam would need to be re-graded.

In addition, although the dam would be exempt from ODNR regulations, it would be prudent to protect the upstream and downstream face of the dam with erosion protection, since large flows would over-top the lowered structure more frequently. The excavated material removed from the dam should be hauled from the site to prevent reducing flood storage, which could increase flooding downstream.

In addition, even though the dam currently offers minimal flood protection, reducing the height and storage capacity of the dam would slightly increase flooding downstream during smaller floods. Lowering the dam would have little downstream impact during larger floods.

Option 1 is not preferred because it:

- Reduces the size of the lake by almost two-thirds.
- Requires the demolition and reconstruction of the existing spillway.
- Reduces recreational amenities of the park.
- Requires erosion protection for upstream and downstream face of dam.
- Increases flooding downstream during smaller floods.
- Has a maximum estimated construction cost of $633,000.

Option 2:

LOWER THE DAM/SPILLWAY TO REDUCE HAZARD CLASSIFICATION

Option 2 lowers the dam and spillway to reduce the ODNR hazard classification for the structure. To do this, the dam is assumed to have a discharge of no more than the 100-year flood downstream during the "Sunny-Day Failure" scenario. The 100-year discharge at the residences on Tremont Avenue SE is 1,980 cfs according to the Federal Emergency Management Agency (FEMA) Flood Insurance Study. During the 100-year flood, the depth of flooding at the structures is slightly less than 2 feet, with velocities approaching 3 feet per second. Flooding depths in excess of two feet can be considered dangerous to human health/safety.

To reduce the Hazard Classification of the dam, it must be proven that the lowered dam will not cause a probable loss of life if it were to fail. As a Class I high-hazard dam, the required design flood is the Probable Maximum Flood (PMF) since failure of the dam (during smaller floods) would cause additional flooding downstream and lead to probable loss of human life. Lowering the dam and its storage capacity would reduce the potential flooding condition downstream should the dam fail during smaller floods. It is assumed, based on these analyses, that Lincoln Way would not be overtopped during a "Sunny-Day" dam failure if the outflow discharge were less than 3,000 cfs. It was further assumed that the dam would not be lowered below elevation 997.6, which would exempt it from ODNR regulations.

To reduce the dam's Hazard Classification to Class II, the dam would need to be lowered to elevation 1103.2 or less, with a spillway elevation of 998.0. This would satisfy the flood reduction criteria so that flows downstream due to a dam failure would not increase flooding by more than 2-feet. In addition, this configuration satisfies ODNR critical flood criteria that the product of the incremental increase in depth due to the dam failure times the average velocity be less than seven.

It is unlikely that the dam's Hazard Classification can be lowered below Class II due to the severely floodprone houses on Tremont Avenue SE. The road and some of the houses are subject to flooding during the 10-year flood and are likely to experience frequent flooding. Flooding conditions on this street cut off emergency services to the residences during larger floods. The pressure conduit siphon on the street makes this area especially dangerous during large floods.

Based on conversations with ODNR, the dam's Hazard Classification may only be reduced to Class II, and the design flood would only be reduced to 50-percent of the PMF (15,800 cfs), or the critical flood, which can be no less than 20-percent of the PMF (6,300 cfs). Therefore, it is not prudent to reduce the hazard classification to Class II in an attempt to reduce the design flood, because the dam is still submerged during smaller floods approaching 3,000 cfs. Total submergence lowers the stresses on the dam, so floods smaller than this are the most structurally critical.

In Option 2, the existing primary spillway would be partially or wholly demolished and replaced, as would the spillway sidewalls. Portions of the cutoff wall along the dam crest would need to be removed, and the dam would need to be re-graded.

In addition, the dam would be still need to have its upstream and downstream face covered with erosion protection, since large flows would over-top the lowered structure more frequently. The excavated material removed from the dam should be hauled away from the site to prevent reducing flood storage, which could increase flooding downstream.

In addition, even though the dam currently offers minimal flood protection, reducing the height and storage capacity of the dam would slightly increase flooding downstream during smaller floods. Lowering the dam would have little downstream impact during larger floods.

To maintain the largest lake possible, and have the Hazard Classification reduced to Class II, the dam crest should be lowered to an elevation of 1003.2. The spillway would be lowered, or replaced at an elevation of 998.0, which would leave a 3.0-acre lake, with 18.4 acre-feet of storage.

This option requires that the lake be dredged to maintain a healthy depth for a larger biodiversity and fishing amenities. In addition, dredging is required to install the upstream erosion protection and the new spillway.

Option 2 is not preferred because it:

- Reduces the size of the lake by 40 percent.
- Requires the demolition and reconstruction of the existing spillway.
- Reduces recreational amenities of the park.
- Requires erosion protection for upstream and downstream face of dam.
- Increases flooding downstream during smaller floods.
- It has a maximum estimated construction cost of $683,700.

Option 3:

ARMORING EXISTING DAM WITH ARTICULATED BLOCK

Option 3 covers the entire dam with articulated concrete blocks, such as the ArmorFlex 40T made by Contech, Inc., leaving the existing spillway essentially as-is. Minor spillway modifications include repairing the existing sidewalls and restoring and leveling the original earth dam crest to an elevation of 1007.0. This option requires no demolition, but the playground on the left dam crest may be affected. This option requires that the lake only be dredged to install the upstream erosion protection.

Option 3 incorporates the existing spillway with articulated block armor over the left and right crests and slopes of the dam. The existing spillway will not require modification, but the sidewalls will need to be repaired. An anchor trench along the upstream toe of the dam crest will be required to prevent undermining and movement of the blocks during high flow conditions. A downstream cutoff wall will be required to prevent undermining of the blocks at their confluence with the creek on both sides of the channel. In addition, the articulated blocks will require a 4" layer of bedding stone and geotextile, which will be integrated with toe drains to ensure proper drainage beneath the blocks.. A 1-foot earthen berm covered with the articulated blocks, will be added to the downstream edges to guide and contain flows.

Armoring the upstream slope of the dam will also be with articulated blocks to allow for ease of construction and the costs are similar to hand-placed rip-rap. The articulated blocks

will be grouted together and covered with 4-inches of topsoil to enhance aesthetics by promoting vegetative growth and allowing for mowing and maintenance. The overall appearance of the dam would be similar to the current conditions.

The dam with this design would be able to pass the 100-year storm without overtopping, while larger floods would be passed over the articulated block armored dam embankment.

Option 3 is preferred because it:

- Maintains the present size of the lake.
- Requires no demolition and reconstruction of the existing spillway.
- Does not reduce recreational amenities of the park.
- Does not increase flooding downstream.
- Only requires minimal dredging.
- It costs slightly more than Options 1 and 2, with a maximum estimated construction cost of $714,700.

Option 4:

ARMORING EXISTING DAM WITH ROLLER COMPACTED CONCRETE

Option 4 covers the entire dam with roller compacted concrete (RCC), leaving the existing spillway essentially as-is. Minor spillway modifications include repairing the existing sidewalls and restoring and leveling the original earth dam crest to an elevation of 1007.0. This option requires no demolition, but the playground on the left dam crest may be affected. This option requires that the lake only be dredged to install the upstream erosion protection.

Option 4 incorporates the existing spillway with RCC armor placed in lifts, forming a series of steps over the left and right crest and downstream slopes of the dam. The existing spillway will not require modification, but the sidewalls will need to be repaired. An anchor/cutoff trench along the dam crest will be required to anchor the blocks and prevent undermining. A downstream cutoff wall will be required to prevent undermining of the RCC at its confluence with the creek on both sides of the channel. In addition, the RCC will require a 6-inch layer of bedding sand for filter material and 1-foot layer of clean gravel as a drain material, and geotextile. A 1-foot curb will be added to the downstream edge of the RCC steps to guide and contain flows. Toe and blanket drains will be incorporated to ensure proper drainage beneath the RCC steps.

Armoring the upstream slope of the dam will be with hand-placed rip-rap to prevent erosion on the inside dam face during overtopping events. The RCC will be an unformed, stepped dam face that will be covered with a minimum of 4-inches of topsoil to promote vegetation

growth and allow for mowing and maintenance. The overall appearance of the dam would be similar to the current conditions.

The dam in this condition would be able to pass the 100-year storm without overtopping, and larger floods would be passed over the RCC armored dam embankment.

Option 4 has similar positive attributes as Option 3:

- Maintains the present size of the lake.
- Requires no demolition and reconstruction of the existing spillway.
- Maintains the present recreational amenities of the park.
- Only requires minimal dredging.
- Does not increase flooding downstream.

Option 4 is not the preferred option because:

- RCC would likely have to be produced on-site, requiring mobilization of a mixing plant and a large staging area for plant and materials.
- It is more costly than Options 1 and 2 with a maximum estimated construction cost of $785,000.
- It is more costly than the Option 3 – articulated blocks.

Option 5:

INCREASE SPILLWAY CAPACITY OF EXISTING DAM

Option 5 widens the existing spillway to accommodate the 500-year flood and covers the remainder of the entire dam with articulated block or RCC. This configuration would allow smaller storms to pass without damaging the dam by overtopping. Since storms larger than the 500-year flood submerge the dam, they can be considered less structurally critical. Major spillway modifications include replacing the existing sidewalls, adding additional spillway capacity, and restoring and leveling the original earth dam crest. This option requires some possible demolition, and the playground on the left dam crest would probably be affected. This option requires that the lake be lowered and dredged to install the spillway and upstream erosion protection.

The existing spillway would be enlarged from 50-feet to a width of 80 feet, which will pass the 500-year flood without overtopping the dam, with its crest set at 1007.0. The increased capacity will be gained by installation of a 30-foot conventional concrete spillway and energy dissipation system similar to the existing structure, or by enlarging the existing stone masonry structure. Larger floods would be passed over the articulated block or RCC armored dam embankment. This option requires relocation or possible demolition of the existing block sidewalls, and excavation for the new spillway. The same requirements for

the articulated block or RCC facing of the dam will be necessary. The volumes and areas for this option will be slightly reduced due to the decrease in total width of the overtopping protection.

Option 5 has the following positive attributes:

- It maintains the present size of the lake.
- It maintains the present recreational amenities of the park.

Option 5 is not the preferred option because:

- Overtopping protection would still be required whether accomplished with articulated block or RCC. The dam with larger spillway would not capable of passing larger floods without overtopping.
- A widened spillway may offer a significant increase in integrity of the structure and make it safer, but would not offer much to protect it from overtopping in large floods.
- This option is more difficult to construct and may require demolition of portions of the existing block sidewalls. Unexpected storm events during construction may compromise the partially dismantled spillway, possibly failing the dam.
- RCC would be produced on-site, requiring a large staging area for batch plant and materials.
- It is the most expensive option evaluated, with a maximum estimated construction cost of $841,500.

Option 6:

REMOVING THE DAM

The City of Massillon has requested that URS consider breaching the dam as a potential solution. A full assessment and complete cost estimate of the dam breaching option is beyond the scope of this study, but a conceptual cost is included in Attachment 2-Construction Cost Estimates. Our experience has been that dam removal can often be as expensive as, or more expensive than, dam repair. The issues to be considered are discussed below.

To restore sufficient stream channel capacity for this site, the entire concrete spillway structure and cutoff wall must be removed by either blasting or mechanical means. The concrete demolition debris must be properly disposed of, either by identifying a suitable location where the debris can be buried on site or by hauling the debris to an acceptable offsite disposal area. It is unlikely that a suitable on-site location can be found for the rubble due to the park location in the 100-year floodplain.

Due to the large drainage area, large flows over the history of the reservoir have partially filled it in with sediment. Measures must be taken to prevent this sediment from being washed downstream during draining of the reservoir and after the dam is removed. Sediment washing downstream could produce adverse environmental effects, such as fish kills. Since the reservoir has a large watershed, samples of the reservoir sediments should be tested to determine oif they are free of undesirable or unacceptable chemicals. However, draining of a reservoir carries a risk that previously undetected objects or materials may be uncovered, potentially leading to expensive environmental assessment and remediation.

The stream channel through the reservoir area would need to be restored to a stable configuration. This would require grading to re-establish a stream channel with a reasonable slope. Channel protection and plantings would be required to prevent unacceptable erosion of the stream channel banks.

Depending on the depth of sediment in the reservoir area, regrading may be required to establish stable stream bank contours. The reservoir sediment is most likely very wet and soft. Drying or other moisture conditioning measures would likely be required prior to regrading.

The entire reservoir area would need to be revegetated to restore conditions approximating a natural riparian habitat. It is possible that removing the dam and reservoir would destroy wetlands that must be replaced by constructing new wetlands.

Removal of the dam would not probably lead to future liability due to loss of flood protection downstream, since the dam offers little flood control during larger floods. However, the value of the lost amenities to the community would likely be an issue. It is likely that removal of the dam will require a great deal of community/public relations.

Permitting for dam removal would involve review and approval by the ODNR dam safety program, US Army Corps of Engineers (USACE) 401/404 permits, and probable review and approval by the Ohio EPA. While it is possible that dredging/disturbance of the dam and lake sediments might be permitted under a USACE Nationwide Permit for Maintenance and/or Minor Dredging, it is possible that Individual 401/404 permits would be required.

Option 6 positive attributes include:

- It replaces the present lake with stepped pools and wetlands, which may be attractive.
- It removes dam liability.

Option 6 is not the preferred option because it:

- Eliminates the lake.
- Reduces recreational amenities of the park.
- Is likely to reduce property values around the lake.

- Requires erosion protection of the exposed lake bottom.
- Requires extensive plantings.
- It may expose environmentally sensitive conditions that have long been submerged.
- Requires the removal of a large quantity of fill.
- Requires sediment controls and long-term maintenance.
- Increases flooding downstream.
- Requires the demolition and disposal of the dam structure, cutoff wall, and sidewalls.
- Is almost as costly as other options, with an estimated construction cost of $665,600, and is more expensive if a sheet pile wall is not required for the other options.

Option 6 is not a viable option for the site since it costs almost as much to remove the dam as it does to rehabilitate it to ODNR standards and requirements. If this option were selected, it would remove the lake amenities, likely reduce property values around the lake, and increase flooding downstream. This option does remove the dam's inherent liability and provides wetland habitat, but may increase environmental liabilities if undesirable materials are found in the lake bed. This option also requires the most demolition, and the playground on the left dam crest may be affected. This option requires that the lake be contoured to control erosion and prevent migration of sediment.

Other Options:

Several options exist to increase the spillway capacity of the dam. These options include using a moveable gate system, fuse blocks, and labyrinth weir configurations. A gated spillway could use the entire head of the lake to drive water through the spillway and pass the design flood. It would incorporate a multiple-section spillway that includes a 150-foot wide gated section. The gates remain closed under most conditions, allowing ordinary flows to pass over the top of the gate, but begin to open when high flow conditions require additional flow capacity. A pneumatically operated steel gate system manufactured by Obermeyer Hydro, Inc., Fort Collins, CO was used for the concept design. When fully open, the total spillway capacity is sufficient to pass the design flood. This option requires that the dam crest be raised to 1010.0, and the lake be excavated in the approach channel to a sufficient depth for construction of the steel gate system. Costs for a gated spillway system would be more expensive than the other options explored.

Fuse blocks and labyrinth weirs can be applied but have the same issues as the gated weirs system as they are expensive and would require the demolition of the existing structure. None of these spillway systems will retain the aesthetics of the current spillway system. The size and expense of these systems would preclude using them in the rehabilitation of the dam.

Removing the downstream hazards or protecting them from flooding would be too expensive as there are over 30 residences that are floodprone. Since the flooding along Tremont Avenue SE is so sever during large floods, it would not be practical to protect the residences from flooding. In addition, removing these structures would cost more than rehabilitating the dam. However, it should be noted that a program for removing the most severely floodprone structures should be implemented.

Due to the access issues on the street during flooding conditions, it would not be likely to reduce the Hazard Classification of the dam to below a Class II.

These options are not the preferred solution for several reasons:

- Non-standard spillways are too expensive for this situation.
- Non-standard spillways require demolition of the dam and its appurtenances.
- Removing all floodprone houses on Tremont avenue SE is more expensive than rehabilitating the dam.

Additional Considerations:

Due to the considerable forces that the dam would be subjected to during large floods, up to and, including the PMF, it would be prudent to perform a geotechnical investigation, and stability analysis on the structure. The geotechnical investigation and stability analysis is outside of the scope of this study. These investigations and analyses will be performed during the final design. The stability analysis should be based on a minimum of three borings of the dam and subgrade, to determine the material that makes the dam and the foundation material it is built upon. The properties determined in the geotechnical investigation will be used in the stability analysis and the rehabilitation design.

In addition, the existing cutoff wall should be partially excavated to determine its condition. It may be necessary, based on the geotechnical investigation, to need an additional cutoff wall to cutoff seepage and stabilize the dam. A cutoff wall would likely consist of a sheet pile wall or concrete wall or other similar construction. An estimate of the cost of a sheet pile wall is included in Appendix A in the attached report. The cutoff wall is assumed to be terminated at a minimum elevation of 982.0, which is six feet below the invert of the downstream creek.

CONCLUSIONS

The Hydrologic and Hydraulic report has been approved by ODNR, establishing the approved design flood for the dam to be 31,590 cfs. A lower design flood may be approved by ODNR in the near future that would lower the design flood to 21,100 cfs. The preferred method of rehabilitating the dam to satisfy ODNR requirements is to raise the dam to a level elevation of 1007.0, and protecting the upstream and downstream slopes with either

articulated block or RCC. The City will need to select a design concept for improvements. The options presented in this report have been approved by ODNR. When a concept design is selected, URS will be pleased to assist The City of Massillon in preparing design drawings, technical specifications, and permit submittals for the project. If breaching of the dam will be seriously considered, URS is prepared to assist you in determining how it should be done, its probable cost, and its environmental implications.

URS appreciates the opportunity to provide services to the City of Massillon on this interesting project. If there are questions or concerns about any aspect of the project or this report, please contact us. We will also be pleased to discuss the next phase of the project at your convenience. Thank you.

Sincerely,

URS Corporation

Thomas A. Kovacic, P.E.
Vice President

Michael Damian, P.G.
Senior Dams Specialist

MD:MMS/mg

Attachments

cc: Michael Shore, URS
File 13814498

Attachment 1
Figures

Attachment 2
Construction Cost Estimates

TABLE 1

SIPPO CREEK RESERVOIR DAM
CONCEPT COST ESTIMATE
COMPARISON TABLE

Option	Construction Elements	Estimated Cost without Sheet Pile Wall	Estimated Cost with Sheet Pile Wall	Comments
1 - Exempt	Lower Dam Crest to 997.6 / Spillway to 995.6 Demo existing spillway/replace - Armor US with riprap & DS Slopes with RCC - Add sheet pile wall	$441,900	$633,000	Reduces the size of the lake by almost two-thirds - Requires the demolition and reconstruction of the existing spillway - Reduces recreational amenities of the park.
2 - Reclassify	Lower Dam Crest to 1003.2 / Spillway to 1001.2 - Demo existing spillway/replace - Armor US with riprap & DS Slopes with RCC - Add sheet pile wall	$426,600	$683,700	Reduces the size of the lake by almost forty-percent - Requires the demolition and reconstruction of the existing spillway - Reduces recreational amenities of the park.
3 - Articulated Blocks	Dam Crest raised to 1007.0 / Spillway stays 1001.6 - Armor US & DS Slopes with articulated blocks - Add sheet pile wall	$414,400	$714,700	Maintains the present size of the lake - Requires no demolition and reconstruction of the existing spillway - Does not reduce recreational amenities of the park.
4 - Roller Compacted Concrete	Dam Crest raised to 1007.0 / Spillway stays 1001.6 Armor US with riprap & DS Slopes with RCC Add sheet pile wall	$484,800	$785,000	Maintains the present size of the lake - Requires no demolition and reconstruction of the existing spillway - Does not reduce recreational amenities of the park.
5 - Widen Spillway	Dam Crest raised to 1007.0 / Spillway stays 1001.6 - Add 30' primary spillway at 1101.6 - Armor US with riprap & DS Slopes with RCC - Add sheet pile wall	$586,300	$841,500	Maintains the present size of the lake - Requires no demolition, but requires construction of new spillway - Does not reduce recreational amenities of the park.
6 - Remove	Remove Dam & Spillway - Create 50-foot bottom width at 3:1 sideslopes in embankment - Demo cutoff wall - Re-contour and replant reservoir bottom	$665,600	$665,600	Eliminates lake - Requires demolition of existing spillway and cutoff wall - Requires erosion controls for entire lake Reduces recreational amenities of the park.

SIPPO CREEK RESERVOIR DAM
CONCEPT COST ESTIMATE
OPTION 1 - LOWER TO EXEMPT
(MS Consultants/URS reports used as basis)
©1/16/13

DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	EXTENSION	SUBTOTALS	Source of Pricing	Notes		Comments
MOBILIZATION / DEMOB	1	LS	$40,000.00	$40,000.00	**$40,000.00**	Personal experience	~5% to 10% of total cost		Seems reasonable
GENERAL CONDITIONS	1	LS	$35,000.00	$35,000.00	**$25,000.00**	Personal experience	Site survey, Testing, & Supervision		Seems reasonable
DAM REHABILITATION									
Subgrade Preparation									
A Excavate topsoil (Stripping)	700	CY	$10.00	$7,000.00		RS Means Crew B-2	1 foreman and 2 laborers, rounded up to $1,000 per day for 5 days Limited access	1/3 to be reused on site	Suggest item 31 14 13 23 1440, Topsoil Stripping & Stockpiling 300 HP Dozer 500' haul, $8.40 Round to $10 OK Crew would be B-10M 1 equip operator, 0.5 laborer 1 dozer 300 HP
B Demo Spillway & Cutoff wall Partial Dam Removal	80	CY	$175.00	$14,000.00			1 foreman and 2 laborers rounded up to $1,000 per day for 5 days Limited access		No analog in RS Means, but $175 per CY should be ample
C Excavate subgrade Partial Dam Removal	3652	CY	$20.00	$73,040.00		RS Means Crew B-2	1 foreman and 2 laborers rounded up to $1,000 per day for 5 days Limited access	1/3 to be reused on-site	Excavating bulk bank material, 31 23 16 42 range from $1 to $2 per CY using hydraulic excavator, then add +hauling 31 23 23 20, 1040 - 12 CY truck 25 MPH, 6 mile cycle, $5.10 per CY $20 is ample/conservative
D Site Preparation/regrade slopes	1	LS	$5,500.00	$5,500.00		Personal experience	3 man crew @ $300 per man day for 5+ days, plus misc equipment & hand tools		Seems reasonable
E Furnish & place Filter Fabric	1500	SY	$3.45	$5,175.00		Personal experience	8 oz/sy geotextile		RSM Item 31 32 19 16 Geotextile Soil Stabilization SS2 70/SY so $3.45 ample
F Furnish & place Sand Bedding	400	TON	$35.00	$14,000.00		Personal experience	Clean sand		RSM item 32 11 23 23 2023 Base Course Drainage Layer, 12"deep $33 per ton using 2009 Means book
G Perforated HDPE Pipe, 4-inch diameter	100	LF	$18.00	$1,800.00		Personal experience			RSM 33 46 16 35 0040 Piping, Subdrain, Corr Plastic Tubing, Perf Or Plain 34" diameter, $1.27 per LF High but OK for small quantity
H Solid HDPE Pipe, 4 inch diameter	40	LF	$15.00	$600.00					Same
					$121,115.00				
Overtopping Preparation									
A Excavation of anchor trench (Crest)	50	CY	$20.00	$1,000.00		2040, excavating, common earth, hydraulic backhoe, 1 CY bucket			A 1-CY bucket is too big for this narrow trench, suggest 3/8 CY bucket, RSM 31 23 16 13 - 3060 Excavation, Trench, common earth, 1' to 4' deep $8.18 CY $20 is good for small quantity, right access
B Excavation of Cutoff wall trench (DS Toe)	20	CY	$20.00	$400.00		Personal experience	Difficult access plus unknown haul		Same - OK
C ODOT Type C, Hand Placed (US Slope)	200	TON	$150.00	$30,000.00		Personal experience	Difficult access plus unknown haul		RSM 31 37 13 10 C260 Riprap & Rock Lining "8" min thickness, not grouted, $92 per SY, at 1.6" thick & 140 PCF density ~$98 per ton, so $125 per ton may not be enough, Hand placed Suggest $150/ton
D Concrete for anchor trench (Crest)	50	CY	$250.00	$12,500.00		Personal experience	Difficult access plus unknown haul		OK based on other dam projects
E Concrete for Cutoff wall trench (DS Toe)	20	CY	$350.00	$7,000.00		Personal experience	Difficult access plus unknown haul		OK based on other dam projects
F Concrete for Curbs	6	CY	$250.00	$1,500.00		Personal experience	Difficult access plus unknown haul		OK based on other dam projects
					$52,400.00				
Spillway Improvements									
Sheet Pile Cutoff Wall - Earthen Dam									
A Sheet pile AZ 30	3,120	SF	$50.00	$156,000.00		Personal experience Based on similar recent projects	Assumes AZ 28 sheets priced per SF of sheet penetrating body of dam		P ring assumed to weigh 30 pcf, 3,120 SF x 30/2,000 lbs per ton = 46.8 tons RSM item 3" 4" 16 10 sheet piling 27 psi 20 feet deep, left in place $1.95C per ton, x 46.8 tons = $91,260 Pricing shown seems conservative and OK
B Reinforced Concrete Cap Beam	15	CY	$450.00	$6,750.00		Personal experience	Reinforced / incorporates sidewalk		OK based on other dam projects
C Compacted Clay Fill	200	CY	$16.00	$3,200.00		Personal experience	Small quantity, slow work		OK based on other dam projects
					$165,950.00				
Primary Spillway									
A Concrete for spillway	50	CY	$350.00	$17,500.00		Personal experience	Assume 8 wide steps x 1' high x area of step with 12' curbs on left & right crest, w/200-foot crest		Unit price looks reasonable, need to check dimensions
B Repair sidewalls	10		$1,000.00	$10,000.00					I think this could escalate due to the need for demolition, care & diversion o water etc. in addition to placing concrete. Suggest $10,000
					$27,500.00				
Emergency Spillway									
A RCC Armoring	600	CY	$175.00	$105,000.00		Personal experience	Assume 8 wide steps x 1 high x area of step with 12' curbs on left & right crest, w/200 foot crest		Unit price looks reasonable, Denver input
					$105,000.00				
					$298,450.00				
Site Restortion									
A On site Topsoil	350	CY	$14.80	$5,180.00		RS Means Item 02920-510-4400 Slope mix, push spreader	Includes allowance for lime, fertilizer, and mulch		OK
B Seeding	20	MSF	$80.00	$1,600.00		RS Means Item 02920-510-4600, Hydro-seeding, slope mix including, fertilizer & mulch			Ok
C Plantings/Trees	20	Each	$200.00	$4,000.00		Personal experience			Ok Even if this doubles it's still a small item
					$10,780.00				
							With Sheet Pile Wall	**Without Sheet Pile Wall**	
Lower Dam Crest to 997.6 / Spillway to 995.6		**Estimate does not include engineering, permitting, or construction management.**				**Total Estimate**	**$547,745.00**	**$381,795.00**	
Demo existing spillway/replace						**Unidentified Costs**	**$55,000.00**	**$39,000.00**	
Armor US & DS Slopes / Add sheet pile wall						**Adjusted Subtotal**	**$602,745.00**	**$420,795.00**	
						Contingency 5%	**$30,200.00**	**$21,100.00**	
						PROJECT GRAND TOTAL	**$632,945.00**	**$441,895.00**	
						PROJECT GRAND TOTAL	**$633,000.00**	**$441,900.00**	

SIPPO CREEK RESERVOIR DAM
CONCEPT COST ESTIMATE
OPTION 2 - LOWER TO EXEMPT
(MS Consultants/URS reports used as basis)
01/16/13

DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	EXTENSION	SUBTOTALS	Source of Pricing	Notes		Comments
MOBILIZATION / DEMOB	1	LS	$30,000.00	$30,000.00	**$30,000.00**	Personal experience	~5% to 10% of total cost		Seems reasonable.
GENERAL CONDITIONS	1	LS	$35,000.00	$35,000.00	**$25,000.00**	Personal experience	Site survey, Testing, & Supervision		Seems reasonable.
DAM REHABILITATION									
Subgrade Preparation									
A. Excavate topsoil (Stripping)	700	CY	$10.00	$7,000.00		RS Means Crew B-2	1 foreman and 2 laborers, rounded up to $1,000 per day for 5 days. Limited access	1/3 to be reused on-site	Suggest Item 31 14 13.23-1440, Topsoil Stripping & Stockpiling, 300 HP Dozer, 500' haul, $8.40. Round to $10 OK. Crew would be B-10M 1 equip. operator, 0.5 laborer, 1 dozer 300 HP,
B. Demo Spillway & Cutoff wall - Partial Dam Removal	35	CY	$175.00	$6,125.00			1 foreman and 2 laborers, rounded up to $1,000 per day for 5 days. Limited access		I don't see a good analog in RS Means, but $175 per CY should be ample.
B. Excavate subgrade - Partial Dam Removal	1400	CY	$20.00	$28,000.00		RS Means Crew B-2	1 foreman and 2 laborers, rounded up to $1,000 per day for 5 days. Limited access	1/3 to be reused on-site	Excavating bulk bank material, 31 23 16.42 range from $1 to $2 per CY using hydraulic excavator, then add Hauling, 31 23 23.20, 1040 - 12 CY truck, 25 MPH, 6 mile cycle, $5.10 per CY. $20 is ample/conservative.
C. Site Preparation/regrade slopes	1	LS	$5,500.00	$5,500.00		Personal experience	3-man crew @ $300 per man day, for 5+ days, plus misc. equipment & hand tools		Seems reasonable.
D. Furnish & place Filter Fabric	1750	SY	$3.45	$6,037.50		Personal experience	8 oz/sy geotextile		RSM Item 31 32 19.16, Geotextile Soil Stabilization $5.2 70/SY, s $3.45 ample
E. Furnish & place Sand Bedding	475	TON	$35.00	$16,625.00		Personal experience	Clean sand		RSM Item 32 11 23.23 - 2023, Base Course Drainage Layer, 12"deep, $33 per ton using 2009 Means book. Use $35.
F. Perforated HDPE Pipe, 4-inch diameter	100	LF	$18.00	$1,800.00		Personal experience			RSM 33 46 16.35-0040, Piping, Subdrain, Corr. Plastic Tubing, Perf. Or Plain, $4" diameter, $1.27 per LF. High but OK for small quantity
H. Solid HDPE Pipe, 4-inch diameter	40	LF	$15.00	$600.00					Same
					$71,687.50				
Overtopping Preparation									
A. Excavation of anchor trench (Crest)	50	CY	$20.00	$1,000.00		RS Means Item 02315-440-2040, excavating, common earth, hydraulic backhoe, 1 CY bucket			A 1-CY bucket is too big for this narrow trench, suggest 3/8 CY bucket, RSM 31 23 16.13 - 0050, Excavation, Trench, common earth, 1' to 4' deep 58.10/CY, $20 is good for small quantity, light access.
B. Excavation of Cutoff wall trench (DS Toe)	20	CY	$20.00	$400.00		Personal experience	Difficult access plus unknown haul		Same - OK
C. ODOT Type C - Hand Placed (US Slope)	240	TON	$150.00	$36,000.00		Personal experience	Difficult access plus unknown haul		RSM 31 37 13.10 - 0200, Riprap & Rock Lining 18" min thickness, not grouted, $93 per SY, if 1.5' thick & 140 PCF density ~$88 per ton, so $125 per ton may not be enough if hand-placed. Suggest $150/ton.
D. Concrete for anchor trench (Crest)	50	CY	$250.00	$12,500.00		Personal experience	Difficult access plus unknown haul		OK based on other dam projects
E. Concrete for Cutoff wall trench (DS Toe)	20	CY	$350.00	$7,000.00		Personal experience	Difficult access plus unknown haul		OK based on other dam projects.
F. Concrete for Curbs	6	CY	$250.00	$1,500.00		Personal experience	Difficult access plus unknown haul		OK based on other dam projects
					$58,400.00				
Spillwayy Improvements									
Sheet Pile Cutoff Wall - Earthen Dam									
A. Sheet pile AZ-30	4,240	SF	$50.00	$212,000.00		Personal experience - Based on similar recent projects - Vik conservative estimate.	Assumes AZ-28 sheets - priced per SF of sheet penetrating body of dam.		Piling assumed to weigh 30 pcf, 3,120 SF x 30/2,000 lbs per ton = 46.8 tons. RSM Item 31 41 16.10 sheet piling, 27 pcf 20 feet deep, left in place, $1,950 per ton, x 46.8 tons = $91,260. Pricing shown seems conservative and OK.
B. Reinforced Concrete Cap Beam	15	CY	$450.00	$6,750.00		Personal experience	Reinforced / incorporates sidewalk		OK based on other dam projects.
C. Compacted Clay Fill	200	CY	$16.00	$3,200.00		Personal experience	Small quantity, slow work		OK based on other dam projects.
					$221,950.00				
Primary Spillway									
A. Concrete for spillway	15	CY	$350.00	$5,250.00		Personal experience			Unit price looks reasonable, need to check dimensions.
B. Repair sidewalls	10		$1,000.00	$10,000.00					I think this could escalate due to the need for demolition, care & diversion of water etc. in addition to placing concrete. Suggest $10,000
					$15,250.00				
Emergency Spillway									
A. RCC Armoring	900	CY	$175.00	$157,500.00		Personal experience	Assume 8 wide steps x 1' high x area of step with 12" curbs on left & right crest, w/200-foot crest.		Unit price looks reasonable. Denver input
					$157,500.00				
					$394,700.00				
Site Restortion									
A. On-site Topsoil	385	CY	$14.80	$5,698.00		RS Means Item 02920-510-4400, Slope mix, push spreader	Includes allowance for lime, fertilizer and mulch		OK
B. Seeding	20	MSF	$80.00	$1,600.00		RS Means Item 02920-510-4600, Hydro-seeding, slope mix, including, fertilizer & mulch			OK
C. Plantings/Trees	20	Each	$200.00	$4,000.00		Personal experience			OK. Even if this doubles it's still a small item.
					$11,298.00				

			With Sheet Pile Wall	Without Sheet Pile Wall	
Lower Dam Crest to 1003.2 / Spillway to 1001.2		**Estimate does not include engineering, permitting,or construction management.**	**Total Estimate**	**$591,085.50**	**$389,135.50**	
Demo existing spillway/replace			**Unidentified Costs**	**$60,000.00**	**$37,000.00**	
Armor US & DS Slopes / Add sheet pile wall			**Adjusted Subtotal**	**$651,085.50**	**$406,135.50**	
			Contingency 5%	**$32,600.00**	**$20,400.00**	
			PROJECT GRAND TOTAL	**$683,685.50**	**$426,535.50**	
			PROJECT GRAND TOTAL	**$683,700.00**	**$426,600.00**	

SIPPO CREEK RESERVOIR DAM
CONCEPT COST ESTIMATE

OPTION 3 - ARTICULATED BLOCKS

(MS Consultants/AJRS reports used as basis)
07/30/13

DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	EXTENSION	SUBTOTALS	Source of Pricing	Notes		Comments
MOBILIZATION / DEMOB	1	LS	$40,000.00	$40,000.00	**$40,000.00**	Personal experience	~5% to 10% of total cost		Seems reasonable.
GENERAL CONDITIONS	1	LS	$35,000.00	$35,000.00	**$35,000.00**	Personal experience	Site survey, Testing, & Supervision		Seems reasonable.
DAM REHABILITATION									
Subgrade Preparation									
A. Excavate topsoil (Stripping)	340	CY	$10.00	$3,400.00		RS Means Crew B-2	1 foreman and 2 laborers, rounded up to $1,000 per day for 5 days. Limited access	1/3 to be reused on-site	Suggest Item 31 14 13.23-1440, Topsoil Stripping & Stockpiling, 300 HP Dozer, 500' haul, $8.40. Round to $10 OK. Crew would be B-10M - 1 equip. operator, 0.5 laborer, 1 dozer 300 HP.
B. Excavate subgrade	340	CY	$20.00	$6,800.00		RS Means Crew B-2	1 foreman and 2 laborers, rounded up to $1,000 per day for 5 days. Limited access	1/3 to be reused on-site	Excavating bulk bank material, 31 23 16.42 range from $1 to $2 per CY using hydraulic excavator, then add Hauling, 31 23 23.20, 1040 - 12 CY truck, 25 MPH, 5 mile cycle, $5.10 per CY. $20 is ample/conservative.
C. Site Preparation/regrade slopes	1	LS	$5,000.00	$5,000.00		Personal experience	3-man crew @ $300 per man day, for 5 days, plus misc. equipment & hand tools		Seems reasonable.
D. Furnish & place Filter Fabric	2000	SY	$3.45	$6,900.00		Contech	8 oz/sy geotextile - Contech to provide		RSM Item 31 32 19.16, Geotextile Soil Stabilization $$2.70/SY, so $3.45 ample.
F. Furnish & place Gravel Bedding	450	TON	$35.00	$15,750.00		Personal experience	4" clean bedding/filter stone		Seems reasonable.
F. Furnish & place Geogrid	2000	CY	$4.50	$9,000.00		Contech	Contech to provide		Seems reasonable.
G. Perforated HDPE Pipe, 4-inch diameter	100	LF	$18.00	$1,800.00		Personal judgment	Installed		Perf. Or Plain, $4" diameter, $1.27 per LF. High but OK for small quantity.
H. Solid HDPE Pipe, 4-inch diameter	40	LF	$15.00	$600.00		Personal judgment	Installed		Same.
					$49,250.00				
Overtopping Preparation									
A. Excavation of anchor trench (US Toe)	33	CY	$20.00	$660.00		RS Means Item 02315-440-2040, excavating, common earth, hydraulic backhoe, 1 CY bucket			A 1-CY bucket is too big for this narrow trench, suggest 3/8 CY bucket, RSM 31 23 16.13 - 0650, Excavation, Trench, common earth, 1' to 4' deep $8.10/CY. $20 is good for small quantity, tight access.
B. Excavation of Cutoff wall trench (DS Toe)	75	CY	$20.00	$1,500.00		Personal experience			Same - OK
C. ODOT Type C - Hand Placed Rock (US Toe)	0	TON	$150.00	$0.00		Personal experience			RSM 31 37 13.10 - 0200, Riprap & Rock Lining 18" min thickness, not grouted, $93 per SY, if 1.5' thick & 140 PCF density ~$98 per ton, so $125 per ton may not be enough if hand-placed. Suggest $150/ton.
D. Concrete for anchor trench (US Toe)	33	CY	$250.00	$8,250.00		Personal experience	Difficult access plus unknown haul		OK based on other dam projects
E. Concrete for Cutoff wall trench (DS Toe)	75	CY	$350.00	$26,250.00		Personal experience	Difficult access plus unknown haul		OK based on other dam projects
F. Anchors - Lump sum	1	LS	$1,500.00	$1,500.00		Personal experience			OK based on other dam projects
					$38,160.00				
Overtopping Stability Improvements									
Sheet Pile Cutoff Wall - Earthen Dam									
A. Sheet pile AZ-30	5,000	SF	$50.00	$250,000.00		Personal experience - Based on similar recent projects - Vik conservative estimate.	Assumes AZ-28 sheets - priced per SF of sheet penetrating body of dam (200' long x 25' deep).		Piling assumed to weigh 30 pcf, 3,120 SF x 30/2,000 lbs per ton = 46.8 tons. RSM item 31 41 16.10 sheet piling, 27 pcf 20 feet deep, left in place, $1,950 per ton, x 46.8 tons = $91,260. Pricing shown seems conservative and OK.
B. Reinforced Concrete Cap Beam	15	CY	$450.00	$6,750.00		Personal experience	Reinforced / incorporates sidewalk		OK based on other dam projects
C. Compacted Clay Fill	200	CY	$16.00	$3,200.00		Personal experience	Small quantity, slow work		OK based on other dam projects
					$259,950.00				
Overtopping Protection									
A. Articulated Blocks - Delivered	2,100	SY	$70.14	$147,294.00		Contractor Quote - Delivered	Contech 40T AmorFlex - Installed		
B. Articulated Blocks - Installed	2,100	SY	$14.03	$29,458.80		Contractor Quote x 20% for Installation Estimate	Contech 40T AmorFlex - Installed		May want another quote besides Contech to get another price for comparison.
C. Articulated Block Connection Grout	20	CY	$350.00	$7,000.00		Personal experience	4000 psi Grout		Seems reasonable.
D. #4 Rebar	2,100	FT	$1.16	$2,436.00		Wholesale Quote	60 Grade		Quote plus inflation
					$186,188.80				
					$446,138.80				
Site Restortion									
A. On-site Topsoil Placement	300	CY	$14.80	$4,440.00		RS Means Item 02920-510-4400, Slope mix, push spreader	Includes allowance for lime, fertilizer and mulch.		OK
B. Seeding	20	MSF	$80.00	$1,600.00		RS Means Item 02920-510-4600, Hydro-seeding, slope mix, including, fertilizer & mulch			OK
C. Plantings/Trees	20	Each	$200.00	$4,000.00		Personal experience			OK. Even if this doubles it's still a small item.
					$10,040.00				
							With Sheet Pile Wall	Without Sheet Pile Wall	
						Total Estimate	**$618,588.80**	**$358,638.80**	
Dam Crest raised to 1007.0 / Spillway stays 1001.6						**Unidentified Costs**	**$62,000.00**	**$36,000.00**	
Armor US & DS Slopes						**Adjusted Subtotal**	**$680,588.80**	**$394,638.80**	
Add sheet pile wall						**Contingency 5%**	**$34,100.00**	**$19,860.00**	
						PROJECT GRAND TOTAL	**$714,688.80**	**$414,438.80**	
						PROJECT GRAND TOTAL	**$714,700.00**	**$414,500.00**	

Estimate does not include engineering, permitting, or construction management.

SIPPO CREEK RESERVOIR DAM
CONCEPT COST ESTIMATE
OPTION 4 - ROLLER COMPACTED CONCRETE
(MS Consultants/URS reports used as basis)
01/16/13

DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	EXTENSION	SUBTOTALS	Source of Pricing	Notes		Comments
MOBILIZATION / DEMOB	1	LS	$60,000.00	$60,000.00	**$60,000.00**	Personal experience	~5% to 10% of total cost		Seems reasonable.
GENERAL CONDITIONS	1	LS	$35,000.00	$35,000.00	**$35,000.00**	Personal experience	Site survey, Testing, & Supervision		Seems reasonable.
DAM REHABILITATION									
Subgrade Preparation									
A. Excavate topsoil (Stripping)	700	CY	$10.00	$7,000.00		RS Means Crew B-2	1 foreman and 2 laborers, rounded up to $1,000 per day for 5 days. Limited access	1/3 to be reused on-site	Suggest Item 31 14 13.23-1440, Topsoil Stripping & Stockpiling, 300 HP Dozer, 500' haul, $8.40. Round to $10 OK. Crew would be B-10M - 1 equip. operator, 0.5 laborer, 1 dozer 300 HP.
B. Excavate subgrade	880	CY	$20.00	$17,600.00		RS Means Crew B-2	1 foreman and 2 laborers, rounded up to $1,000 per day for 5 days. Limited access	1/3 to be reused on-site	Excavating bulk bank material, 31 23 16.42 range from $1 to $2 per CY using hydraulic excavator, then add Hauling, 31 23 23.20, 1040 - 12 CY truck, 25 MPH, 6 mile cycle, $5.10 per CY. $20 is ample/conservative.
C. Site Preparation/regrade slopes	1	LS	$7,500.00	$7,500.00		Personal experience	3-man crew @ $300 per man day, for 5+ days, plus misc. equipment & hand tools		Seems reasonable.
D. Furnish & place Filter Fabric	2000	SY	$3.45	$6,900.00		Personal experience	8 oz/sy geotextile		RSM Item 31 32 19.16, Geotextile Soil Stabilization $$2.70/SY, so $3.45 ample
E. Furnish & place Sand Bedding	500	TON	$35.00	$17,500.00		Personal experience	Clean sand		RSM Item 32 11 23.23 - 2023, Base Course Drainage Layer, 12"deep $33 per ton using 2009 Means book. Need to increase to about $35.
F. Perforated HDPE Pipe, 4-inch diameter	100	LF	$18.00	$1,800.00		Personal experience			RSM 33 46 16.35-0040, Piping, Subdrain, Corr. Plastic Tubing, Perf. Or Plain, $4" diameter, $1.27 per LF. High but OK for small quantity.
H. Solid HDPE Pipe, 4-inch diameter	40	LF	$15.00	$600.00					Same
					$58,900.00				
Overtopping Preparation									
A. Excavation of anchor trench (Crest)	50	CY	$20.00	$1,000.00		RS Means Item 02315-440-2040, excavating, common earth, hydraulic backhoe, 1 CY bucket			A 1-CY bucket is too big for this narrow trench, suggest 3/8 CY bucket, RSM 31 23 16.13 - 0050, Excavation, Trench, common earth, 1' to 4' deep $8.10/CY. $20 is good for small quantity, tight access.
B. Excavation of Cutoff wall trench (DS Toe)	20	CY	$20.00	$400.00		Personal experience	Difficult access plus unknown haul		Same - OK
C. ODOT Type C - Hand Placed (US Slope)	262	TON	$150.00	$39,300.00		Personal experience	Difficult access plus unknown haul		RSM 31 37 13.10 - 0200, Riprap & Rock Lining 18" min thickness, not grouted, $93 per SY, if 1.5' thick & 140 PCF density ~$98 per ton, so $125 per ton may not be enough if hand-placed. Suggest $150/ton.
D. Concrete for anchor trench (Crest)	50	CY	$250.00	$12,500.00		Personal experience	Difficult access plus unknown haul		OK based on other dam projects
E. Concrete for Cutoff wall trench (DS Toe)	20	CY	$350.00	$7,000.00		Personal experience	Difficult access plus unknown haul		OK based on other dam projects.
F. Concrete for Curbs	6	CY	$250.00	$1,500.00		Personal experience	Difficult access plus unknown haul		OK based on other dam projects
					$61,700.00				
Overtopping Stability Improvements									
Sheet Pile Cutoff Wall - Earthen Dam									
A. Sheet pile AZ-30	5,000	SF	$50.00	$250,000.00		Personal experience - Based on similar recent projects - Vik conservative estimate.	Assumes AZ-28 sheets - priced per SF of sheet penetrating body of dam		Piling assumed to weigh 30 pcf, 3,120 SF x 30/2,000 lbs per ton = 46.8 tons. RSM item 31 41 16.10 sheet piling, 27 pcf 20 feet deep, left in place, $1,950 per ton, x 46.8 tons = $91,260. Pricing shown seems conservative and OK.
B. Reinforced Concrete Cap Beam	15	CY	$450.00	$6,750.00		Personal experience	Reinforced / incorporates sidewalk		OK based on other dam projects.
C. Compacted Clay Fill	200	CY	$16.00	$3,200.00		Personal experience	Small quantity, slow work		OK based on other dam projects.
					$259,950.00				
Emergency Spillway									
A. RCC Armoring	1,100	CY	$175.00	$192,500.00		Personal experience	Assume 8 wide steps x 1' high x area of step with 12' curbs on left & right crest, w/200-foot crest.		Unit price looks reasonable.
					$192,500.00				
					$452,450.00				
Site Restortion									
A. On-site Topsoil	400	CY	$14.80	$5,920.00		RS Means Item o2920-510-4400, Slope mix, push spreader	Includes allowance for lime, fertilizer and mulch.		OK
B. Seeding	20	MSF	$80.00	$1,600.00		RS Means Item 02920-510-4600, Hydro-seeding, slope mix, including, fertilizer & mulch			OK
C. Plantings/Trees	20	Each	$200.00	$4,000.00		Personal experience			OK. Even if this doubles it's still a small item.
					$11,520.00				
							With Sheet Pile Wall	**Without Sheet Pile Wall**	
						Total Estimate	**$679,570.00**	**$419,620.00**	
Dam Crest raised to 1007.0 / Spillway stays 1001.6		**Estimate does not include engineering, permitting,or construction management.**				**Unidentified Costs**	**$68,000.00**	**$42,000.00**	
Armor US & DS Slopes						**Adjusted Subtotal**	**$747,570.00**	**$461,620.00**	
Add sheet pile wall						**Contingency 5%**	**$37,400.00**	**$23,100.00**	
						PROJECT GRAND TOTAL	**$784,970.00**	**$484,720.00**	
						PROJECT GRAND TOTAL	**$785,000.00**	**$484,800.00**	

SIPPO CREEK RESERVOIR DAM
CONCEPT COST ESTIMATE
OPTION 5 - WIDEN SPILLWAY
(MS Consultants/URS reports used as basis)
01/16/13

DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	EXTENSION	SUBTOTALS	Source of Pricing	Notes		Comments
MOBILIZATION / DEMOB	1	LS	$50,000.00	$50,000.00	**$50,000.00**	Personal experience	~5% to 10% of total cost		Seems reasonable.
GENERAL CONDITIONS	1	LS	$35,000.00	$35,000.00	**$35,000.00**	Personal experience	Site survey, Testing, & Supervision		Seems reasonable.
DAM REHABILITATION									
Subgrade Preparation									
A. Excavate topsoil (Stripping)	700	CY	$10.00	$7,000.00		RS Means Crew B-2	1 foreman and 2 laborers, rounded up to $1,000 per day for 5 days. Limited access	1/3 to be reused on-site	Suggest Item 31 14 13.23-1440, Topsoil Stripping & Stockpiling, 300 HP Dozer, 500' haul, $8.40. Round to $10 OK. Crew would be B-10M - 1 equip. operator, 0.5 laborer, dozer 300 HP.
B. Excavate subgrade	1600	CY	$20.00	$32,000.00		RS Means Crew B-2	1 foreman and 2 laborers, rounded up to $1,000 per day for 5 days. Limited access	1/3 to be reused on-site	Excavating bulk bank material, 31 23 16.42 range from $1 to $2 per CY using hydraulic excavator, then add Hauling, 31 23 23.20, 1040 - 12 CY truck, 25 MPH, 6 mile cycle, $5.10 per CY. $20 is ample/conservative.
C. Site Preparation/regrade slopes	1	LS	$7,500.00	$7,500.00		Personal experience	3-man crew @ $300 per man day, for 5+ days, plus misc. equipment & hand tools		Seems reasonable.
D. Furnish & place Filter Fabric	2000	SY	$3.45	$6,900.00		Personal experience	6 oz/sy geotextile		RSM Item 31 32 19.16, Geotextile Soil Stabilization $$2.70/SY, so $3.45 ample
E. Furnish & place Sand Bedding	500	TON	$35.00	$17,500.00		Personal experience	Clean sand		RSM Item 32 11 23.23 - 2023, Base Course Drainage Layer 12"deep, $33 per ton using 2009 Means book. Need to increase to about $35
F. Perforated HDPE Pipe, 4-inch diameter	100	LF	$18.00	$1,800.00		Personal experience			RSM 33 46 16.35-0040, Piping, Subdrain, Corr. Plastic Tubing, Perf. Or Plain, $4" diameter, $1.27 per LF. High but OK for small quantity.
H. Solid HDPE Pipe, 4-inch diameter	40	LF	$15.00	$600.00					Same
					$73,300.00				
Overtopping Preparation									
A. Excavation of anchor trench (Crest)	50	CY	$20.00	$1,000.00		RS Means Item 02315-440-2040, excavating, common earth, hydraulic backhoe, 1 CY bucket			A 1-CY bucket is too big for this narrow trench, suggest 3/8 CY bucket, RSM 31 23 16.13 - 0050, Excavation, Trench, common earth, 1' to 4' deep $8.10/CY. $20 is good for small quantity, tight access.
B. Excavation of Cutoff wall trench (DS Toe)	20	CY	$20.00	$400.00		Personal experience	Difficult access plus unknown haul		Same - OK
C. ODOT Type C - Hand Placed (US Slope)	262	TON	$125.00	$32,750.00		Personal experience	Difficult access plus unknown haul		RSM 31 37 13 10 - 0200, Riprap & Rock Lining 18" min thickness, not grouted, $93 per SY, if 1.5' thick & 140 PCF density ~$98 per ton, so $125 per ton may not be enough if hand-placed. Suggest $150/ton.
D. Concrete for anchor trench (Crest)	50	CY	$250.00	$12,500.00		Personal experience	Difficult access plus unknown haul		OK based on other dam projects
E. Concrete for Cutoff wall trench (DS Toe)	20	CY	$350.00	$7,000.00		Personal experience	Difficult access plus unknown haul		OK based on other dam projects
F. Concrete for Curbs	6	CY	$250.00	$1,500.00		Personal experience	Difficult access plus unknown haul		OK based on other dam projects
					$55,150.00				
Overtopping Stability Improvements									
Sheet Pile Cutoff Wall - Earthen Dam									
A. Sheet pile AZ-30	4,250	SF	$50.00	$212,500.00		Personal experience - Based on similar recent projects - Vik conservative estimate.	Assumes AZ-30 sheets - priced per SF of sheet penetrating body of dam.		Piling assumed to weigh 30 pcf, 3,120 SF x 30/2,000 lbs per ton = 46.8 tons. RSM Item 31 41 16.10 sheet piling, 27 pcf 20 feet deep, left in place, $1,950 per ton, x 46.8 tons = $91,260. Pricing shown seems conservative and OK.
B. Reinforced Concrete Cap Beam	12	CY	$450.00	$5,400.00		Personal experience	Reinforced / incorporates sidewalk		OK based on other dam projects
C. Compacted Clay Fill	200	CY	$16.00	$3,200.00		Personal experience	Small quantity, slow work		OK based on other dam projects
					$221,100.00				
Construction of New Primary Spillway									
Spillway Concrete									
A. Reinforced Concrete Structure	200	CY	$400.00	$80,000.00					OK based on other dam projects
A. Reinforced Concrete Sidewalls	80	CY	$450.00	$36,000.00					OK based on other dam projects
					$116,000.00				
Emergency Spillway									
A. RCC Armoring	950	CY	$175.00	$166,250.00		Personal experience	Assume 8 wide steps x 1' high x area of step with 12' curbs on left & right crest. w/200-foot crest		Unit price looks reasonable.
					$166,250.00				
					$503,350.00				
Site Restortion									
A. On-site Topsoil	400	CY	$14.80	$5,920.00		RS Means Item o2920-510-4400, Slope mix, push spreader	Includes allowance for lime, fertilizer and mulch		OK
B. Seeding	20	MSF	$80.00	$1,600.00		RS Means Item: 02920-510-4600, Hydro-seeding, slope mix, including, fertilizer & mulch			OK
C. Plantings/Trees	20	Each	$200.00	$4,000.00		Personal experience			OK. Even if this doubles it's still a small item.
					$11,520.00				
							With Sheet Pile Wall	**Without Sheet Pile Wall**	
						Total Estimate	**$728,320.00**	**$507,220.00**	
Dam Crest raised to 1007.0 / Spillway stays 1001.6		**Estimate does not include engineering, permitting,or construction management.**				**Unidentified Costs**	**$73,000.00**	**$51,000.00**	
Add 30' wide Primary Spillway at 1001.6						**Adjusted Subtotal**	**$801,320.00**	**$558,220.00**	
Armor US & DS Slopes						**Contingency 5%**	**$40,100.00**	**$28,000.00**	
Add sheet pile wall						**PROJECT GRAND TOTAL**	**$841,420.00**	**$586,220.00**	
						PROJECT GRAND TOTAL	**$841,500.00**	**$586,300.00**	

SIPPO CREEK RESERVOIR DAM
CONCEPT COST ESTIMATE
OPTION 6 - REMOVE DAM
(MS Consultants/URS reports used as basis)
01/16/13

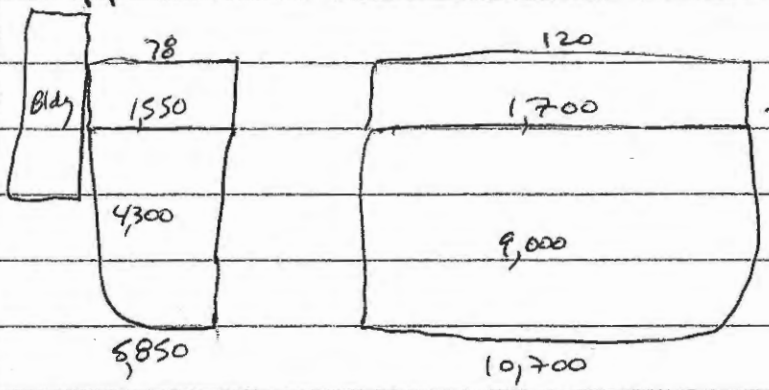
DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	EXTENSION	SUBTOTALS	Source of Pricing	Notes		Comments
MOBILIZATION / DEMOB	1	LS	$40,000.00	$40,000.00	**$40,000.00**	Personal experience	~5% to 10% of total cost		Seems reasonable.
GENERAL CONDITIONS	1	LS	$35,000.00	$35,000.00	**$35,000.00**	Personal experience	Site survey. Supervision		Seems reasonable.
DAM REHABILITATION									
Demolition									
A. Excavate topsoil (Stripping)	700	CY	$10.00	$7,000.00		RS Means Crew B-2	1 foreman and 2 laborers, rounded up to $1,000 per day for 5 days. Limited access	1/3 to be reused on-site	Suggest Item 31 14 13.23-1440, Topsoil Stripping & Stockpiling, 300 HP Dozer, 500' haul, $8.40. Round to $10 OK. Crew would be B-10M - 1 equip. operator, 0.5 laborer, 1 dozer 300 HP
B. Excavate subgrade - Remove Dam	5020	CY	$20.00	$100,400.00		RS Means Crew B-2	1 foreman and 2 laborers, rounded up to $1,000 per day for 5 days. Limited access	1/3 to be reused on-site	Excavating bulk bank material, 31 23 16.42 range from $1 to $2 per CY using hydraulic excavator, then add Hauling, 31 23 23.20, 1040 12 CY truck, 25 MPH, 6 mile cycle, $5.10 per CY. $20 is ample/conservative.
C. Demolition/Haul of Spillway	400	CY	$175.00	$70,000.00		Personal experience	3-man crew @ $300 per man day, for 5+ days, plus misc. equipment & hand tools		No good analog in RS Means, but $175 per CY should be ample.
D. Furnish & place Filter Fabric	150	SY	$3.45	$517.50		Personal experience	8 oz/sy geotextile	Sideslopes	RSM Item 31 32 19.16, Geotextile Soil Stabilization $$2.70/SY, so $3.45 ample
E. Furnish & place Sand Bedding	0	TON	$25.00	$0.00					
F. Perforated HDPE Pipe, 4-inch diameter	0	LF	$18.00	$0.00					
H. Solid HDPE Pipe, 4-inch diameter	0	LF	$15.00	$0.00					
					$177,917.50				
Site Restoration									
A. Grading in new channel	1800	CY	$15.00	$27,000.00		2040, excavating, common earth, hydraulic backhoe, 1 CY	1600 lf x 10' width x 3' deep		Concerned this may be low due to slow progress and difficult access. Suggest $15.00.
B. Contouring lake	5000	CY	$15.00	$75,000.00		Personal experience	Difficult access plus unknown haul		Same
C. Rock for pools	1000	TON	$150.00	$150,000.00		Personal experience	Difficult access plus unknown haul		RSM 31 37 13.10 - 0200, Riprap & Rock Lining 18" min thickness, not grouted, $93 per SY, if 1.5' thick & 140 PCF density ~$98 per ton, so $126 per ton may not be enough if hand-placed. Suggest $150/ton.
D. Concrete for pool walls	50	CY	$250.00	$12,500.00		Personal experience	Difficult access plus unknown haul		OK based on other dam projects
E. Concrete for grade controls	20	CY	$350.00	$7,000.00		Personal experience	Difficult access plus unknown haul		OK based on other dam projects
					$271,500.00				
Overtopping Stability Improvements									
Sheet Pile Cutoff Wall - Earthen Dam									
A. Sheet pile AZ-30	0	SF	$50.00	$0.00		Personal experience - Based on similar recent projects - Vik conservative estimate	Assumes AZ-30 sheets - priced per SF of sheet penetrating body of dam		
B. Reinforced Concrete Cap Beam	0	CY	$450.00	$0.00		Personal experience	Reinforced / incorporates sidewalk		
C. Compacted Clay Fill	0	CY	$16.00	$0.00		Personal experience	Small quantity, slow work		
					$0.00				
Emergency Spillway									
A. RCC Armoring	0	CY	$175.00	$0.00		Personal experience	Assume 8 wide steps x 1' high x area of step with 12' curbs on left & right crest. w/200-foot crest.		
					$0.00				
					$0.00				
Site Restortion									
A. On-site Topsoil	500	CY	$14.80	$7,400.00		RS Means Item o2920-510 4400, Slope mix, push spreader	Includes allowance for lime, fertilizer and mulch		OK
B. Seeding	300	MSF	$80.00	$24,000.00		RS Means Item 02920-510-4600, Hydro-seeding, slope mix, including, fertilizer & mulch			OK
C. Plantings/Trees	100	Each	$200.00	$20,000.00		Personal experience			OK. Even if this doubles it's still a small item.
					$51,400.00				
							No Sheet Pile Wall		
Dam removed to invert 987.7		**Estimate does not include**				**Total Estimate**	**$575,817.50**		
60' wide with 3:1 sideslopes		**engineering, permitting,or**				**Unidentified Costs**	**$58,000.00**		
Armor sideslopes w/ riprap		**construction management.**				**Adjusted Subtotal**	**$633,817.50**		
Remove existing cutoff wall						**Contingency 5%**	**$31,700.00**		
Recontour and replant reservoir bottom						**PROJECT GRAND TOTAL**	**$665,517.50**		
						PROJECT GRAND TOTAL	**$665,600.00**		

Attachment 3
Supporting data

Volume Calculations

MMS
2/19/12

Sippo Creek Reservoir Dam - RCC calcs.



RCC

Slabs

~~Left~~ 1'×8' <1006> 84'

1'×8' <995> 71'

Ave = ~~77.5×8~~ = 620 cf × 11 steps = 6820 cf = 253 cy

+ 670 cf + 533 cf + 533 + 533 = 2591 cf = 96 cy + 1280 cf = 47.5 cy
<992> <993> <994> <995> <1007>

396.5
~~Total = Left~~ Σ 400 cy RCC

Right 1'×8' <1006> 103.5'

1'×8' <992> 17.'

Ave = 60.25 × 8' × 14 steps = 6748 cf = 260 cy

+ 735 cf × 8 steps <993 → 1000> = 5880 cf = 218 cy
<1001 → 1006>

+ 664 + 304/2 = 484 cy Ave × 6 = 2904 cf = 108 cy

+ 1400 cf = 52 cy + 760 cf = 28 cy
<992> <1007>

Right 662
Total RCC = ~~628~~ cy

Curbs = 120 + 94 = 214' * 1'×8" = 143 cf = 5.3 cy → 6 cy

Total + Curbs = 10 ~~62~~ 55 cy

Total = 1100 cy

Geotextile 17,000 sf = 1,900 sy geotextile

Topsoil 17,000 sf × 1' = 17,000 cf = 630 cy → ½ reuse = 325 cy

Excavation 1100 cy RCC × .8 = 880 cy

Sand 4" × 13,300 sf = 4,433 cf = 164 cy sand bedding 250 cy ~ 500 TON

Cutoff walls 54 + 94 = 148' × 3 × 1 = 444 cf = 16.5 cy → 20 cy

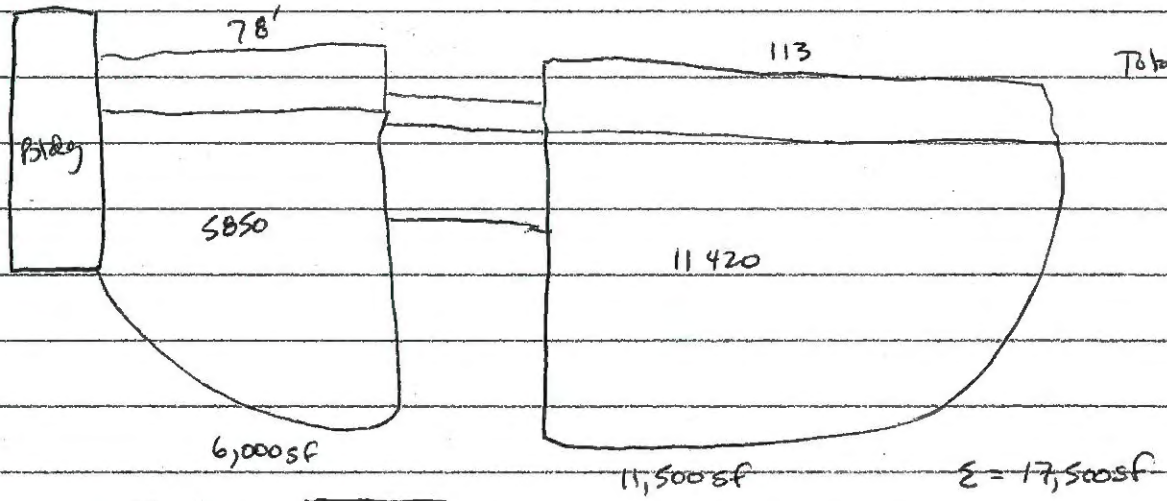
Anchor Trench 200 × 2 × 3 = 1200 cf = 44 cy → 50 cy

Riprap
Crest
3,250 × 1 = 3,250 cf × 150 lb/cf = 487500/2000 = 249 tons → 250 tons
Toe *1'
83 sf + 72 sf = 155 cf × 150 = 23250/2000 = 11.6 tons = 12 tons

Σ = 262 tons riprap

2/19/12
MMS

Sippo Creek Reservoir Dam - Articulated Block Calcs.



Art. Block	17,500 sf of AB = 1944 sy	
Geotextile	18,000 sf of geotextile = 2,000 sy geotextile	
rip Topsoil	Topsoil 1' x 18,000 sf = 18,000 cf = 667 cy topsoil	700 cy topsoil
Gravel	4" x 18,000 sf = 6,000 cf gravel = 223 cy gravel	225 cy gravel ~ 450 Tons
Excavation	see topsoil cut 1' = 700 cy assume ½ for re-use	350 cy reuse
Cutoff walls	(57' + 106) = 163' * 1' x 3' deep = 489 cf = 18.1 cy	20 cy concrete
Anchor Trench	(78 + 113) * 2 * 3 = 1146 cf = 42.44 cy	45 cy concrete
Riprap	Toe 83 sf + 725 sf = 155 cf x 150 lb/cf = 23250/2000 = 11.6 tons =	12 tons

12/28/12
mms

Cost

Total	w/o spur	option	TOP / BTM	length	x	width	Area	x	$/SF	Total Cost
~~[illegible]~~	~~[illegible]~~	1	997.6 / ~~[illegible]~~ 982	~~21.2~~ 15.6		200	~~4240~~ 3120		50	~~213~~ 156,000
[illegible]800	388,200									
07,600	363,500	2	1003.2 / 982	21.2		200	4240		50	212,000
[illegible]200	386,200	3	1007 / 982	25		200	5000		50	250,000
[illegible]600	418,700	4	1007 / 982	25		200	5000		50	250,000
1,600	526,400	5	1007 / 982	25		170	4250		50	212,500
[illegible]00	542,600	6	–	–		–	–		50	–

Remove Dam Volume Calcs

middle: 115 * 20 * 20 / 2 = 850 cy (left) +50% 425 ≈ 1275 cy

Right: 78 × 20 * 20/2 = 580 cy +50% 290 ≈ 870 cy

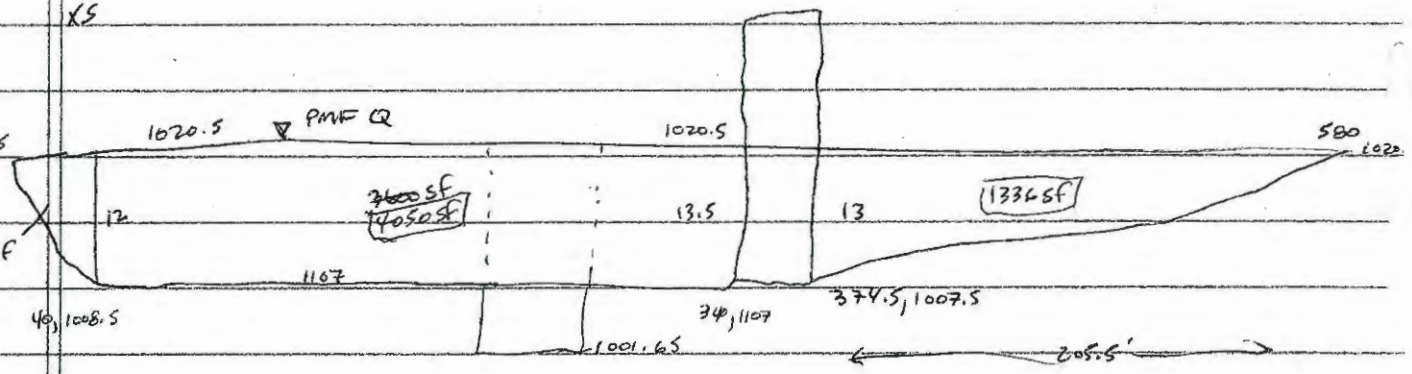
Total excavation = 2145

CAD: left ~~2380~~ (2320)

≈ 5020

NS
2/8/12

Sippo Creek overtopping velocity check



Total = 5626 sf

Q = 31,590 cf/s

$\frac{ft^3}{s} \times \frac{1}{ft^2} = \frac{ft}{s}$

Vave = 5.62 fps

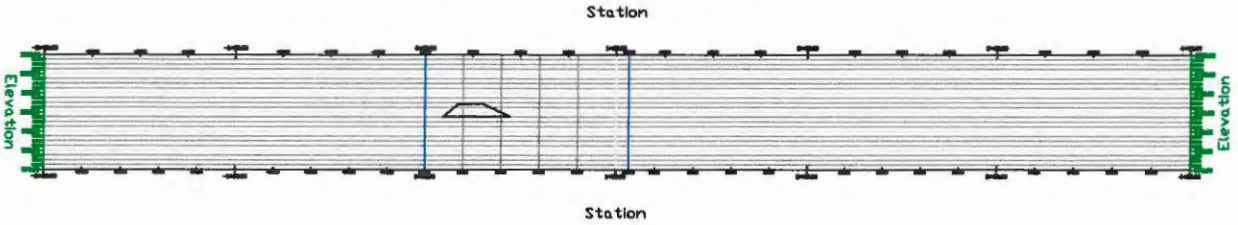
Option 1

550 sf

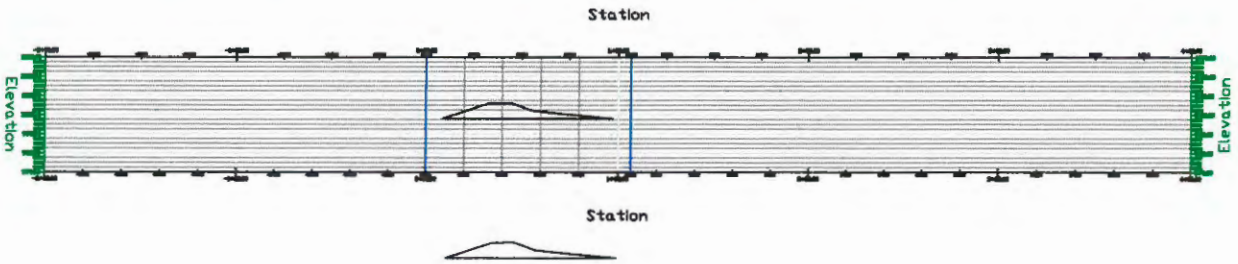
160 sf

vol =
200 lf * 355 sf=
71000 cf=
2630 cy

Profile View of Alignment - (1)



Profile View of Alignment - (3)



345 sf

vol =
80 lf * 345 sf=
27600 cf=
1022 cy

Total vol removed for Option 1
=
2630 cy + 1022 cy = 3652 cy

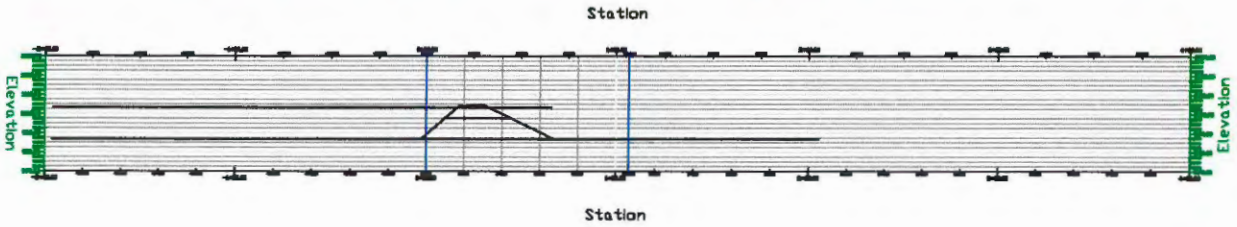
Option 2

75 sf

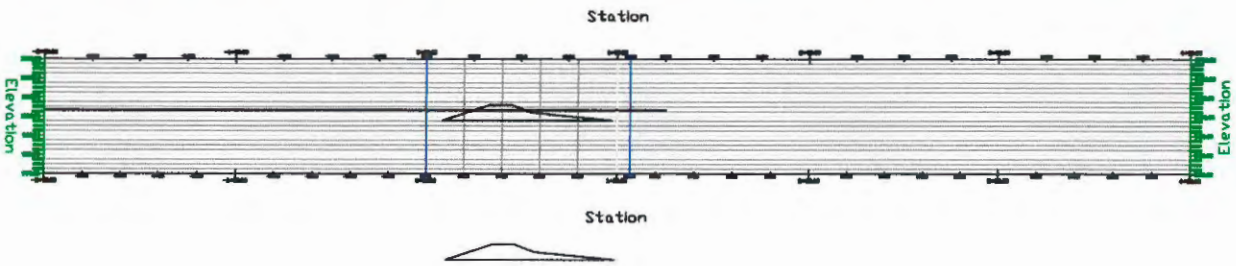
15 sf

vol =
200 lf * 45 sf=
9000 cf=
333 cy

Profile View of Alignment - (1)



Profile View of Alignment - (3)



50 sf

vol =
80 lf * 50 sf=
4000 cf=
148 cy

Total vol removed for Option 2=
350 cy + 200 cy = 550 cy

Dam Breach Estimates

Proposed Sippo Creek Reservoir 100-YR Dam Breach Parameters (with Tailwater conditions) Raise Crest to 1107.0

Input Parameters

Water Height (ft)	H=	11.82 ft	3.6051 m
Crest Width (ft)	C=	15 ft	4.575 m
Storage Volume (ac-ft)	V_s =	994.4 ac-ft	1,226,573 m^3
Upstream slope (Z_1 : 1)	Z_1 =	3	3
Downstream slope (Z_2 : 1)	Z_2 =	2.5	2.5
Breach Sideslope	Z_b =	1	1
Surface Area of Reservoir	S_a =	19.6 acres	79,318 m^2

WSE	TWE	Water Height	STOR WSE	STOR TW	ST VOL
1007.36	995.54	11.82	1006	11.6	994.4

Peak Discharge

MacDonald & Langridge-Monopolis [2]

$Q_p = 3.1B_aH^{1.5}$ $[C / (C + T_f*\mathrm{sqrt}(H))]^3$ — check w/ Max C: 19,966 cfs; 20,361 cfs

$C = 23.4(S_a/B_a)$ = 2.76

Froehlich [2]

$Q_p = 0.607V_s^{0.295}H^{1.24}$ — 186.18 cms (Overtopping); 6,575 cfs (Piping)

$B_a = 9.5K_O(V_s*H)^{0.25}$ — 98.92 ft; 69.24 ft

$T_f = 0.59(V_s^{0.47})/H^{0.51}$ — 1.598 hrs; 1.119 hrs

Peak Discharge

National Weather Service (NWS) [2]

$Q_p = Q_0+3.1B_a(C/(T_f+C/H^{0.5}))^3$ — check w/ Min C; Max C

	Max B_a	check w/ Min Ba
	3,174 cfs	3,989 cfs
	2,445 cfs	2,762 cfs

Q_0= 1980 cfs

B_a= 98.92 ft^2

$C = 23.4(S_a/B_a)$= 2.76

T_f= 1.598 hrs

Natural Resource Conservation Service (NRCS) [2]

$Q_p = 3.2H^{2.5}$= 1,537 cfs

MacDonald & Langridge-Monopolis [2]

Breach Formation Factor = 11753.81

$BFF = V_w(H)$

Volume of Eroded Material = 3404 yds^3

$V_m = 2.50\ (BFF)^{.77}$

Breach Base Width = 154.55 ft

$W_b = \dfrac{27V_w - H^2\,(CZ_b + HZ_bZ_3/3)}{H\,(C + HZ_3/2)}$

$Z3 = Z1 + Z2$ = 5.5

Breach Top Width = 178.19 ft

Average Breach Width = 166.37 ft

Breach Development Time = 0.78 hrs

Piping: $T = .042\ V_m^{.36}$ = 0.549 hrs

Von Thun and Gillette [1]

Breach Base Width = 37.76 ft

Average Breach Width = 15.11 m = 49.58 ft

$B_a = 2.5H + C_b$ C_b is based on vol = 6.1 *Page 15*

Breach Development Time = upper bound 1.05 hrs; lower bound 0.49 hrs

*Erosion Resistant

$T_f = 0.020H + 0.25$ $T_f = \dfrac{B_a}{4H}$

Breach Development Time = upper bound 0.20 hrs; lower bound 0.18 hrs

*highly erodible

$T_f = 0.015H$ $T_f = \dfrac{Ba}{4H + 61.0}$

Min C

C= 9.25 Von Thun

C= 4.64 Froelich

with Min C

$3.1*B_a$=	306.641	
$C/(H^{0.5})$=	0.802	1.349
$T_f+C/(H^{0.5})$=	2.400	2.947

Minimum Time to Failure

Tf= H/120= 0.10 hrs = 5.91 min

	North	East	South	West	
H=	21			18	ft
T=	1.03				hrs
B_a=	86.4				ft
V_w=	1475	1475	1475	1475	ac-ft
S_a=	75	75	75	75	acres
Q_p=	15k-25.5k			12.5k-23.3	cfs

[1] - Prediction of Embankment Dam Breach Parameters - DSO-98-004 by Tony L. Wahl

[2] - Dam Safety Guidelines - Dam Break Inundation Analysis and Downstream Hazard Classification - Technical Note 1 - Washington State Dept. of Ecology

[3] - NWS Simple Dam Break Analysis Equation (1999)

Propsoed Sippo Creek Reservoir Sunny Day Dam Breach Parameters (Proposed TOD = 1103.2/Spillway = 998)

Input Parameters

Water Height (ft)	H=	10.3 ft	3.1415 m
Crest Width (ft)	C=	15 ft	4.575 m
Storage Volume (ac-ft)	V_s =	18.3 ac-ft	22,573 m^3
Upstream slope (Z_1 : 1)	Z_1 =	3	3
Downstream slope (Z_2 : 1)	Z_2 =	2.5	2.5
Breach Sideslope	Z_b =	1	1
Surface Area of Reservoir	S_a =	3 acres	12,141 m^2

WSE	TWE	STOR WSE	STOR TW		
998	987.7	10.3	18.3	0	18.3

Peak Discharge

MacDonald & Langridge-Monopolis [2]

$Q_p = 3.1B_aH^{1.5}$ $[C / \{C + T_f*\mathrm{sqrt}(H)\}]^3$ — check w/ Max C: 1,099 cfs — 1,084 cfs

$C = 23.4(S_a/B_a)$ = 6.51

Froehlich [2]

$Q_p = 0.607V_s^{0.295}H^{1.24}$ — 48.30 cms — 1,706 cfs

$B_a = 9.5K_O(V_s*H)^{0.25}$ — Overtopping: 35.20 ft — Piping: 24.64 ft

$T_f = 0.59(V_s^{0.47})/H^{0.91}$ — Overtopping: 0.277 hrs — Piping: 0.194 hrs

Peak Discharge

National Weather Service (NWS) [2]

$Q_p = Q_0 + 3.1B_a(C/(T_f + C/H^{0.5}))^3$

	check w/ Min C	Max B_a	check w/ Min Ba
		1,194 cfs	366 cfs
Max C		2,456 cfs	753 cfs

Q_0= 0 cfs

B_a= 35.20 ft^2

C= $23.4(S_a/B_a)$= 6.51

T_f= 0.277 hrs

Natural Resource Conservation Service (NRCS) [2]

$Q_p = 3.2H^{2.5}$ = 1,090 cfs

MacDonald & Langridge-Monopolis [2]

Breach Formation Factor = 188.49

$BFF = V_w(H)$

Volume of Eroded Material = 141 yds^3

$V_m = 2.50\ (BFF)^{.77}$

Breach Base Width = 0.49 ft

$$W_b = \frac{27V_m - H^2(CZ_b + HZ_bZ_3/3)}{H(C + HZ_3/2)}$$

Z3 = Z1 + Z2 = 5.5

Breach Top Width = 21.09 ft

Average Breach Width = 10.79 ft

Breach Development Time = 0.25 hrs

$T = .042\ V_w^{.36}$

Von Thun and Gillette [1]

Breach Base Width = 35.48 ft

Average Breach Width = 13.95 m — 45.78 ft

$B_a = 2.5H + C_b$ C_b is based on vol = 6.1 *Page 15*

Breach Development Time = upper bound 1.11 hrs; lower bound 0.46 hrs

*Erosion Resistant

$T_f = 0.020H + 0.25$ $T_f = B_a / 4H$

Breach Development Time = upper bound 0.19 hrs; lower bound 0.15 hrs

*highly erodible

$T_f = 0.015H$ $T_f = Ba / (4H + 61.0)$

Min C

C= 1.53 Von Thun

C= 1.99 Froelich

with Min C

$3.1*B_a$= 109.121

$C/(H^{0.5})$= 2.027 0.621

$T_f + C/(H^{0.5})$= 2.304 0.898

	North	East	South	West	
H=	21			18	ft
T=	1.03				hrs
B_a=	86.4				ft
V_w=	1475	1475	1475	1475	ac-ft
S_a=	75	75	75	75	acres
Q_p=	15k-25.5k			12.5k-23.3	cfs

Minimum Time to Failure

Tf= H/120= 0.09 hrs

5.15 min

[1] - Prediction of Embankment Dam Breach Parameters - DSO-98-004 by Tony L. Wahl

[2] - Dam Safety Guidelines - Dam Break Inundation Analysis and Downstream Hazard Classification - Technical Note 1 - Washington State Dept. of Ecology

[3] - NWS Simple Dam Break Analysis Equation (1999)

Proposed Sippo Creek Reservoir 100-YR Dam Breach Parameters (with Tailwater conditions) Lower Crest 3.7 feet

Input Parameters

Water Height (ft)	H=	8.81 ft	2.68705 m
Crest Width (ft)	C=	15 ft	4.575 m
Storage Volume (ac-ft)	V_s =	41 ac-ft	50,573 m^3
Upstream slope (Z_1 : 1)	Z_1 =	3	3
Downstream slope (Z_2 : 1)	Z_2 =	2.5	2.5
Breach Sideslope	Z_b =	1	1
Surface Area of Reservoir	S_a =	19.6 acres	79,318 m^2

WSE	TWE	Water Height	STOR WSE	STOR TW	ST VOL
1003.15	994.34	8.81	50	9	41

Peak Discharge

MacDonald & Langridge-Monopolis [2]

$Q_p = 3.1B_aH^{1.5}$ $[C / (C + T_f*\text{sqrt}(H))]^3$ — check w/ Max C: **1,620 cfs**; **1,616 cfs**

$C = 23.4(S_a/B_a)$ = 22.91

Froehlich [2]

$Q_p = 0.607V_s^{0.295}H^{1.24}$ — Overtopping: **50.48 cms**; Piping: **1,783 cfs**

$B_a = 9.5K_o(V_s*H)^{0.25}$ — Overtopping: 41.42 ft; Piping: 28.99 ft

$T_f = 0.59(V_s^{0.47})/H^{0.91}$ — Overtopping: 0.467 hrs; Piping: 0.327 hrs

Peak Discharge

National Weather Service (NWS) [2]

$Q_p = Q_o+3.1B_a[C/(T_f+C/H^{0.5})]^3$ — Max B_a: check w/ Min C: 4,338 cfs; Max C: 4,795 cfs; check w/ Min Ba: 3,120 cfs; 3,341 cfs

Q_o= 1980 cfs

B_a= 41.42 ft^2

C= 23.4(S_a/B_a)= 22.91

T_f= 0.467 hrs

Natural Resource Conservation Service (NRCS) [2]

$Q_p = 3.2H^{2.5}$ = 737 cfs

MacDonald & Langridge-Monopolis [2]

Breach Formation Factor = **361.21**

BFF = $V_w(H)$

Volume of Eroded Material = **233 yds^3**

$V_m = 2.50\ (BFF)^{.77}$

Breach Base Width = **11.21 ft**

$$W_b = \frac{27V_m - H^2(CZ_b + HZ_bZ_3/3)}{H(C + HZ_3/2)}$$

Z3 = Z1 + Z2 = 5.5

Breach Top Width = **28.83 ft**

Average Breach Width = **20.02 ft**

Breach Development Time = **0.30 hrs**

Piping **0.209 hrs**

$T = .042\ V_m^{.36}$

Von Thun and Gillette [1]

Breach Base Width = **33.24 ft**

Average Breach Width = **12.82 m** = **42.05 ft**

$B_a = 2.5H + C_b$ C_b is based on vol = **6.1** Page 15

Breach Development Time = upper bound **1.19 hrs**; lower bound **0.43 hrs**

*Erosion Resistant

$T_f = 0.020H + 0.25$ $T_f = \frac{B_a}{4H}$

Breach Development Time = upper bound **0.18 hrs**; lower bound **0.13 hrs**

*highly erodible

$T_f = 0.015H$ $T_f = \frac{Ba}{4H + 61.0}$

Min C

C= 10.91 Von Thun

C= 11.07 Froelich

with Min C

3.1*B_a= 128.388

$C/(H^{0.5})$=	7.718	3.731
$T_f+C/(H^{0.5})$=	8.185	4.198

	North	East	South	West	
H=	21			18	ft
T=	1.03				hrs
B_a=	86.4				ft
V_w=	1475	1475	1475	1475	ac-ft
S_a=	75	75	75	75	acres
Q_p=	15k-25.5k			12.5k-23.3	cfs

Minimum Time to Failure

Tf= H/120= 0.07 hrs

4.405 min

[1] - Prediction of Embankment Dam Breach Parameters - DSO-98-004 by Tony L. Wahl

[2] - Dam Safety Guidelines - Dam Break Inundation Analyses and Downstream Hazard Classification - Technical Note 1 - Washington State Dept. of Ecology

[3] - NWS Simple Dam Break Analysis Equation (1999)

FlowMaster Output

Worksheet for Obermeyer Weir - open

Project Description

Solve For	Headwater Elevation

Input Data

Discharge		3000.00	ft³/s
Crest Elevation		988.00	ft
Tailwater Elevation		1007.00	ft
Weir Coefficient		3.10	US
Crest Length		50.00	ft
Number Of Contractions	0		

Results

Headwater Elevation	1007.28	ft
Headwater Height Above Crest	19.28	ft
Tailwater Height Above Crest	19.00	ft
Flow Area	963.96	ft²
Velocity	3.11	ft/s
Wetted Perimeter	88.56	ft
Top Width	50.00	ft

Rating Table for Obermeyer Weir - open

Project Description

Solve For	Headwater Elevation

Input Data

Discharge		3000.00	ft³/s
Crest Elevation		988.00	ft
Tailwater Elevation		1007.00	ft
Weir Coefficient		3.10	US
Crest Length		50.00	ft
Number Of Contractions	0		

Discharge (ft³/s)	Headwater Elevation (ft)	Velocity (ft/s)
0.00		
500.00	1007.00	0.53
1000.00	1007.02	1.05
1500.00	1007.05	1.57
2000.00	1007.10	2.09
2500.00	1007.18	2.61
3000.00	1007.28	3.11
3500.00	1007.41	3.61
4000.00	1007.57	4.09
4500.00	1007.75	4.56
5000.00	1007.96	5.01
5500.00	1008.19	5.45
6000.00	1008.45	5.87
6500.00	1008.72	6.27
7000.00	1009.01	6.66
7500.00	1009.31	7.04
8000.00	1009.63	7.40
8500.00	1009.96	7.74
9000.00	1010.29	8.07
9500.00	1010.64	8.39
10000.00	1010.99	8.70
10500.00	1011.35	8.99
11000.00	1011.71	9.28
11500.00	1012.07	9.55

Rating Table for Obermeyer Weir - open

Input Data

Discharge (ft³/s)	Headwater Elevation (ft)	Velocity (ft/s)
12000.00	1012.44	9.82
12500.00	1012.81	10.08
13000.00	1013.18	10.32
13500.00	1013.56	10.56
14000.00	1013.93	10.80
14500.00	1014.31	11.02
15000.00	1014.68	11.24
15500.00	1015.06	11.46
16000.00	1015.43	11.66
16500.00	1015.81	11.87
17000.00	1016.18	12.06
17500.00	1016.56	12.26
18000.00	1016.93	12.44
18500.00	1017.30	12.63
19000.00	1017.67	12.81
19500.00	1018.04	12.98
20000.00	1018.41	13.15
20500.00	1018.78	13.32
21000.00	1019.15	13.49
21500.00	1019.51	13.65
22000.00	1019.88	13.80
22500.00	1020.24	13.96
23000.00	1020.60	14.11
23500.00	1020.96	14.26
24000.00	1021.32	14.41
24500.00	1021.68	14.55
25000.00	1022.03	14.69
25500.00	1022.39	14.83
26000.00	1022.74	14.97
26500.00	1023.09	15.10
27000.00	1023.45	15.23
27500.00	1023.80	15.36
28000.00	1024.14	15.49
28500.00	1024.49	15.62
29000.00	1024.84	15.74
29500.00	1025.18	15.87
30000.00	1025.53	15.99

Rating Table for Obermeyer Weir - open

Input Data

Discharge (ft³/s)	Headwater Elevation (ft)	Velocity (ft/s)
30500.00	1025.87	16.11
31000.00	1026.21	16.23

Worksheet for Trapezoidal Channel - Remove Dam

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.045	
Channel Slope	0.01000	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	60.00	ft
Discharge	3000.00	ft^3/s

Results

Normal Depth	4.85	ft
Flow Area	361.39	ft^2
Wetted Perimeter	90.66	ft
Hydraulic Radius	3.99	ft
Top Width	89.09	ft
Critical Depth	3.98	ft
Critical Slope	0.02000	ft/ft
Velocity	8.30	ft/s
Velocity Head	1.07	ft
Specific Energy	5.92	ft
Froude Number	0.73	
Flow Type	Subcritical	

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	4.85	ft
Critical Depth	3.98	ft
Channel Slope	0.01000	ft/ft

Worksheet for Trapezoidal Channel - Remove Dam

GVF Output Data

Critical Slope	0.02000	ft/ft

Rating Table for Trapezoidal Channel - Remove Dam

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.045	
Channel Slope	0.01000	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	60.00	ft
Discharge	3000.00	ft³/s

Discharge (ft³/s)	Normal Depth (ft)	Velocity (ft/s)	Flow Area (ft²)	Wetted Perimeter (ft)	Top Width (ft)
0.00					
500.00	1.72	4.47	111.74	70.85	70.29
1000.00	2.58	5.73	174.46	76.29	75.46
1500.00	3.26	6.59	227.49	80.62	79.56
2000.00	3.85	7.27	275.26	84.33	83.09
2500.00	4.37	7.82	319.58	87.65	86.23
3000.00	4.85	8.30	361.39	90.66	89.09
3500.00	5.29	8.72	401.22	93.45	91.73
4000.00	5.70	9.10	439.53	96.05	94.20
4500.00	6.09	9.44	476.47	98.50	96.53
5000.00	6.46	9.76	512.32	100.83	98.73
5500.00	6.80	10.05	547.20	103.04	100.83
6000.00	7.14	10.32	581.22	105.15	102.83
6500.00	7.46	10.58	614.50	107.18	104.76
7000.00	7.77	10.82	647.09	109.13	106.61
7500.00	8.07	11.04	679.06	111.01	108.39
8000.00	8.35	11.26	710.48	112.83	110.12
8500.00	8.63	11.47	741.38	114.59	111.79
9000.00	8.90	11.66	771.80	116.30	113.41
9500.00	9.16	11.85	801.78	117.96	114.98
10000.00	9.42	12.03	831.35	119.57	116.52
10500.00	9.67	12.20	860.54	121.15	118.01
11000.00	9.91	12.37	889.37	122.68	119.47

Rating Table for Trapezoidal Channel - Remove Dam

Input Data

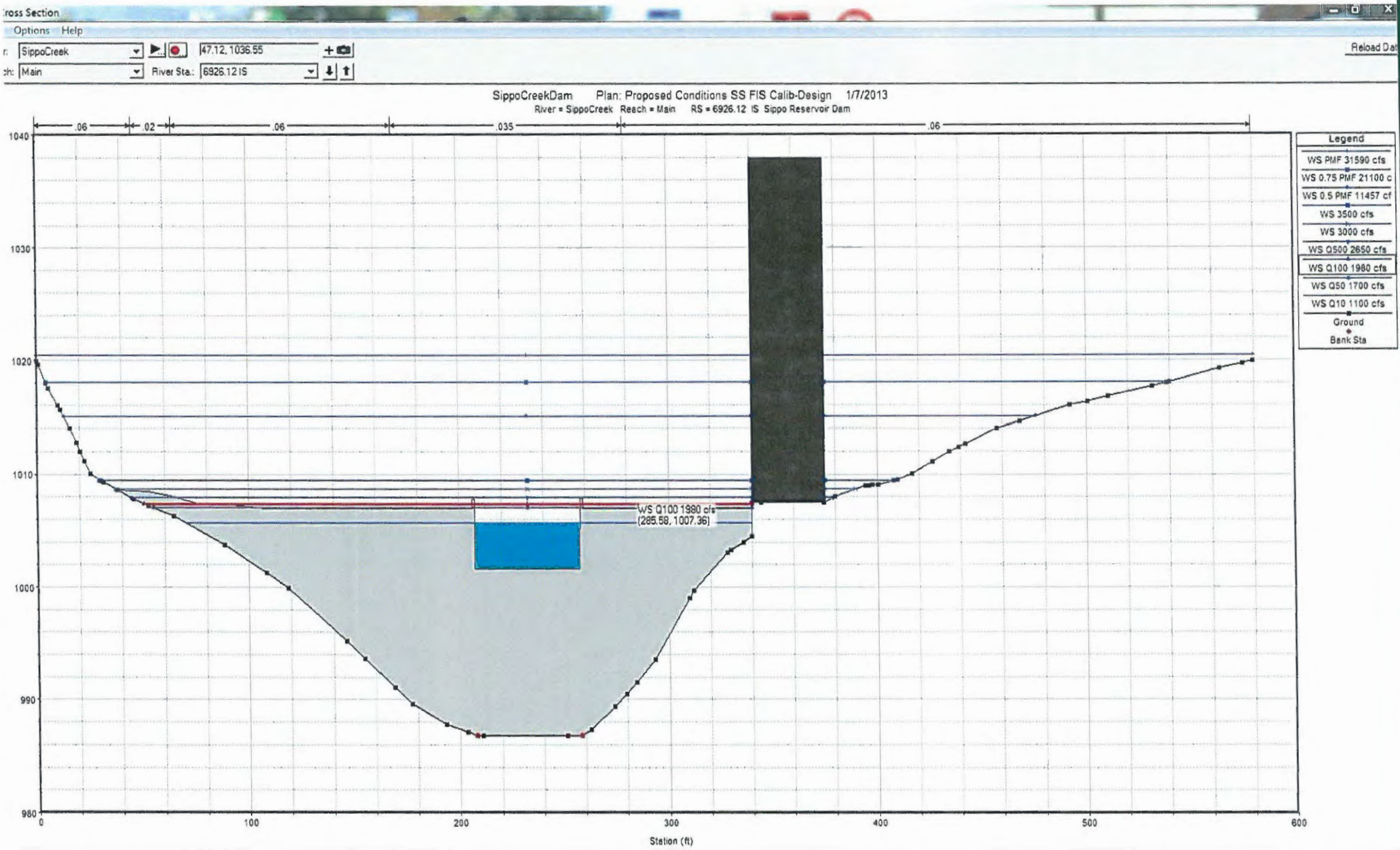
Discharge (ft³/s)	Normal Depth (ft)	Velocity (ft/s)	Flow Area (ft²)	Wetted Perimeter (ft)	Top Width (ft)
11500.00	10.15	12.53	917.86	124.18	120.89
12000.00	10.38	12.68	946.02	125.65	122.28
12500.00	10.61	12.84	973.89	127.08	123.64
13000.00	10.83	12.98	1001.46	128.48	124.97
13500.00	11.05	13.12	1028.77	129.86	126.27
14000.00	11.26	13.26	1055.82	131.21	127.55
14500.00	11.47	13.39	1082.62	132.53	128.81
15000.00	11.67	13.52	1109.18	133.83	130.04
15500.00	11.87	13.65	1135.52	135.10	131.25
16000.00	12.07	13.77	1161.64	136.36	132.44
16500.00	12.27	13.89	1187.55	137.59	133.61
17000.00	12.46	14.01	1213.26	138.80	134.76
17500.00	12.65	14.13	1238.78	139.99	135.89
18000.00	12.83	14.24	1264.12	141.17	137.00
18500.00	13.02	14.35	1289.27	142.32	138.10
19000.00	13.20	14.46	1314.25	143.46	139.18
19500.00	13.37	14.56	1339.07	144.59	140.25
20000.00	13.55	14.67	1363.71	145.69	141.30
20500.00	13.72	14.77	1388.22	146.79	142.33
21000.00	13.89	14.87	1412.56	147.86	143.36
21500.00	14.06	14.96	1436.76	148.93	144.36
22000.00	14.23	15.06	1460.81	149.98	145.36
22500.00	14.39	15.15	1484.73	151.02	146.34
23000.00	14.55	15.25	1508.52	152.04	147.32
23500.00	14.71	15.34	1532.17	153.05	148.28
24000.00	14.87	15.43	1555.69	154.05	149.23
24500.00	15.03	15.52	1579.10	155.04	150.16
25000.00	15.18	15.60	1602.37	156.02	151.09
25500.00	15.33	15.69	1625.54	156.99	152.01
26000.00	15.49	15.77	1648.59	157.94	152.92
26500.00	15.64	15.85	1671.53	158.89	153.81
27000.00	15.78	15.94	1694.35	159.82	154.70
27500.00	15.93	16.02	1717.09	160.75	155.58
28000.00	16.07	16.09	1739.69	161.67	156.45
28500.00	16.22	16.17	1762.21	162.57	157.31
29000.00	16.36	16.25	1784.63	163.47	158.16
29500.00	16.50	16.33	1806.93	164.36	159.01

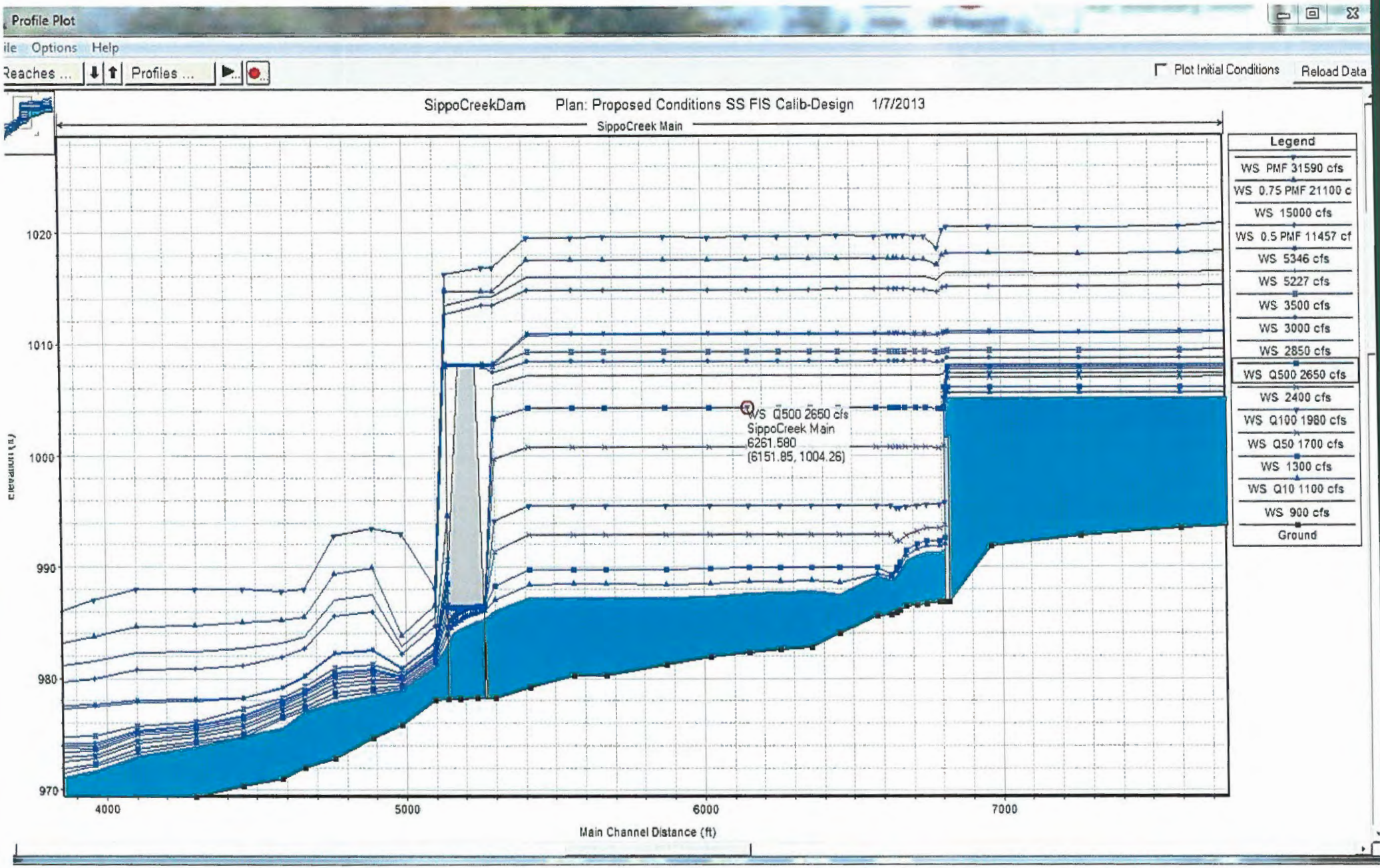
Rating Table for Trapezoidal Channel - Remove Dam

Input Data

Discharge (ft³/s)	Normal Depth (ft)	Velocity (ft/s)	Flow Area (ft²)	Wetted Perimeter (ft)	Top Width (ft)
30000.00	16.64	16.40	1829.17	165.24	159.84
30500.00	16.78	16.47	1851.30	166.12	160.67
31000.00	16.92	16.55	1873.34	166.98	161.49

HEC-RAS Output


ross Section
Options Help
SippoCreek
47.12, 1036.55
Main
River Sta.: 6926.12 IS
Reload Dat
SippoCreekDam Plan: Proposed Conditions SS FIS Calib-Design 1/7/2013
River = SippoCreek Reach = Main RS = 6926.12 IS Sippo Reservoir Dam
.06
.02
.06
.035
.06
1040
1030
1020
1010
1000
990
980
0
100
200
300
400
500
600
Station (ft)
WS Q100 1980 cfs
(285.58, 1007.36)
Legend
WS PMF 31590 cfs
WS 0.75 PMF 21100 c
WS 0.5 PMF 11457 cf
WS 3500 cfs
WS 3000 cfs
WS Q500 2650 cfs
WS Q100 1980 cfs
WS Q50 1700 cfs
WS Q10 1100 cfs
Ground
Bank Sta


Profile Plot
ile Options Help
Reaches ...
Profiles ...
Plot Initial Conditions
Reload Data
SippoCreekDam Plan: Proposed Conditions SS FIS Calib-Design 1/7/2013
SippoCreek Main
Legend
WS PMF 31590 cfs
WS 0.75 PMF 21100 c
WS 15000 cfs
WS 0.5 PMF 11457 cf
WS 5346 cfs
WS 5227 cfs
WS 3500 cfs
WS 3000 cfs
WS 2850 cfs
WS Q500 2650 cfs
WS 2400 cfs
WS Q100 1980 cfs
WS Q50 1700 cfs
WS 1300 cfs
WS Q10 1100 cfs
WS 900 cfs
Ground
WS Q500 2650 cfs
SippoCreek Main
6261.580
(6151.85, 1004.26)
1020
1010
1000
990
980
970
4000
5000
6000
7000
Main Channel Distance (ft)

HEC-RAS Plan: PrCondSSFISDesgn River: SippoCreek Reach: Main

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Hydr Depth C	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Vel Total	Flow Area	Top Width	Froude # Chl	Shear Chan	Shear LOB	Shear ROB
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)	(lb/sq ft)	(lb/sq ft)
Main	11383.45	900 cfs	900.00	1003.50	1010.42	6.90	1007.30	1010.81	0.002473	5.34	3.13	287.61	214.57	0.36	1.06	0.09	0.33
Main	11383.45	Q10 1100 cfs	1100.00	1003.50	1011.20	7.69	1007.84	1011.51	0.001925	5.06	2.39	459.93	222.21	0.32	0.92	0.16	0.30
Main	11383.45	Q100 1980 cfs	1980.00	1003.50	1013.53	10.02	1010.96	1013.72	0.001213	4.79	1.98	1001.60	243.67	0.27	0.75	0.26	0.27
Main	11383.45	2400 cfs	2400.00	1003.50	1014.53	11.02	1011.37	1014.70	0.001018	4.68	1.92	1248.91	250.67	0.25	0.70	0.27	0.26
Main	11383.45	Q500 2650 cfs	2650.00	1003.50	1015.15	11.63	1011.59	1015.30	0.000908	4.58	1.89	1404.95	253.96	0.24	0.66	0.28	0.25
Main	11383.45	3000 cfs	3000.00	1003.50	1015.97	12.46	1011.86	1016.11	0.000795	4.49	1.86	1615.86	258.30	0.22	0.62	0.28	0.24
Main	11383.45	3500 cfs	3500.00	1003.50	1017.18	13.67	1012.23	1017.31	0.000658	4.34	1.81	1932.98	264.70	0.21	0.56	0.28	0.23
Main	11383.45	5227 cfs	5227.00	1003.50	1021.32	17.81	1013.16	1021.41	0.000385	3.96	1.68	3115.41	315.26	0.17	0.43	0.24	0.13
Main	11383.45	5346 cfs	5346.00	1003.50	1021.70	18.18	1013.25	1021.78	0.000361	3.89	1.65	3235.17	317.96	0.16	0.41	0.24	0.13
Main	11383.45	0.5 PMF 11457 cf	11457.00	1003.50	1020.23	16.72	1015.51	1020.81	0.002565	9.80	4.13	2777.28	308.18	0.42	2.66	1.49	0.76
Main	11383.45	15000 cfs	15000.00	1003.50	1021.75	18.24	1016.58	1022.43	0.002800	10.86	4.61	3252.43	318.35	0.45	3.17	1.84	1.03
Main	11383.45	0.75 PMF 21100 c	21100.00	1003.50	1024.01	20.50	1018.01	1024.81	0.002997	12.14	5.17	4079.70	519.04	0.47	3.81	1.74	0.70
Main	11383.45	PMF 31590 cfs	31590.00	1003.50	1027.10	23.59	1020.61	1027.91	0.002801	12.89	5.37	5878.97	584.97	0.47	4.10	1.98	1.07
Main	11383.45	Q50 1700 cfs	1700.00	1003.50	1012.93	9.42	1009.23	1013.13	0.001299	4.76	1.98	856.71	238.26	0.27	0.76	0.23	0.27
Main	11383.45	1300 cfs	1300.00	1003.50	1011.85	8.34	1008.35	1012.11	0.001614	4.89	2.14	606.15	228.49	0.30	0.84	0.19	0.28
Main	11383.45	2650 cfs	2650.00	1003.50	1015.60	12.09	1011.75	1015.75	0.000846	4.54	1.87	1521.84	256.38	0.23	0.63	0.28	0.25
Main	11259.68	900 cfs	900.00	1003.25	1009.71	6.14		1010.37	0.004745	6.83	5.13	175.28	53.24	0.49	1.80	0.41	0.50
Main	11259.68	Q10 1100 cfs	1100.00	1003.25	1010.36	6.79		1011.11	0.004849	7.38	5.15	213.65	70.06	0.50	2.04	0.38	0.59
Main	11259.68	Q100 1980 cfs	1980.00	1003.25	1012.91	9.33		1013.46	0.003072	7.27	3.05	648.34	238.01	0.42	1.78	0.37	0.58
Main	11259.68	2400 cfs	2400.00	1003.25	1014.15	10.57		1014.51	0.002005	6.38	2.52	953.22	253.41	0.35	1.31	0.38	0.46
Main	11259.68	Q500 2650 cfs	2650.00	1003.25	1014.85	11.28		1015.14	0.001618	5.98	2.34	1132.97	258.66	0.31	1.13	0.37	0.42
Main	11259.68	3000 cfs	3000.00	1003.25	1015.74	12.17		1015.98	0.001295	5.63	2.20	1366.28	265.25	0.28	0.98	0.36	0.38
Main	11259.68	3500 cfs	3500.00	1003.25	1017.01	13.44		1017.20	0.000989	5.26	2.04	1712.67	280.00	0.25	0.82	0.35	0.32
Main	11259.68	5227 cfs	5227.00	1003.25	1021.26	17.69		1021.36	0.000428	4.15	1.70	3067.68	341.25	0.17	0.47	0.24	0.18
Main	11259.68	5346 cfs	5346.00	1003.25	1021.65	18.07		1021.73	0.000396	4.05	1.67	3199.20	345.70	0.17	0.44	0.23	0.17
Main	11259.68	0.5 PMF 11457 cf	11457.00	1003.25	1019.66	16.08		1020.41	0.003649	11.38	4.53	2530.61	328.43	0.50	3.64	1.79	1.22
Main	11259.68	15000 cfs	15000.00	1003.25	1021.23	17.66		1022.02	0.003561	11.96	4.91	3057.62	340.95	0.50	3.90	2.00	1.49
Main	11259.68	0.75 PMF 21100 c	21100.00	1003.25	1023.52	19.94		1024.39	0.003537	12.93	5.35	3943.37	436.75	0.51	4.37	2.19	1.30
Main	11259.68	PMF 31590 cfs	31590.00	1003.25	1026.64	23.07		1027.53	0.003127	13.40	5.82	5424.66	479.90	0.49	4.47	2.50	1.48
Main	11259.68	Q50 1700 cfs	1700.00	1003.25	1011.99	8.42	1009.82	1012.80	0.004436	8.15	3.90	435.75	225.85	0.49	2.31	0.30	0.70
Main	11259.68	1300 cfs	1300.00	1003.25	1010.90	7.33		1011.73	0.004959	7.86	5.05	257.54	91.57	0.51	2.25	0.38	0.67
Main	11259.68	2650 cfs	2850.00	1003.25	1015.35	11.77		1015.61	0.001428	5.78	2.26	1262.79	262.35	0.30	1.04	0.37	0.40
Main	11165.78	900 cfs	900.00	1003.00	1009.55	6.39		1009.95	0.002843	5.37	4.57	196.87	45.39	0.37	1.11	0.53	0.41
Main	11165.78	Q10 1100 cfs	1100.00	1003.00	1010.21	7.04		1010.67	0.002941	5.84	4.89	224.91	48.49	0.39	1.26	0.64	0.49
Main	11165.78	Q100 1980 cfs	1980.00	1003.00	1012.42	9.25		1013.15	0.003357	7.48	6.12	323.31	153.80	0.43	1.90	1.10	0.95
Main	11165.78	2400 cfs	2400.00	1003.00	1013.83	10.66	1009.77	1014.31	0.002195	6.65	3.75	640.70	287.23	0.36	1.43	0.17	0.80
Main	11165.78	Q500 2650 cfs	2650.00	1003.00	1014.63	11.46	1010.13	1014.99	0.001694	6.13	2.98	889.36	333.27	0.32	1.19	0.21	0.24
Main	11165.78	3000 cfs	3000.00	1003.00	1015.65	12.49	1010.74	1015.87	0.001059	5.13	2.40	1248.86	367.96	0.26	0.81	0.19	0.17
Main	11165.78	3500 cfs	3500.00	1003.00	1016.99	13.82		1017.12	0.000616	4.19	1.97	1780.35	430.41	0.20	0.52	0.15	0.11
Main	11165.78	5227 cfs	5227.00	1003.00	1021.29	18.12	1013.97	1021.32	0.000141	2.40	1.24	4231.50	660.68	0.10	0.16	0.05	0.05
Main	11165.78	5346 cfs	5346.00	1003.00	1021.67	18.50	1014.78	1021.70	0.000122	2.26	1.19	4485.35	662.83	0.09	0.14	0.05	0.05
Main	11165.78	0.5 PMF 11457 cf	11457.00	1003.00	1019.81	16.65		1020.09	0.001300	6.88	3.50	3269.50	628.92	0.30	1.32	0.39	0.38
Main	11165.78	15000 cfs	15000.00	1003.00	1021.45	18.28		1021.71	0.001070	6.65	3.46	4337.91	661.56	0.27	1.19	0.41	0.40
Main	11165.78	0.75 PMF 21100 c	21100.00	1003.00	1023.83	20.67		1024.08	0.000776	6.14	3.53	5973.96	736.88	0.24	0.98	0.41	0.30
Main	11165.78	PMF 31590 cfs	31590.00	1003.00	1026.97	23.80		1027.24	0.000635	6.10	3.81	8284.94	736.88	0.22	0.92	0.45	0.36
Main	11165.78	Q50 1700 cfs	1700.00	1003.00	1011.75	8.58		1012.40	0.003304	7.05	5.80	293.22	58.28	0.42	1.73	0.97	0.80
Main	11165.78	1300 cfs	1300.00	1003.00	1010.74	7.57		1011.28	0.003122	6.31	5.23	248.38	51.31	0.40	1.44	0.77	0.58
Main	11165.78	2650 cfs	2850.00	1003.00	1015.22	12.05	1010.44	1015.49	0.001286	5.52	2.61	1093.27	352.62	0.28	0.95	0.20	0.20
Main	11114.83	900 cfs	900.00	1002.80	1009.06	6.17		1009.73	0.002871	6.91	5.78	155.60	43.41	0.49	1.07	0.50	0.50
Main	11114.83	Q10 1100 cfs	1100.00	1002.80	1009.61	6.72		1010.42	0.003120	7.62	6.36	173.02	45.85	0.52	1.27	0.62	0.64
Main	11114.83	Q100 1980 cfs	1980.00	1002.80	1011.07	8.17		1012.68	0.004928	10.92	9.05	218.79	53.10	0.67	2.44	1.29	1.43
Main	11114.83	2400 cfs	2400.00	1002.80	1011.73	8.84		1013.70	0.005448	12.10	10.01	239.73	56.63	0.72	2.92	1.58	1.80
Main	11114.83	Q500 2650 cfs	2650.00	1002.80	1012.20	9.30		1014.32	0.005519	12.60	10.42	254.33	63.81	0.73	3.11	1.71	1.97
Main	11114.83	3000 cfs	3000.00	1002.80	1012.73	9.83		1015.11	0.005792	13.39	11.07	271.00	82.33	0.75	3.45	1.93	2.24
Main	11114.83	3500 cfs	3500.00	1002.80	1013.67	10.77	1012.03	1016.30	0.005677	14.09	11.64	300.60	180.69	0.76	3.71	2.12	2.51
Main	11114.83	5227 cfs	5227.00	1002.80	1013.83	10.74	1013.63	1019.54	0.012814	21.12	17.45	299.48	174.34	1.14	8.34	4.76	5.64
Main	11114.83	5346 cfs	5346.00	1002.80	1013.59	10.70	1013.59	1019.82	0.013579	21.69	17.92	298.26	165.70	1.17	8.80	5.02	5.95
Main	11114.83	0.5 PMF 11457 cf	11457.00	1002.80	1019.58	16.68		1019.99	0.001292	9.00	3.53	3243.28	680.03	0.39	1.31	0.34	0.39
Main	11114.83	15000 cfs	15000.00	1002.80	1021.35	18.46		1021.65	0.000903	8.04	3.34	4492.52	710.34	0.33	1.01	0.33	0.36
Main	11114.83	0.75 PMF 21100 c	21100.00	1002.80	1023.79	20.89		1024.04	0.000673	7.54	3.39	6220.29	710.34	0.29	0.85	0.34	0.36
Main	11114.83	PMF 31590 cfs	31590.00	1002.80	1026.93	24.03		1027.20	0.000582	7.70	3.74	8453.59	710.34	0.28	0.85	0.41	0.42
Main	11114.83	Q50 1700 cfs	1700.00	1002.80	1010.66	7.76		1012.00	0.004388	9.95	8.26	205.82	50.91	0.63	2.06	1.07	1.17
Main	11114.83	1300 cfs	1300.00	1002.80	1010.00	7.10		1010.97	0.003555	8.44	7.03	185.04	47.35	0.56	1.53	0.76	0.81
Main	11114.83	2850 cfs	2850.00	1002.80	1012.47	9.57		1014.76	0.005761	13.12	10.85	262.75	74.17	0.75	3.34	1.85	2.15
Main	10892.05	900 cfs	900.00	1002.60	1008.76	6.03		1009.09	0.001600	5.07	3.39	265.29	89.85	0.36	0.58	0.19	0.18
Main	10892.05	Q10 1100 cfs	1100.00	1002.60	1009.35	6.62		1009.71	0.001606	5.40	3.42	321.63	101.62	0.37	0.64	0.22	0.20
Main	10892.05	Q100 1980 cfs	1980.00	1002.60	1010.94	8.20		1011.47	0.002029	7.00	3.78	524.05	166.35	0.43	1.00	0.40	0.24
Main	10892.05	2400 cfs	2400.00	1002.60	1011.88	9.14		1012.33	0.001655	6.80	3.39	708.63	224.73	0.40	0.91	0.39	0.20
Main	10892.05	Q500 2650 cfs	2650.00	1002.60	1012.52	9.78		1012.91	0.001380	6.50	3.06	865.33	249.31	0.37	0.81	0.36	0.20
Main	10892.05	3000 cfs	3000.00	1002.60	1013.26	10.52		1013.60	0.001174	6.29	2.85	1050.85	254.63	0.34	0.75	0.34	0.22
Main	10892.05	3500 cfs	3500.00	1002.60	1014.45	11.71		1014.72	0.000881	5.85	2.57	1359.47	262.90	0.30	0.62	0.29	0.23
Main	10892.05	5227 cfs	5227.00	1002.60	1015.18	12.45	1012.21	1015.63	0.001414	7.72	3.36	1554.63	268.34	0.39	1.06	0.50	0.43
Main	10892.05	5346 cfs	5346.00	1002.60	1015.28	12.54	1012.28	1015.73	0.001421	7.78	3.38	1579.82	269.03	0.39	1.08	0.51	0.44
Main	10892.05	0.5 PMF 11457 cf	11457.00	1002.60	1018.64	16.10		1019.55	0.001846	10.48	4.41	2595.41	308.33	0.46	1.80	0.79	0.94
Main	10892.05	15000 cfs	15000.00	1002.60	1020.28	17.54		1021.17	0.002139	11.94	4.90	3061.15	346.96	0.50	2.27	0.87	1.23
Main	10892.05	0.75 PMF 21100 c	21100.00	1002.60	1022.34	19.60		1023.50	0.002546	14.03	5.45	3872.84	431.91	0.56	3.01	0.98	1.63
Main	10892.05	PMF 31590 cfs	31590.00	1002.60	1025.27	22.53		1026.63	0.002696	15.84	6.15	5139.55	431.91	0.59	3.67	1.50	2.19
Main	10892.05	Q50 1700 cfs	1700.00	1002.60	1010.42	7.68		1010.94	0.002062	6.76	3.82	445.16	136.96	0.43	0.96	0.36	0.25
Main	10892.05	1300 cfs	1300.00	1002.60	1009.74	7.01		1010.15	0.001748	5.86	3.58	363.00	109.84	0.39	0.74	0.26	0.24
Main	10892.05	2650 cfs	2850.00	1002.60	1012.90	10.17		1013.27	0.001283	6.43	2.96	961.74	252.09	0.36	0.79	0.35	0.22
Main	10397.80	900 cfs	900.00	1002.20	1008.62	6.00		1008.66	0.000391	2.48	1.31	584.73	195.85	0.18	0.14	0.07	0.08
Main	10397.80	Q10 1100 cfs	1100.00	1002.20	1009.25	6.63		1009.29	0.000355	2.52	1.36	809.56	199.47	0.17	0.14	0.07	0.09
Main	10397.80	Q100 1980 cfs	1980.00	1002.20	1010.86	8.24		1010.93	0.000445	3.26	1.71	1159.65	233.94	0.20	0.22	0.13	0.13
Main	10397.80	2400 cfs	2400.00	1002.20	1011.81	9.19		1011.88	0.000385	3.26	1.73	1384.48	240.04	0.19	0.21	0.13	0.13
Main	10397.80	Q500 2650 cfs	2650.00	1002.20	1012.45	9.83		1012.52	0.000341	3.21	1.72	1540.33	244.17	0.18	0.20	0.12	0.13
Main	10397.80	3000 cfs	3000.00	1002.20	1013.19	10.56		1013.25	0.000314	3.23	1.74	1721.01	248.91	0.18	0.20	0.12	0.13
Main	10397.80	3500 cfs	3500.00	1002.20	1014.38	11.76		1014.44	0.000264	3.19	1.73	2023.49	327.30	0.16	0.19	0.12	0.13
Main	10397.80	5227 cfs	5227.00	1002.20	1015.06	12.43		1015.17	0.000460	4.37	2.38	2198.23	357.07	0.22	0.34	0.22	0.23
Main	10397.80	5346 cfs	5346.00	1002.20	1015.15	12.52		1015.27	0.000466	4.42	2.41	2222.13	361.69	0.22	0.35	0.22	0.24
Main	10397.80	0.5 PMF 11457 cf	11457.00	1002.20	1018.74	16.12		1018.93	0.000576	5.82	3.08	3724.83	491.10	0.26	0.56	0.16	0.39
Main	10397.80	15000 cfs	15000.00	1002.20	1020.27	17.65		1020.48	0.000573	6.15	3.35	4479.08	498.43	0.26	0.60	0.22	0.43
Main	10397.80	0.75 PMF 21100 c	21100.00	1002.20	1022.46	19.83		1022.72	0.000569	6.63	3.78	5580.42	508.90	0.26	0.67	0.29	0.48
Main	10397.80	PMF 31590 cfs	31590.00	1002.20	1025.46	22.84		1025.80	0.000568	7.27	4.40	7182.97	564.61	0.27	0.77	0.39	0.47
Main	10397.80	Q50 1700 cfs	1700.00	1002.20	1010.33	7.71		1010.39	0.000459	3.17	1.64	1036.06	230.39	0.20	0.21	0.12	0.12
Main	10397.80	1300 cfs	1300.00	1002.20	1009.65	7.03		1009.70	0.000373	2.69	1.46	890.54	201.78	0.18	0.16	0.08	0.10
Main	10397.80	2650 cfs	2850.00	1002.20	1012.83	10.21		1012.90	0.000331	3.25	1.74	1633.96	246.63	0.18	0.20	0.12	0.13
Main	10137.55	900 cfs	900.00	1001.95	1008.57	6.58		1008.59	0.000161	1.73	0.91	993.47	267.74	0.12	0.07	0.04	0.03
Main	10137.55	Q10 1100 cfs	1100.00	1001.95	1009.21	7.22		1009.23	0.000150	1.78	0.94	1169.22	284.61	0.12	0.07	0.04	0.03
Main	10137.55	Q100 1980 cfs	1980.00	1001.95	1010.82	8.83		1010.85	0.000176	2.20	1.19	1659.07	326.30	0.13	0.10	0.05	0.05
Main	10137.55	2400 cfs	2400.00	1001.95	1011.77	9.79		1011.81	0.000154	2.21	1.21	1984.52	354.01	0.12	0.09	0.05	0.05
Main	10137.55	Q500 2650 cfs	2650.00	1001.95	1012.42	10.44		1012.45	0.000135	2.16	1.19	2220.39	371.27	0.12	0.09	0.05	0.05
Main	10137.55	3000 cfs	3000.00	1001.95	1013.16	11.17		1013.19	0.000122	2.14	1.20	2501.20	389.53	0.11	0.08	0.04	0.05

HEC-RAS Plan: PrCondSSFISDesgn River: SippoCreek Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Hydr Depth C	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Vel Total	Flow Area	Top Width	Froude # Chl	Shear Chan	Shear LOB	Shear ROB
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)	(lb/sq ft)	(lb/sq ft)
Main	10137.55	3500 cfs	3500.00	1001.95	1014.37	12.38		1014.39	0.000099	2.07	1.17	2988.88	424.49	0.10	0.08	0.04	0.04
Main	10137.55	5227 cfs	5227.00	1001.95	1015.03	13.05		1015.08	0.000170	2.80	1.59	3281.26	450.71	0.14	0.14	0.07	0.08
Main	10137.55	5346 cfs	5346.00	1001.95	1015.13	13.14		1015.18	0.000171	2.83	1.61	3322.80	454.31	0.14	0.14	0.07	0.08
Main	10137.55	0.5 PMF 11457 cf	11457.00	1001.95	1018.73	16.74		1018.82	0.000202	3.61	2.22	5152.44	524.98	0.16	0.21	0.11	0.13
Main	10137.55	15000 cfs	15000.00	1001.95	1020.25	18.26		1020.37	0.000215	3.95	2.52	5956.04	535.01	0.16	0.24	0.13	0.16
Main	10137.55	0.75 PMF 21100 c	21100.00	1001.95	1022.43	20.44		1022.60	0.000234	4.45	2.95	7149.06	549.36	0.17	0.30	0.18	0.19
Main	10137.55	PMF 31590 cfs	31590.00	1001.95	1025.43	23.44		1025.68	0.000260	5.13	3.59	8796.73	549.36	0.19	0.38	0.24	0.26
Main	10137.55	Q50 1700 cfs	1700.00	1001.95	1010.28	8.29		1010.31	0.000178	2.12	1.14	1488.87	310.95	0.13	0.09	0.05	0.05
Main	10137.55	1300 cfs	1300.00	1001.95	1009.61	7.62		1009.63	0.000159	1.90	1.01	1285.67	294.02	0.12	0.07	0.04	0.04
Main	10137.55	2850 cfs	2850.00	1001.95	1012.81	10.82		1012.84	0.000130	2.17	1.21	2364.79	380.79	0.12	0.09	0.05	0.05
Main	9989.336	900 cfs	900.00	1001.85	1007.33	5.46	1006.12	1008.41	0.005308	8.83	7.38	121.93	44.82	0.67	1.81	0.36	0.24
Main	9989.336	Q10 1100 cfs	1100.00	1001.85	1007.89	6.03	1007.28	1009.05	0.005172	9.31	7.28	151.07	58.15	0.67	1.94	0.38	0.31
Main	9989.336	Q100 1980 cfs	1980.00	1001.85	1010.38	8.52		1010.75	0.001701	6.72	3.07	644.54	235.71	0.41	0.90	0.27	0.17
Main	9989.336	2400 cfs	2400.00	1001.85	1011.50	9.63		1011.73	0.001079	5.81	2.60	922.62	265.52	0.33	0.65	0.22	0.15
Main	9989.336	Q500 2650 cfs	2650.00	1001.85	1012.21	10.35		1012.40	0.000821	5.31	2.37	1119.33	284.37	0.29	0.53	0.20	0.14
Main	9989.336	3000 cfs	3000.00	1001.85	1012.99	11.13		1013.14	0.000658	4.99	2.23	1347.07	300.65	0.26	0.46	0.18	0.13
Main	9989.336	3500 cfs	3500.00	1001.85	1014.24	12.38		1014.36	0.000464	4.50	2.01	1740.38	334.22	0.23	0.36	0.14	0.12
Main	9989.336	5227 cfs	5227.00	1001.85	1014.82	12.95		1015.02	0.000789	6.05	2.69	1942.38	366.52	0.30	0.64	0.24	0.22
Main	9989.336	5346 cfs	5346.00	1001.85	1014.91	13.05		1015.11	0.000792	6.09	2.71	1975.88	372.10	0.30	0.64	0.24	0.22
Main	9989.336	0.5 PMF 11457 cf	11457.00	1001.85	1018.51	16.64		1018.75	0.000822	7.30	3.14	3645.70	506.67	0.32	0.85	0.33	0.34
Main	9989.336	15000 cfs	15000.00	1001.85	1020.02	18.16		1020.30	0.000836	7.80	3.39	4426.09	520.28	0.32	0.95	0.40	0.40
Main	9989.336	0.75 PMF 21100 c	21100.00	1001.85	1022.20	20.34		1022.52	0.000869	8.58	3.78	5578.37	539.25	0.34	1.10	0.52	0.49
Main	9989.336	PMF 31590 cfs	31590.00	1001.85	1025.18	23.32		1025.59	0.000958	9.87	4.37	7235.82	582.87	0.36	1.39	0.72	0.60
Main	9989.336	Q50 1700 cfs	1700.00	1001.85	1009.71	7.84		1010.20	0.002258	7.33	3.46	491.09	215.77	0.46	1.10	0.28	0.18
Main	9989.336	1300 cfs	1300.00	1001.85	1008.58	6.72	1007.82	1009.48	0.003955	8.74	4.95	262.49	189.76	0.59	1.66	0.22	0.19
Main	9989.336	2850 cfs	2850.00	1001.85	1012.61	10.75		1012.78	0.000740	5.18	2.31	1235.92	293.02	0.28	0.50	0.19	0.14
Main	9950.847	900 cfs	900.00	1001.75	1007.51	5.30		1007.94	0.002214	5.46	4.80	187.39	86.12	0.42	0.71	0.31	0.32
Main	9950.847	Q10 1100 cfs	1100.00	1001.75	1008.07	5.86		1008.57	0.002279	5.93	5.18	212.39	162.31	0.43	0.80	0.39	0.40
Main	9950.847	Q100 1980 cfs	1980.00	1001.75	1010.32	8.12		1010.62	0.001239	5.43	2.51	787.51	341.51	0.34	0.61	0.14	0.15
Main	9950.847	2400 cfs	2400.00	1001.75	1011.47	9.26		1011.64	0.000724	4.53	1.98	1209.95	399.22	0.26	0.40	0.12	0.08
Main	9950.847	Q500 2650 cfs	2650.00	1001.75	1012.19	9.98		1012.32	0.000527	4.06	1.75	1513.19	435.24	0.23	0.32	0.10	0.06
Main	9950.847	3000 cfs	3000.00	1001.75	1012.98	10.77		1013.07	0.000404	3.74	1.61	1866.87	464.38	0.20	0.26	0.09	0.06
Main	9950.847	3500 cfs	3500.00	1001.75	1014.24	12.03		1014.30	0.000268	3.28	1.41	2479.59	506.78	0.17	0.19	0.08	0.05
Main	9950.847	5227 cfs	5227.00	1001.75	1014.82	12.61		1014.93	0.000443	4.35	1.88	2777.08	522.14	0.22	0.34	0.14	0.09
Main	9950.847	5346 cfs	5346.00	1001.75	1014.91	12.70		1015.02	0.000443	4.37	1.89	2824.80	524.54	0.22	0.34	0.14	0.09
Main	9950.847	0.5 PMF 11457 cf	11457.00	1001.75	1018.50	16.30		1018.65	0.000480	5.37	2.33	4920.59	654.58	0.23	0.47	0.22	0.14
Main	9950.847	15000 cfs	15000.00	1001.75	1020.02	17.81		1020.19	0.000500	5.82	2.52	5959.21	713.04	0.24	0.54	0.26	0.16
Main	9950.847	0.75 PMF 21100 c	21100.00	1001.75	1022.21	20.00		1022.40	0.000495	6.26	2.78	7580.29	755.74	0.25	0.60	0.32	0.18
Main	9950.847	PMF 31590 cfs	31590.00	1001.75	1025.21	23.00		1025.44	0.000500	6.91	3.19	9895.85	798.00	0.25	0.69	0.41	0.21
Main	9950.847	Q50 1700 cfs	1700.00	1001.75	1009.61	7.40		1010.05	0.001776	6.11	3.08	552.30	321.31	0.40	0.79	0.13	0.15
Main	9950.847	1300 cfs	1300.00	1001.75	1008.54	6.33	1006.37	1009.22	0.002720	6.81	5.43	239.27	239.24	0.48	1.04	0.04	0.55
Main	9950.847	2850 cfs	2850.00	1001.75	1012.60	10.39		1012.71	0.000464	3.91	1.68	1693.98	451.02	0.21	0.29	0.10	0.06
Main	9798.714	900 cfs	900.00	1001.50	1007.38	5.83		1007.62	0.001134	4.26	2.86	314.86	133.88	0.31	0.41	0.07	0.16
Main	9798.714	Q10 1100 cfs	1100.00	1001.50	1007.99	6.44		1008.23	0.001051	4.38	2.74	401.87	150.92	0.30	0.42	0.09	0.17
Main	9798.714	Q100 1980 cfs	1980.00	1001.50	1010.31	8.76		1010.45	0.000540	3.85	2.16	906.95	244.37	0.23	0.29	0.10	0.11
Main	9798.714	2400 cfs	2400.00	1001.50	1011.44	9.89		1011.55	0.000379	3.50	2.01	1196.09	261.10	0.20	0.23	0.09	0.09
Main	9798.714	Q500 2650 cfs	2650.00	1001.50	1012.17	10.62		1012.26	0.000306	3.30	1.91	1387.18	266.46	0.18	0.20	0.09	0.08
Main	9798.714	3000 cfs	3000.00	1001.50	1012.95	11.40		1013.03	0.000261	3.19	1.87	1601.37	284.40	0.17	0.19	0.08	0.08
Main	9798.714	3500 cfs	3500.00	1001.50	1014.21	12.66		1014.28	0.000199	2.99	1.76	1984.38	320.41	0.15	0.16	0.07	0.07
Main	9798.714	5227 cfs	5227.00	1001.50	1014.76	13.20		1014.89	0.000352	4.09	2.42	2160.00	323.24	0.20	0.29	0.13	0.13
Main	9798.714	5346 cfs	5346.00	1001.50	1014.85	13.29		1014.98	0.000355	4.13	2.44	2188.77	323.70	0.20	0.29	0.13	0.13
Main	9798.714	0.5 PMF 11457 cf	11457.00	1001.50	1018.34	16.79		1018.58	0.000486	5.64	3.40	3370.23	348.59	0.24	0.51	0.26	0.24
Main	9798.714	15000 cfs	15000.00	1001.50	1019.80	18.25		1020.10	0.000555	6.37	3.86	3884.20	364.45	0.26	0.63	0.32	0.31
Main	9798.714	0.75 PMF 21100 c	21100.00	1001.50	1021.86	20.33		1022.28	0.000656	7.45	4.51	4675.69	384.00	0.29	0.83	0.41	0.42
Main	9798.714	PMF 31590 cfs	31590.00	1001.50	1024.70	23.15		1025.28	0.000806	9.00	5.47	5773.68	433.87	0.33	1.16	0.59	0.43
Main	9798.714	Q50 1700 cfs	1700.00	1001.50	1009.62	8.07		1009.78	0.000660	4.04	2.28	744.02	228.40	0.25	0.33	0.10	0.13
Main	9798.714	1300 cfs	1300.00	1001.50	1008.56	7.01		1008.77	0.000926	4.35	2.53	513.41	203.94	0.29	0.40	0.09	0.15
Main	9798.714	2850 cfs	2850.00	1001.50	1012.58	11.02		1012.66	0.000285	3.26	1.90	1496.23	272.27	0.17	0.20	0.09	0.08
Main	9614.268	900 cfs	900.00	1001.25	1006.93	5.49		1007.17	0.001569	4.80	3.28	274.64	109.19	0.36	0.53	0.16	0.23
Main	9614.268	Q10 1100 cfs	1100.00	1001.25	1007.54	6.10		1007.76	0.001342	4.76	3.18	345.81	120.78	0.34	0.51	0.17	0.22
Main	9614.268	Q100 1980 cfs	1980.00	1001.25	1009.93	8.49		1010.09	0.000686	4.25	2.76	718.04	188.10	0.26	0.36	0.14	0.13
Main	9614.268	2400 cfs	2400.00	1001.25	1011.14	9.70		1011.27	0.000476	3.87	2.51	954.59	201.03	0.22	0.29	0.13	0.11
Main	9614.268	Q500 2650 cfs	2650.00	1001.25	1011.91	10.47		1012.02	0.000382	3.65	2.38	1111.27	206.58	0.20	0.25	0.12	0.10
Main	9614.268	3000 cfs	3000.00	1001.25	1012.72	11.28		1012.83	0.000328	3.55	2.34	1279.87	209.31	0.19	0.23	0.12	0.10
Main	9614.268	3500 cfs	3500.00	1001.25	1014.02	12.58		1014.12	0.000254	3.36	2.25	1557.22	220.52	0.17	0.20	0.11	0.09
Main	9614.268	5227 cfs	5227.00	1001.25	1014.38	12.94		1014.58	0.000491	4.76	3.19	1637.91	222.86	0.23	0.39	0.21	0.18
Main	9614.268	5346 cfs	5346.00	1001.25	1014.47	13.03		1014.66	0.000497	4.81	3.23	1656.37	223.45	0.23	0.40	0.22	0.19
Main	9614.268	0.5 PMF 11457 cf	11457.00	1001.25	1017.68	16.24		1018.10	0.000790	7.02	4.74	2417.25	253.71	0.31	0.80	0.42	0.41
Main	9614.268	15000 cfs	15000.00	1001.25	1018.96	17.52		1019.52	0.000963	8.16	5.44	2758.47	274.43	0.34	1.05	0.53	0.52
Main	9614.268	0.75 PMF 21100 c	21100.00	1001.25	1020.80	19.36		1021.57	0.001194	9.70	6.44	3278.53	296.66	0.39	1.43	0.69	0.75
Main	9614.268	PMF 31590 cfs	31590.00	1001.25	1023.28	21.84		1024.38	0.001531	11.91	7.72	4093.19	361.01	0.45	2.08	0.88	0.97
Main	9614.268	Q50 1700 cfs	1700.00	1001.25	1009.20	7.76		1009.38	0.000843	4.43	2.91	584.90	172.72	0.28	0.41	0.14	0.15
Main	9614.268	1300 cfs	1300.00	1001.25	1008.10	6.66		1008.31	0.001147	4.67	3.12	417.26	133.93	0.32	0.47	0.17	0.20
Main	9614.268	2850 cfs	2850.00	1001.25	1012.33	10.89		1012.44	0.000358	3.62	2.38	1197.82	208.17	0.19	0.24	0.12	0.10
Main	9435.728	900 cfs	900.00	1001.00	1006.28	5.06		1006.76	0.003039	6.31	4.57	196.97	80.86	0.49	0.95	0.27	0.32
Main	9435.728	Q10 1100 cfs	1100.00	1001.00	1006.97	5.75		1007.41	0.002547	6.29	4.16	264.22	114.20	0.46	0.90	0.20	0.33
Main	9435.728	Q100 1980 cfs	1980.00	1001.00	1009.66	8.43		1009.91	0.001147	5.45	3.01	657.25	171.24	0.33	0.60	0.22	0.23
Main	9435.728	2400 cfs	2400.00	1001.00	1010.96	9.73		1011.15	0.000793	4.98	2.66	903.39	200.32	0.28	0.48	0.18	0.19
Main	9435.728	Q500 2650 cfs	2650.00	1001.00	1011.76	10.54		1011.93	0.000638	4.71	2.48	1069.20	210.97	0.26	0.41	0.17	0.17
Main	9435.728	3000 cfs	3000.00	1001.00	1012.59	11.37		1012.75	0.000545	4.58	2.40	1247.68	215.38	0.24	0.38	0.17	0.17
Main	9435.728	3500 cfs	3500.00	1001.00	1013.92	12.70		1014.05	0.000418	4.32	2.28	1535.70	217.96	0.21	0.33	0.16	0.16
Main	9435.728	5227 cfs	5227.00	1001.00	1014.19	12.96		1014.45	0.000841	6.21	3.28	1593.32	218.51	0.30	0.67	0.32	0.33
Main	9435.728	5346 cfs	5346.00	1001.00	1014.27	13.04		1014.54	0.000853	6.28	3.32	1610.74	218.68	0.31	0.69	0.33	0.34
Main	9435.728	0.5 PMF 11457 cf	11457.00	1001.00	1017.32	16.09		1017.89	0.001434	9.37	5.01	2286.95	224.71	0.41	1.42	0.74	0.79
Main	9435.728	15000 cfs	15000.00	1001.00	1018.49	17.26		1019.26	0.001788	10.97	5.86	2553.19	231.00	0.47	1.91	0.98	1.08
Main	9435.728	0.75 PMF 21100 c	21100.00	1001.00	1020.08	18.85		1021.23	0.002412	13.51	7.20	2931.17	244.99	0.55	2.81	1.37	1.61
Main	9435.728	PMF 31590 cfs	31590.00	1001.00	1021.85	20.62		1023.86	0.003893	18.21	9.30	3396.01	281.58	0.71	4.96	2.31	2.45
Main	9435.728	Q50 1700 cfs	1700.00	1001.00	1008.88	7.65		1009.17	0.001400	5.64	3.19	532.59	153.57	0.36	0.66	0.23	0.26
Main	9435.728	1300 cfs	1300.00	1001.00	1007.64	6.41		1008.02	0.002082	6.11	3.72	349.92	141.30	0.43	0.82	0.19	0.31
Main	9435.728	2850 cfs	2850.00	1001.00	1012.19	10.96		1012.35	0.000598	4.68	2.46	1160.31	214.59	0.25	0.40	0.17	0.17
Main	9285.969	900 cfs	900.00	999.75	1006.10	6.21		1006.40	0.001535	5.07	3.27	275.42	83.05	0.36	0.58	0.20	0.25
Main	9285.969	Q10 1100 cfs	1100.00	999.75	1006.78	6.90		1007.09	0.001449	5.28	3.22	341.99	109.94	0.35	0.60	0.16	0.27
Main	9285.969	Q100 1980 cfs	1980.00	999.75	1009.60	9.71		1009.76	0.000630	4.38	2.53	782.18	181.35	0.25	0.37	0.13	0.17
Main	9285.969	2400 cfs	2400.00	999.75	1010.91	11.03		1011.04	0.000439	3.98	2.33	1028.71	194.88	0.21	0.29	0.12	0.12
Main	9285.969	Q500 2650 cfs	2650.00	999.75	1011.73	11.84		1011.84	0.000356	3.76	2.23	1190.76	203.49	0.19	0.26	0.12	0.11
Main	9285.969	3000 cfs	3000.00	999.75	1012.57	12.68		1012.67	0.000309	3.66	2.20	1366.39	214.06	0.18	0.24	0.11	0.10
Main	9285.969	3500 cfs	3500.00	999.75	1013.90	14.01		1014.00	0.000240	3.45	2.11	1659.83	225.18	0.16	0.20	0.10	0.09
Main	9285.969	5227 cfs	5227.00	999.75	1014.14	14.25		1014.34	0.000488	4.97	3.05	1714.01	226.81	0.23	0.42	0.20	0.19
Main	9285.969	5346 cfs	5346.00	999.75	1014.22	14.33		1014.42	0.000495	5.03	3.09	1731.97	227.28	0.23	0.43	0.21	0.20
Main	9285.969	0.5 PMF 11457 cf	11457.00	999.75	1017.25	17.36		1017.69	0.000832	7.41	4.68	2449.58	248.53	0.31	0.87	0.43	0.46
Main	9285.969	15000 cfs	15000.00	999.75	1018.42	18.53		1019.01	0.001032	8.62	5.46	2746.00	258.71	0.35	1.16	0.57	0.63
Main	9285.969	0.75 PMF 21100 c	21100.00	999.75	1020.01	20.13		1020.88	0.001367	10.48	6.66	3170.48	272.89	0.41	1.66	0.81	0.94

HEC-RAS Plan: PrCondSSFISDesgn River: SippoCreek Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Hydr Depth C	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Vel Total	Flow Area	Top Width	Froude # Chl	Shear Chan	Shear LOB	Shear ROB
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)	(lb/sq ft)	(lb/sq ft)
Main	9285.969	PMF 31590 cfs	31590.00	999.75	1021.84	21.95		1023.27	0.002062	13.63	8.56	3688.84	296.39	0.51	2.74	1.31	1.49
Main	9285.969	Q50 1700 cfs	1700.00	999.75	1008.79	8.90		1008.98	0.000795	4.64	2.67	637.48	176.11	0.27	0.43	0.12	0.19
Main	9285.969	1300 cfs	1300.00	999.75	1007.48	7.59		1007.75	0.001214	5.15	3.04	428.10	137.92	0.33	0.56	0.14	0.25
Main	9285.969	2850 cfs	2850.00	999.75	1012.16	12.27		1012.27	0.000336	3.74	2.23	1279.58	210.62	0.19	0.25	0.11	0.10
Main	9175	900 cfs	900.00	999.50	1005.42	5.68		1006.07	0.002695	6.46	6.46	139.32	30.87	0.48	0.96		
Main	9175	Q10 1100 cfs	1100.00	999.50	1005.89	6.15		1006.71	0.003099	7.30	7.30	150.70	31.92	0.52	1.19		
Main	9175	Q100 1980 cfs	1980.00	999.50	1007.44	7.70		1009.15	0.004730	10.48	10.48	188.88	50.74	0.67	2.27		
Main	9175	2400 cfs	2400.00	999.50	1008.37	8.63		1010.37	0.004752	11.34	11.34	211.68	187.23	0.68	2.56		
Main	9175	Q500 2650 cfs	2650.00	999.50	1009.24	9.50	1006.85	1011.19	0.004140	11.28	9.59	276.28	209.27	0.64	2.45	0.06	0.03
Main	9175	3000 cfs	3000.00	999.50	1011.89	12.15	1007.46	1012.47	0.001210	7.18	3.44	872.21	240.11	0.36	0.92	0.20	0.10
Main	9175	3500 cfs	3500.00	999.50	1013.53	13.79	1008.32	1013.88	0.000728	6.06	2.69	1301.72	285.48	0.29	0.63	0.19	0.07
Main	9175	5227 cfs	5227.00	999.50	1012.98	13.24	1011.80	1013.99	0.002109	10.05	4.55	1149.86	270.65	0.49	1.74	0.48	0.18
Main	9175	5346 cfs	5346.00	999.50	1013.05	13.31	1011.88	1014.07	0.002136	10.14	4.58	1167.82	272.96	0.49	1.77	0.50	0.18
Main	9175	0.5 PMF 11457 cf	11457.00	999.50	1015.77	16.03	1014.51	1017.22	0.002982	13.56	5.70	2010.29	351.63	0.60	2.98	1.11	0.44
Main	9175	15000 cfs	15000.00	999.50	1015.98	16.24	1015.63	1018.26	0.004701	17.18	7.19	2086.06	358.51	0.75	4.76	1.81	0.73
Main	9175	0.75 PMF 21100 c	21100.00	999.50	1017.92	18.18		1020.20	0.004537	18.20	7.38	2858.13	426.54	0.75	5.15	2.19	0.93
Main	9175	PMF 31590 cfs	31590.00	999.50	1020.71	20.97		1022.77	0.003950	18.68	7.68	4115.04	475.58	0.72	5.17	2.47	1.27
Main	9175	Q50 1700 cfs	1700.00	999.50	1007.06	7.32		1008.45	0.004130	9.47	9.47	179.51	34.44	0.62	1.89		
Main	9175	1300 cfs	1300.00	999.50	1006.31	6.57		1007.32	0.003469	8.07	8.07	161.04	32.84	0.56	1.42		
Main	9175	2850 cfs	2850.00	999.50	1011.27	11.53	1007.20	1012.01	0.001534	7.81	3.93	725.69	233.21	0.41	1.10	0.20	0.10
Main	9132.836	900 cfs	900.00	999.50	1005.25	5.51		1005.94	0.002989	6.66	6.66	135.06	30.48	0.50	1.03		
Main	9132.836	Q10 1100 cfs	1100.00	999.50	1005.67	5.93		1006.56	0.003500	7.57	7.57	145.29	31.42	0.55	1.29		
Main	9132.836	Q100 1980 cfs	1980.00	999.50	1006.77	7.03		1008.82	0.006419	11.49	11.49	172.34	33.82	0.76	2.81		
Main	9132.836	2400 cfs	2400.00	999.50	1006.71	6.97	1006.41	1009.77	0.009693	14.04	14.04	170.93	33.70	0.94	4.21		
Main	9132.836	Q500 2650 cfs	2650.00	999.50	1006.85	7.11	1006.85	1010.44	0.011071	15.20	15.20	174.31	33.99	1.00	4.91		
Main	9132.836	3000 cfs	3000.00	999.50	1007.46	7.72	1007.46	1011.36	0.010776	15.85	15.85	189.31	55.86	1.01	5.19		
Main	9132.836	3500 cfs	3500.00	999.50	1008.32	8.59	1008.32	1012.62	0.010296	16.63	16.63	210.50	180.65	1.00	5.51		
Main	9132.836	5227 cfs	5227.00	999.50	1011.79	12.05	1011.79	1013.63	0.003635	12.72	6.16	849.03	239.04	0.65	2.88	0.62	0.31
Main	9132.836	5346 cfs	5346.00	999.50	1011.87	12.13	1011.87	1013.71	0.003844	12.79	6.16	867.71	239.91	0.65	2.91	0.64	0.32
Main	9132.836	0.5 PMF 11457 cf	11457.00	999.50	1014.51	14.77	1014.51	1016.81	0.004837	16.36	7.19	1593.21	311.93	0.75	4.46	1.50	0.58
Main	9132.836	15000 cfs	15000.00	999.50	1015.78	16.04	1015.58	1018.07	0.004788	17.20	7.44	2016.18	352.17	0.76	4.79	1.79	0.72
Main	9132.836	0.75 PMF 21100 c	21100.00	999.50	1017.86	18.12		1019.90	0.004174	17.42	7.45	2832.22	424.79	0.72	4.72	2.00	0.85
Main	9132.836	PMF 31590 cfs	31590.00	999.50	1020.74	21.00		1022.44	0.003256	16.97	7.66	4126.47	473.08	0.65	4.27	2.06	1.05
Main	9132.836	Q50 1700 cfs	1700.00	999.50	1006.63	6.89		1008.20	0.005051	10.06	10.06	169.00	33.53	0.68	2.17		
Main	9132.836	1300 cfs	1300.00	999.50	1006.03	6.29		1007.13	0.004001	8.43	8.43	154.29	32.25	0.59	1.57		
Main	9132.836	2850 cfs	2850.00	999.50	1007.20	7.46	1007.20	1010.97	0.010690	15.57	15.57	182.99	34.74	1.00	5.07		
Main	8997.774	900 cfs	900.00	998.50	1005.29	6.54		1005.48	0.000938	4.18	2.69	334.29	164.26	0.29	0.38	0.07	0.12
Main	8997.774	Q10 1100 cfs	1100.00	998.50	1005.80	7.05		1005.99	0.000919	4.36	2.57	428.83	206.35	0.29	0.40	0.08	0.12
Main	8997.774	Q100 1980 cfs	1980.00	998.50	1007.51	8.76		1007.66	0.000707	4.41	2.29	865.74	295.74	0.26	0.39	0.11	0.10
Main	8997.774	2400 cfs	2400.00	998.50	1007.92	9.16		1008.08	0.000764	4.73	2.43	989.61	313.46	0.28	0.44	0.14	0.11
Main	8997.774	Q500 2650 cfs	2650.00	998.50	1008.11	9.36	1005.62	1008.29	0.000806	4.93	2.52	1053.12	328.93	0.28	0.47	0.15	0.13
Main	8997.774	3000 cfs	3000.00	998.50	1008.84	10.09	1006.05	1008.98	0.000602	4.48	2.31	1297.03	338.33	0.25	0.38	0.13	0.12
Main	8997.774	3500 cfs	3500.00	998.50	1009.59	10.84	1006.41	1009.71	0.000504	4.30	2.25	1552.58	347.89	0.23	0.34	0.13	0.12
Main	8997.774	5227 cfs	5227.00	998.50	1011.14	12.39	1007.18	1011.27	0.000482	4.59	2.48	2104.96	363.29	0.23	0.37	0.16	0.15
Main	8997.774	5346 cfs	5346.00	998.50	1011.28	12.53	1007.24	1011.41	0.000471	4.57	2.48	2156.36	364.55	0.23	0.37	0.16	0.15
Main	8997.774	0.5 PMF 11457 cf	11457.00	998.50	1015.36	16.61	1009.05	1015.54	0.000450	5.40	3.08	3725.10	418.02	0.23	0.47	0.25	0.21
Main	8997.774	15000 cfs	15000.00	998.50	1016.67	17.92		1016.90	0.000515	6.07	3.50	4290.44	440.85	0.25	0.58	0.32	0.26
Main	8997.774	0.75 PMF 21100 c	21100.00	998.50	1018.57	19.82		1018.87	0.000600	7.01	4.10	5149.20	467.81	0.28	0.74	0.42	0.35
Main	8997.774	PMF 31590 cfs	31590.00	998.50	1021.21	22.46		1021.64	0.000707	8.27	4.89	6466.17	534.12	0.31	0.99	0.58	0.42
Main	8997.774	Q50 1700 cfs	1700.00	998.50	1007.15	8.40		1007.30	0.000692	4.25	2.23	762.91	279.80	0.26	0.36	0.10	0.09
Main	8997.774	1300 cfs	1300.00	998.50	1006.28	7.53		1006.46	0.000651	4.38	2.42	537.08	240.65	0.28	0.40	0.09	0.11
Main	8997.774	2850 cfs	2850.00	998.50	1008.31	9.56	1005.86	1008.48	0.000800	4.98	2.55	1118.64	331.48	0.28	0.48	0.15	0.13
Main	8889.001	900 cfs	900.00	997.80	1005.23	7.09		1005.38	0.000687	3.78	2.14	420.08	223.95	0.25	0.30	0.05	0.11
Main	8889.001	Q10 1100 cfs	1100.00	997.80	1005.76	7.61		1005.89	0.000638	3.81	2.01	545.99	259.00	0.24	0.30	0.05	0.11
Main	8889.001	Q100 1980 cfs	1980.00	997.80	1007.48	9.33		1007.58	0.000475	3.77	1.88	1052.31	321.35	0.22	0.28	0.08	0.09
Main	8889.001	2400 cfs	2400.00	997.80	1007.88	9.73		1007.99	0.000515	4.04	2.03	1184.50	333.34	0.23	0.31	0.10	0.10
Main	8889.001	Q500 2650 cfs	2650.00	997.80	1008.07	9.93		1008.19	0.000543	4.20	2.12	1249.89	337.46	0.24	0.34	0.11	0.11
Main	8889.001	3000 cfs	3000.00	997.80	1008.81	10.66		1008.91	0.000417	3.86	2.00	1501.19	343.62	0.21	0.28	0.10	0.10
Main	8889.001	3500 cfs	3500.00	997.80	1009.56	11.41		1009.65	0.000359	3.75	1.99	1760.50	349.91	0.20	0.26	0.10	0.10
Main	8889.001	5227 cfs	5227.00	997.80	1011.11	12.96		1011.21	0.000361	4.09	2.26	2312.24	362.27	0.20	0.29	0.13	0.13
Main	8889.001	5346 cfs	5346.00	997.80	1011.25	13.10		1011.36	0.000354	4.08	2.26	2363.64	363.38	0.20	0.29	0.13	0.13
Main	8889.001	0.5 PMF 11457 cf	11457.00	997.80	1015.33	17.18		1015.48	0.000359	4.93	2.90	3947.95	423.93	0.21	0.38	0.21	0.16
Main	8889.001	15000 cfs	15000.00	997.80	1016.63	18.48		1016.83	0.000416	5.57	3.33	4507.97	434.60	0.23	0.48	0.27	0.22
Main	8889.001	0.75 PMF 21100 c	21100.00	997.80	1018.52	20.38		1018.80	0.000495	6.48	3.95	5345.86	453.55	0.25	0.63	0.37	0.30
Main	8889.001	PMF 31590 cfs	31590.00	997.80	1021.16	23.01		1021.55	0.000600	7.74	4.76	6634.32	528.00	0.28	0.86	0.51	0.34
Main	8889.001	Q50 1700 cfs	1700.00	997.80	1007.12	8.97		1007.22	0.000462	3.62	1.81	939.83	310.50	0.21	0.26	0.07	0.09
Main	8889.001	1300 cfs	1300.00	997.80	1006.25	8.10		1006.36	0.000571	3.76	1.91	679.99	283.35	0.23	0.29	0.06	0.10
Main	8889.001	2850 cfs	2850.00	997.80	1008.27	10.12		1008.39	0.000544	4.26	2.16	1316.69	339.10	0.24	0.34	0.12	0.12
Main	8687.422	900 cfs	900.00	996.80	1005.15	8.25		1005.29	0.000308	3.55	2.09	431.29	231.39	0.22	0.16	0.02	0.06
Main	8687.422	Q10 1100 cfs	1100.00	996.80	1005.66	8.76		1005.80	0.000317	3.75	1.96	561.39	278.88	0.22	0.17	0.02	0.07
Main	8687.422	Q100 1980 cfs	1980.00	996.80	1007.39	10.49		1007.51	0.000273	3.82	1.75	1131.08	354.49	0.21	0.16	0.05	0.05
Main	8687.422	2400 cfs	2400.00	996.80	1007.79	10.89		1007.92	0.000305	4.25	1.88	1273.39	364.48	0.23	0.21	0.06	0.06
Main	8687.422	Q500 2650 cfs	2650.00	996.80	1007.98	11.08		1008.12	0.000327	4.45	1.97	1342.45	369.23	0.24	0.23	0.07	0.06
Main	8687.422	3000 cfs	3000.00	996.80	1008.74	11.84		1008.85	0.000259	4.14	1.84	1626.55	376.10	0.21	0.19	0.06	0.06
Main	8687.422	3500 cfs	3500.00	996.80	1009.50	12.60		1009.60	0.000230	4.06	1.83	1914.42	382.61	0.20	0.18	0.07	0.06
Main	8687.422	5227 cfs	5227.00	996.80	1011.05	14.15		1011.16	0.000241	4.50	2.08	2517.17	394.46	0.21	0.21	0.09	0.08
Main	8687.422	5346 cfs	5346.00	996.80	1011.19	14.29		1011.30	0.000237	4.49	2.08	2573.70	395.47	0.21	0.21	0.09	0.08
Main	8687.422	0.5 PMF 11457 cf	11457.00	996.80	1015.28	18.37		1015.43	0.000252	5.46	2.66	4310.68	452.18	0.23	0.29	0.15	0.11
Main	8687.422	15000 cfs	15000.00	996.80	1016.57	19.67		1016.77	0.000296	6.21	3.06	4903.67	462.99	0.25	0.36	0.20	0.15
Main	8687.422	0.75 PMF 21100 c	21100.00	996.80	1018.45	21.55		1018.72	0.000358	7.25	3.64	5793.93	486.09	0.28	0.48	0.27	0.20
Main	8687.422	PMF 31590 cfs	31590.00	996.80	1021.07	24.17		1021.46	0.000441	8.69	4.43	7128.21	532.27	0.31	0.67	0.39	0.27
Main	8687.422	Q50 1700 cfs	1700.00	996.80	1007.04	10.14		1007.15	0.000262	3.75	1.69	1006.98	345.55	0.21	0.17	0.04	0.05
Main	8687.422	1300 cfs	1300.00	996.80	1006.14	9.24		1006.26	0.000309	3.84	1.84	707.10	323.76	0.22	0.18	0.03	0.07
Main	8687.422	2850 cfs	2850.00	996.80	1008.17	11.27		1008.31	0.000333	4.54	2.01	1415.27	371.30	0.24	0.23	0.07	0.07
Main	8449.557	900 cfs	900.00	995.80	1005.15	9.25		1005.21	0.000192	2.59	1.59	565.23	236.19	0.15	0.11	0.02	0.05
Main	8449.557	Q10 1100 cfs	1100.00	995.80	1005.65	9.75		1005.73	0.000205	2.77	1.59	691.74	262.11	0.16	0.12	0.02	0.05
Main	8449.557	Q100 1980 cfs	1980.00	995.80	1007.37	11.47		1007.45	0.000215	3.16	1.63	1216.59	318.46	0.16	0.15	0.04	0.07
Main	8449.557	2400 cfs	2400.00	995.80	1007.76	11.86		1007.85	0.000248	3.48	1.79	1340.98	320.70	0.18	0.18	0.05	0.08
Main	8449.557	Q500 2650 cfs	2650.00	995.80	1007.94	12.04		1008.04	0.000272	3.68	1.89	1400.11	321.72	0.19	0.20	0.06	0.09
Main	8449.557	3000 cfs	3000.00	995.80	1008.71	12.81		1008.79	0.000228	3.51	1.82	1647.39	326.11	0.17	0.18	0.06	0.08
Main	8449.557	3500 cfs	3500.00	995.80	1009.47	13.57		1009.55	0.000212	3.52	1.85	1896.41	330.47	0.17	0.18	0.07	0.08
Main	8449.557	5227 cfs	5227.00	995.80	1011.01	15.11		1011.11	0.000241	4.03	2.17	2413.51	340.39	0.18	0.23	0.10	0.10
Main	8449.557	5346 cfs	5346.00	995.80	1011.15	15.25		1011.25	0.000238	4.03	2.17	2462.36	341.35	0.18	0.23	0.10	0.10
Main	8449.557	0.5 PMF 11457 cf	11457.00	995.80	1015.22	19.32		1015.36	0.000278	5.10	2.88	3982.30	410.27	0.20	0.34	0.17	0.11
Main	8449.557	15000 cfs	15000.00	995.80	1016.50	20.60		1016.71	0.000332	5.81	3.32	4519.65	427.17	0.23	0.43	0.22	0.14
Main	8449.557	0.75 PMF 21100 c	21100.00	995.80	1018.36	22.46		1018.65	0.000404	6.79	3.95	5337.22	452.01	0.25	0.57	0.31	0.20
Main	8449.557	PMF 31590 cfs	31590.00	995.80	1020.95	25.05		1021.37	0.000500	8.13	4.80	6583.14	521.13	0.29	0.78	0.44	0.23
Main	8449.557	Q50 1700 cfs	1700.00	995.80	1007.02	11.12		1007.09	0.000198	2.98	1.54	1105.39	316.44	0.16	0.14	0.03	0.06
Main	8449.557	1300 cfs	1300.00	995.80	1006.13	10.23		1006.21	0.000215	2.93	1.57	826.20	311.21	0.16	0.14	0.02	0.06
Main	8449.557	2850 cfs	2850.00	995.80	1008.14	12.24		1008.24	0.000281	3.78	1.95	1462.62	322.83	0.19	0.21	0.07	0.09
Main	8190.037	900 cfs	900.00	994.80	1005.17	10.26	997.57	1005.18	0.000037	1.22	0.91	988.26	189.11	0.07	0.02	0.01	0.01

HEC-RAS Plan: PrCondSSFISDesgn River: SippoCreek Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Hydr Depth C	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Vel Total	Flow Area	Top Width	Froude # Chl	Shear Chan	Shear LOB	Shear ROB
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)	(lb/sq ft)	(lb/sq ft)
Main	8190.037	Q10 1100 cfs	1100.00	994.80	1005.67	10.77	997.90	1005.69	0.000044	1.37	1.01	1085.16	195.33	0.07	0.03	0.01	0.02
Main	8190.037	Q100 1980 cfs	1980.00	994.80	1007.37	12.47	999.13	1007.41	0.000070	1.92	1.34	1476.33	259.61	0.10	0.05	0.02	0.03
Main	8190.037	2400 cfs	2400.00	994.80	1007.75	12.85	999.59	1007.80	0.000090	2.20	1.52	1580.11	280.72	0.11	0.07	0.02	0.04
Main	8190.037	Q500 2650 cfs	2650.00	994.80	1007.94	13.04	999.84	1007.99	0.000102	2.38	1.62	1631.85	290.68	0.12	0.08	0.02	0.04
Main	8190.037	3000 cfs	3000.00	994.80	1008.69	13.79	1000.26	1008.75	0.000097	2.40	1.61	1863.88	309.64	0.11	0.08	0.03	0.04
Main	8190.037	3500 cfs	3500.00	994.80	1009.45	14.55	1000.63	1009.50	0.000098	2.51	1.67	2099.68	314.96	0.12	0.09	0.03	0.05
Main	8190.037	5227 cfs	5227.00	994.80	1010.98	16.08	1001.74	1011.06	0.000127	3.05	2.01	2597.75	343.82	0.13	0.13	0.05	0.06
Main	8190.037	5346 cfs	5346.00	994.80	1011.13	16.22	1001.82	1011.20	0.000127	3.07	2.02	2647.29	348.23	0.13	0.13	0.05	0.06
Main	8190.037	0.5 PMF 11457 cf	11457.00	994.80	1015.18	20.28	1005.02	1015.32	0.000174	4.17	2.70	4244.75	490.39	0.16	0.22	0.11	0.08
Main	8190.037	15000 cfs	15000.00	994.80	1016.46	21.56	1006.31	1016.63	0.000217	4.84	3.12	4806.47	527.42	0.18	0.29	0.15	0.11
Main	8190.037	0.75 PMF 21100 c	21100.00	994.80	1018.32	23.42	1008.38	1018.55	0.000270	5.71	3.48	6057.27	604.31	0.21	0.39	0.21	0.12
Main	8190.037	PMF 31590 cfs	31590.00	994.80	1020.92	26.02	1010.32	1021.23	0.000341	6.89	4.11	7688.86	644.31	0.24	0.55	0.30	0.19
Main	8190.037	Q50 1700 cfs	1700.00	994.80	1007.02	12.12	998.76	1007.05	0.000060	1.73	1.22	1389.06	246.50	0.09	0.05	0.01	0.02
Main	8190.037	1300 cfs	1300.00	994.80	1006.15	11.24	998.20	1006.17	0.000051	1.52	1.10	1182.58	223.39	0.08	0.04	0.01	0.02
Main	8190.037	2850 cfs	2850.00	994.80	1008.13	13.23	1000.13	1008.18	0.000110	2.49	1.69	1689.31	305.75	0.12	0.09	0.03	0.05
Main	7947.906	900 cfs	900.00	993.80	1005.17	11.27		1005.17	0.000003	0.35	0.32	2806.94	294.52	0.02	0.00	0.00	0.00
Main	7947.906	Q10 1100 cfs	1100.00	993.80	1005.68	11.78		1005.68	0.000003	0.41	0.37	2956.46	296.63	0.02	0.00	0.00	0.00
Main	7947.906	Q100 1980 cfs	1980.00	993.80	1007.39	13.49		1007.39	0.000007	0.62	0.57	3469.52	303.93	0.03	0.01	0.00	0.00
Main	7947.906	2400 cfs	2400.00	993.80	1007.78	13.88		1007.78	0.000009	0.73	0.67	3588.12	305.59	0.03	0.01	0.01	0.01
Main	7947.906	Q500 2650 cfs	2650.00	993.80	1007.96	14.06		1007.97	0.000010	0.79	0.73	3644.52	306.38	0.04	0.01	0.01	0.01
Main	7947.906	3000 cfs	3000.00	993.80	1008.72	14.82		1008.73	0.000011	0.84	0.77	3882.23	321.93	0.04	0.01	0.01	0.01
Main	7947.906	3500 cfs	3500.00	993.80	1009.47	15.57		1009.49	0.000012	0.92	0.85	4128.70	330.44	0.04	0.01	0.01	0.01
Main	7947.906	5227 cfs	5227.00	993.80	1011.01	17.11		1011.03	0.000019	1.22	1.12	4682.27	374.43	0.05	0.02	0.01	0.01
Main	7947.906	5346 cfs	5346.00	993.80	1011.16	17.26		1011.18	0.000019	1.24	1.13	4735.92	375.57	0.05	0.02	0.01	0.01
Main	7947.906	0.5 PMF 11457 cf	11457.00	993.80	1015.22	21.32		1015.28	0.000036	2.01	1.82	6309.75	393.55	0.08	0.05	0.04	0.04
Main	7947.906	15000 cfs	15000.00	993.80	1016.51	22.61		1016.58	0.000051	2.43	2.20	6815.91	395.93	0.09	0.07	0.05	0.05
Main	7947.906	0.75 PMF 21100 c	21100.00	993.80	1018.37	24.46		1018.49	0.000074	3.08	2.79	7557.44	404.38	0.11	0.11	0.08	0.08
Main	7947.906	PMF 31590 cfs	31590.00	993.80	1020.95	27.05		1021.16	0.000112	4.05	3.67	8609.04	409.27	0.14	0.19	0.14	0.13
Main	7947.906	Q50 1700 cfs	1700.00	993.80	1007.04	13.14		1007.04	0.000005	0.55	0.51	3363.60	302.43	0.03	0.00	0.00	0.00
Main	7947.906	1300 cfs	1300.00	993.80	1006.16	12.26		1006.16	0.000004	0.46	0.42	3098.65	298.65	0.02	0.00	0.00	0.00
Main	7947.906	2850 cfs	2850.00	993.80	1008.15	14.25		1008.16	0.000011	0.84	0.77	3703.98	309.89	0.04	0.01	0.01	0.01
Main	7696.011	900 cfs	900.00	993.50	1005.17	11.42		1005.17	0.000015	0.83	0.57	1569.96	202.99	0.04	0.01	0.01	0.01
Main	7696.011	Q10 1100 cfs	1100.00	993.50	1005.67	11.92		1005.68	0.000019	0.96	0.66	1673.36	207.48	0.05	0.01	0.01	0.01
Main	7696.011	Q100 1980 cfs	1980.00	993.50	1007.37	13.62		1007.39	0.000035	1.42	0.97	2038.47	222.11	0.07	0.03	0.02	0.02
Main	7696.011	2400 cfs	2400.00	993.50	1007.75	14.00		1007.78	0.000045	1.66	1.13	2124.17	225.35	0.08	0.04	0.02	0.03
Main	7696.011	Q500 2650 cfs	2650.00	993.50	1007.93	14.18		1007.96	0.000052	1.80	1.22	2164.95	226.84	0.08	0.05	0.03	0.03
Main	7696.011	3000 cfs	3000.00	993.50	1008.69	14.94		1008.72	0.000054	1.89	1.28	2338.85	233.83	0.09	0.05	0.03	0.03
Main	7696.011	3500 cfs	3500.00	993.50	1009.44	15.69		1009.48	0.000059	2.05	1.39	2517.09	240.86	0.09	0.06	0.03	0.04
Main	7696.011	5227 cfs	5227.00	993.50	1010.96	17.21		1011.02	0.000089	2.67	1.80	2901.40	266.04	0.11	0.10	0.05	0.06
Main	7696.011	5346 cfs	5346.00	993.50	1011.10	17.35		1011.16	0.000090	2.70	1.82	2939.29	267.31	0.11	0.10	0.05	0.06
Main	7696.011	0.5 PMF 11457 cf	11457.00	993.50	1015.10	21.35		1015.25	0.000167	4.22	2.78	4125.07	309.62	0.16	0.22	0.13	0.13
Main	7696.011	15000 cfs	15000.00	993.50	1016.33	22.58		1016.54	0.000224	5.07	3.33	4507.99	311.77	0.19	0.31	0.19	0.18
Main	7696.011	0.75 PMF 21100 c	21100.00	993.50	1018.10	24.35		1018.43	0.000317	6.35	4.17	5062.35	314.80	0.23	0.48	0.29	0.29
Main	7696.011	PMF 31590 cfs	31590.00	993.50	1020.52	26.77		1021.08	0.000470	8.24	5.42	5830.02	319.12	0.28	0.79	0.49	0.49
Main	7696.011	Q50 1700 cfs	1700.00	993.50	1007.02	13.27		1007.04	0.000028	1.27	0.87	1962.16	219.15	0.06	0.02	0.01	0.02
Main	7696.011	1300 cfs	1300.00	993.50	1006.15	12.40		1006.16	0.000022	1.07	0.73	1773.09	211.65	0.05	0.02	0.01	0.01
Main	7696.011	2850 cfs	2850.00	993.50	1008.12	14.37		1008.16	0.000057	1.89	1.29	2208.22	228.55	0.09	0.05	0.03	0.03
Main	7360.720	900 cfs	900.00	992.80	1005.16	12.26		1005.17	0.000009	0.68	0.56	1605.42	183.55	0.03	0.01	0.00	0.00
Main	7360.720	Q10 1100 cfs	1100.00	992.80	1005.67	12.77		1005.67	0.000011	0.78	0.65	1698.29	185.62	0.04	0.01	0.01	0.01
Main	7360.720	Q100 1980 cfs	1980.00	992.80	1007.36	14.46		1007.38	0.000022	1.17	0.98	2019.51	193.35	0.05	0.02	0.01	0.01
Main	7360.720	2400 cfs	2400.00	992.80	1007.74	14.84		1007.76	0.000028	1.37	1.15	2093.50	195.17	0.06	0.03	0.02	0.02
Main	7360.720	Q500 2650 cfs	2650.00	992.80	1007.92	15.02		1007.95	0.000033	1.48	1.25	2128.48	196.03	0.07	0.03	0.02	0.02
Main	7360.720	3000 cfs	3000.00	992.80	1008.68	15.78		1008.70	0.000035	1.57	1.32	2277.74	199.65	0.07	0.03	0.02	0.02
Main	7360.720	3500 cfs	3500.00	992.80	1009.43	16.53		1009.46	0.000039	1.72	1.44	2428.69	203.13	0.07	0.04	0.03	0.03
Main	7360.720	5227 cfs	5227.00	992.80	1010.94	18.04		1010.99	0.000061	2.26	1.91	2741.77	212.25	0.09	0.07	0.04	0.05
Main	7360.720	5346 cfs	5346.00	992.80	1011.08	18.18		1011.14	0.000062	2.30	1.93	2771.91	213.14	0.10	0.07	0.04	0.05
Main	7360.720	0.5 PMF 11457 cf	11457.00	992.80	1015.05	22.15		1015.20	0.000125	3.74	3.06	3740.99	277.15	0.14	0.17	0.10	0.09
Main	7360.720	15000 cfs	15000.00	992.80	1016.26	23.36		1016.48	0.000170	4.53	3.67	4081.99	286.04	0.17	0.25	0.15	0.12
Main	7360.720	0.75 PMF 21100 c	21100.00	992.80	1018.00	25.10		1018.34	0.000247	5.72	4.59	4593.32	303.07	0.20	0.39	0.24	0.19
Main	7360.720	PMF 31590 cfs	31590.00	992.80	1020.36	27.46		1020.93	0.000374	7.47	5.93	5331.57	316.82	0.25	0.64	0.40	0.31
Main	7360.720	Q50 1700 cfs	1700.00	992.80	1007.02	14.12		1007.03	0.000018	1.04	0.87	1953.18	191.71	0.05	0.02	0.01	0.01
Main	7360.720	1300 cfs	1300.00	992.80	1006.14	13.24		1006.15	0.000013	0.87	0.73	1786.98	187.64	0.04	0.01	0.01	0.01
Main	7360.720	2850 cfs	2850.00	992.80	1008.11	15.21		1008.14	0.000036	1.57	1.32	2165.62	196.93	0.07	0.03	0.02	0.02
Main	7059.152	900 cfs	900.00	991.80	1005.16	13.26		1005.17	0.000004	0.49	0.38	2344.87	270.89	0.02	0.00	0.00	0.00
Main	7059.152	Q10 1100 cfs	1100.00	991.80	1005.67	13.77		1005.67	0.000005	0.57	0.44	2481.91	273.67	0.03	0.00	0.00	0.00
Main	7059.152	Q100 1980 cfs	1980.00	991.80	1007.36	15.46		1007.37	0.000010	0.85	0.67	2954.44	283.16	0.04	0.01	0.01	0.01
Main	7059.152	2400 cfs	2400.00	991.80	1007.75	15.85		1007.76	0.000014	0.99	0.78	3062.92	285.32	0.04	0.01	0.01	0.01
Main	7059.152	Q500 2650 cfs	2650.00	991.80	1007.93	16.02		1007.94	0.000016	1.08	0.85	3114.16	286.33	0.05	0.02	0.01	0.01
Main	7059.152	3000 cfs	3000.00	991.80	1008.68	16.78		1008.69	0.000017	1.14	0.90	3332.31	291.50	0.05	0.02	0.01	0.01
Main	7059.152	3500 cfs	3500.00	991.80	1009.43	17.53		1009.45	0.000019	1.25	0.99	3553.02	296.52	0.05	0.02	0.01	0.01
Main	7059.152	5227 cfs	5227.00	991.80	1010.95	19.05		1010.97	0.000030	1.65	1.30	4014.13	315.61	0.07	0.04	0.02	0.02
Main	7059.152	5346 cfs	5346.00	991.80	1011.09	19.19		1011.12	0.000030	1.67	1.32	4059.13	317.92	0.07	0.04	0.02	0.02
Main	7059.152	0.5 PMF 11457 cf	11457.00	991.80	1015.08	23.18		1015.15	0.000062	2.71	2.10	5443.13	383.87	0.10	0.09	0.06	0.05
Main	7059.152	15000 cfs	15000.00	991.80	1016.31	24.41		1016.41	0.000084	3.28	2.53	5921.54	397.34	0.12	0.13	0.08	0.07
Main	7059.152	0.75 PMF 21100 c	21100.00	991.80	1018.07	26.17		1018.24	0.000123	4.15	3.17	6647.53	425.76	0.14	0.20	0.13	0.10
Main	7059.152	PMF 31590 cfs	31590.00	991.80	1020.49	28.59		1020.77	0.000186	5.41	4.09	7729.78	459.76	0.18	0.33	0.22	0.16
Main	7059.152	Q50 1700 cfs	1700.00	991.80	1007.02	15.12		1007.03	0.000008	0.75	0.60	2857.11	281.21	0.03	0.01	0.01	0.00
Main	7059.152	1300 cfs	1300.00	991.80	1006.14	14.24		1006.15	0.000006	0.63	0.50	2612.65	276.30	0.03	0.01	0.00	0.00
Main	7059.152	2850 cfs	2850.00	991.80	1008.11	16.21		1008.13	0.000018	1.14	0.90	3168.53	287.56	0.05	0.02	0.01	0.01
Main	6933.617	900 cfs	900.00	986.80	1005.16	18.36	988.70	1005.17	0.000002	0.42	0.31	2935.24	264.63	0.02	0.00	0.00	0.00
Main	6933.617	Q10 1100 cfs	1100.00	986.80	1005.67	18.87	988.94	1005.67	0.000003	0.49	0.36	3069.62	289.38	0.02	0.00	0.00	0.00
Main	6933.617	Q100 1980 cfs	1980.00	986.80	1007.36	20.56	989.83	1007.37	0.000006	0.78	0.56	3542.87	289.68	0.03	0.01	0.00	0.00
Main	6933.617	2400 cfs	2400.00	986.80	1007.75	20.95	990.17	1007.75	0.000008	0.93	0.66	3654.45	296.25	0.04	0.01	0.01	0.01
Main	6933.617	Q500 2650 cfs	2650.00	986.80	1007.92	21.12	990.38	1007.93	0.000010	1.01	0.71	3707.90	299.99	0.04	0.01	0.01	0.01
Main	6933.617	3000 cfs	3000.00	986.80	1008.68	21.88	990.67	1008.69	0.000011	1.08	0.76	3941.05	317.74	0.04	0.01	0.01	0.01
Main	6933.617	3500 cfs	3500.00	986.80	1009.43	22.63	991.01	1009.44	0.000012	1.20	0.84	4186.45	343.58	0.04	0.02	0.01	0.01
Main	6933.617	5227 cfs	5227.00	986.80	1010.95	24.14	992.04	1010.97	0.000021	1.62	1.11	4730.02	367.32	0.06	0.03	0.02	0.01
Main	6933.617	5346 cfs	5346.00	986.80	1011.09	24.29	992.09	1011.11	0.000021	1.64	1.12	4782.33	368.95	0.06	0.03	0.02	0.01
Main	6933.617	0.5 PMF 11457 cf	11457.00	986.80	1015.08	28.28	994.81	1015.14	0.000049	2.76	1.80	6360.29	428.67	0.09	0.09	0.05	0.03
Main	6933.617	15000 cfs	15000.00	986.80	1016.30	29.50	996.07	1016.40	0.000070	3.38	2.17	6901.30	455.69	0.11	0.13	0.07	0.04
Main	6933.617	0.75 PMF 21100 c	21100.00	986.80	1018.06	31.26	997.94	1018.22	0.000106	4.33	2.72	7744.04	500.98	0.14	0.21	0.11	0.06
Main	6933.617	PMF 31590 cfs	31590.00	986.80	1020.48	33.68	1000.63	1020.74	0.000168	5.74	3.50	9019.21	544.99	0.17	0.35	0.20	0.11
Main	6933.617	Q50 1700 cfs	1700.00	986.80	1007.02	20.22	989.59	1007.02	0.000005	0.69	0.49	3443.69	285.32	0.03	0.01	0.00	0.00
Main	6933.617	1300 cfs	1300.00	986.80	1006.14	19.34	989.16	1006.15	0.000003	0.58	0.41	3198.76	273.88	0.02	0.00	0.00	0.00
Main	6933.617	2850 cfs	2850.00	986.80	1008.11	21.31	990.55	1008.13	0.000011	1.07	0.76	3765.10	304.25	0.04	0.01	0.01	0.01
Main	6926.12		Inl Struct														
Main	6918.617	900 cfs	900.00	986.80	991.46	4.66		991.57	0.000700	2.89	2.18	413.40	117.24	0.24	0.20	0.12	0.11
Main	6918.617	Q10 1100 cfs	1100.00	986.80	992.05	5.25		992.16	0.000675	3.07	2.28	483.47	123.14	0.24	0.22	0.13	0.12
Main	6918.617	Q100 1980 cfs	1980.00	986.80	995.84	9.04		995.93	0.000278	2.83	1.94	1018.96	157.70	0.17	0.16	0.09	0.09
Main	6918.617	2400 cfs	2400.00	986.80	1000.86	14.06		1000.90	0.000075	1.97	1.25	1924.00	205.91	0.09	0.07	0.04	0.04
Main	6918.617	Q500 2650 cfs	2650.00	986.80	1004.30	17.50		1004.32	0.000039	1.65	0.98	2709.67	254.78	0.07	0.04	0.02	0.02

HEC-RAS Plan: PrCondSSFISDesgn River: SippoCreek Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Hydr Depth C	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Vel Total	Flow Area	Top Width	Froude # Chl	Shear Chan	Shear LOB	Shear ROB
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)	(lb/sq ft)	(lb/sq ft)
Main	6918.617	3000 cfs	3000.00	986.80	1008.44	21.64		1008.46	0.000019	1.33	0.78	3865.54	311.96	0.05	0.03	0.01	0.01
Main	6918.617	3500 cfs	3500.00	986.80	1009.30	22.50		1009.32	0.000022	1.45	0.84	4142.69	338.32	0.05	0.03	0.01	0.01
Main	6918.617	5227 cfs	5227.00	986.80	1010.85	24.05		1010.88	0.000035	1.93	1.11	4693.07	366.07	0.07	0.05	0.03	0.02
Main	6918.617	5346 cfs	5346.00	986.80	1010.99	24.19		1011.02	0.000036	1.95	1.13	4745.41	367.71	0.07	0.05	0.03	0.02
Main	6918.617	0.5 PMF 11457 cf	11457.00	986.80	1014.97	28.17		1015.05	0.000078	3.20	1.81	6313.75	426.39	0.11	0.14	0.07	0.05
Main	6918.617	15000 cfs	15000.00	986.80	1016.16	29.36		1016.28	0.000110	3.90	2.19	6834.98	451.73	0.13	0.20	0.11	0.07
Main	6918.617	0.75 PMF 21100 c	21100.00	986.80	1017.88	31.08		1018.07	0.000165	4.96	2.76	7649.75	496.42	0.16	0.32	0.18	0.10
Main	6918.617	PMF 31590 cfs	31590.00	986.80	1020.23	33.43		1020.55	0.000258	6.52	3.56	8880.64	544.89	0.20	0.54	0.31	0.16
Main	6918.617	Q50 1700 cfs	1700.00	986.80	993.80	7.00		993.93	0.000545	3.34	2.38	715.07	140.42	0.22	0.24	0.14	0.13
Main	6918.617	1300 cfs	1300.00	986.80	992.58	5.78		992.71	0.000654	3.22	2.36	551.14	128.57	0.24	0.24	0.14	0.13
Main	6918.617	2850 cfs	2850.00	986.80	1007.23	20.43		1007.24	0.000023	1.40	0.81	3502.70	288.02	0.05	0.03	0.01	0.02
Main	6900.112	900 cfs	900.00	986.80	991.30	4.48		991.54	0.000284	4.00	3.80	236.71	59.86	0.33	0.08	0.01	0.02
Main	6900.112	Q10 1100 cfs	1100.00	986.80	991.84	5.02		992.13	0.000287	4.35	4.08	269.91	61.56	0.34	0.09	0.02	0.02
Main	6900.112	Q100 1980 cfs	1980.00	986.80	995.61	8.79		995.91	0.000140	4.40	3.80	520.68	72.43	0.26	0.08	0.02	0.02
Main	6900.112	2400 cfs	2400.00	986.80	1000.73	13.91		1000.88	0.000042	3.28	2.43	989.30	117.66	0.16	0.04	0.01	0.01
Main	6900.112	Q500 2650 cfs	2650.00	986.80	1004.20	17.38		1004.31	0.000023	2.81	1.77	1500.28	181.09	0.12	0.02	0.01	0.01
Main	6900.112	3000 cfs	3000.00	986.80	1008.37	21.55		1008.45	0.000013	2.41	1.19	2521.76	335.57	0.09	0.02	0.00	0.00
Main	6900.112	3500 cfs	3500.00	986.80	1009.22	22.40		1009.31	0.000014	2.64	1.24	2811.48	350.68	0.10	0.02	0.01	0.00
Main	6900.112	5227 cfs	5227.00	986.80	1010.71	23.89		1010.86	0.000024	3.54	1.56	3351.92	372.78	0.13	0.04	0.01	0.01
Main	6900.112	5346 cfs	5346.00	986.80	1010.85	24.03		1011.01	0.000024	3.59	1.57	3404.09	374.41	0.13	0.04	0.01	0.01
Main	6900.112	0.5 PMF 11457 cf	11457.00	986.80	1014.61	27.79		1015.02	0.000056	6.00	2.33	4907.42	429.28	0.20	0.10	0.04	0.02
Main	6900.112	15000 cfs	15000.00	986.80	1015.62	28.80		1016.23	0.000081	7.39	2.80	5353.11	451.74	0.24	0.15	0.06	0.04
Main	6900.112	0.75 PMF 21100 c	21100.00	986.80	1016.99	30.17		1017.96	0.000129	9.60	3.52	5994.13	483.71	0.31	0.24	0.10	0.06
Main	6900.112	PMF 31590 cfs	31590.00	986.80	1018.60	31.78		1020.40	0.000224	13.14	4.64	6801.93	519.71	0.41	0.45	0.19	0.11
Main	6900.112	Q50 1700 cfs	1700.00	986.80	993.52	6.70		993.90	0.000260	5.00	4.52	376.29	65.59	0.34	0.11	0.03	0.03
Main	6900.112	1300 cfs	1300.00	986.80	992.35	5.53		992.68	0.000291	4.66	4.32	301.16	62.84	0.35	0.10	0.02	0.03
Main	6900.112	2850 cfs	2850.00	986.80	1007.15	20.33		1007.24	0.000015	2.50	1.32	2156.73	273.03	0.10	0.02	0.00	0.00
Main	6858.315	900 cfs	900.00	986.60	991.30	4.68		991.51	0.001177	3.76	3.46	260.41	61.56	0.31	0.34	0.16	0.06
Main	6858.315	Q10 1100 cfs	1100.00	986.60	991.85	5.23		992.10	0.001208	4.10	3.73	294.75	63.50	0.32	0.39	0.18	0.07
Main	6858.315	Q100 1980 cfs	1980.00	986.60	995.63	9.02		995.88	0.000595	4.13	3.33	595.06	103.94	0.24	0.34	0.10	0.08
Main	6858.315	2400 cfs	2400.00	986.60	1000.76	14.15		1000.88	0.000147	2.78	1.80	1336.38	186.17	0.13	0.13	0.04	0.03
Main	6858.315	Q500 2650 cfs	2650.00	986.60	1004.24	17.62		1004.30	0.000069	2.19	1.27	2091.39	252.67	0.09	0.08	0.03	0.02
Main	6858.315	3000 cfs	3000.00	986.60	1008.41	21.79		1008.43	0.000030	1.67	0.86	3497.81	383.57	0.06	0.04	0.01	0.01
Main	6858.315	3500 cfs	3500.00	986.60	1009.26	22.64		1009.29	0.000033	1.79	0.91	3828.02	392.05	0.07	0.05	0.02	0.01
Main	6858.315	5227 cfs	5227.00	986.60	1010.78	24.17		1010.83	0.000051	2.33	1.18	4438.77	412.84	0.08	0.08	0.03	0.02
Main	6858.315	5346 cfs	5346.00	986.60	1010.92	24.31		1010.97	0.000051	2.35	1.19	4497.32	415.26	0.08	0.08	0.03	0.02
Main	6858.315	0.5 PMF 11457 cf	11457.00	986.60	1014.81	28.20		1014.93	0.000105	3.72	1.83	6255.77	483.21	0.12	0.19	0.08	0.06
Main	6858.315	15000 cfs	15000.00	986.60	1015.93	29.32		1016.09	0.000144	4.46	2.21	6797.91	487.00	0.15	0.26	0.12	0.09
Main	6858.315	0.75 PMF 21100 c	21100.00	986.60	1017.51	30.90		1017.75	0.000212	5.60	2.78	7586.42	519.18	0.18	0.41	0.20	0.13
Main	6858.315	PMF 31590 cfs	31590.00	986.60	1019.57	32.96		1019.96	0.000332	7.32	3.63	8713.18	575.18	0.22	0.66	0.35	0.21
Main	6858.315	Q50 1700 cfs	1700.00	986.60	993.53	6.91		993.87	0.001124	4.76	4.14	410.30	74.83	0.32	0.48	0.18	0.10
Main	6858.315	1300 cfs	1300.00	986.60	992.35	5.74		992.65	0.001239	4.41	3.97	327.35	66.42	0.32	0.44	0.19	0.08
Main	6858.315	2850 cfs	2850.00	986.60	1007.19	20.57		1007.22	0.000037	1.79	0.94	3036.06	372.16	0.07	0.05	0.02	0.01
Main	6825.169	900 cfs	900.00	986.50	991.00	4.12		991.43	0.002864	5.36	4.80	187.55	58.67	0.47	0.73	0.18	0.26
Main	6825.169	Q10 1100 cfs	1100.00	986.50	991.52	4.65		992.02	0.002833	5.77	5.01	219.39	63.67	0.47	0.82	0.21	0.30
Main	6825.169	Q100 1980 cfs	1980.00	986.50	995.52	8.65		995.85	0.000904	4.93	3.33	595.09	124.12	0.30	0.49	0.17	0.14
Main	6825.169	2400 cfs	2400.00	986.50	1000.76	13.89		1000.86	0.000170	2.93	1.59	1505.67	221.03	0.14	0.15	0.06	0.05
Main	6825.169	Q500 2650 cfs	2650.00	986.50	1004.24	17.37		1004.29	0.000073	2.23	1.10	2415.72	333.65	0.09	0.08	0.03	0.02
Main	6825.169	3000 cfs	3000.00	986.50	1008.41	21.54		1008.43	0.000027	1.58	0.76	3958.14	399.97	0.06	0.04	0.02	0.01
Main	6825.169	3500 cfs	3500.00	986.50	1009.26	22.39		1009.29	0.000030	1.69	0.81	4303.56	410.93	0.06	0.04	0.02	0.02
Main	6825.169	5227 cfs	5227.00	986.50	1010.79	23.92		1010.82	0.000047	2.21	1.06	4946.79	434.45	0.08	0.07	0.03	0.03
Main	6825.169	5346 cfs	5346.00	986.50	1010.93	24.06		1010.97	0.000048	2.24	1.07	5008.43	436.88	0.08	0.07	0.03	0.03
Main	6825.169	0.5 PMF 11457 cf	11457.00	986.50	1014.83	27.96		1014.91	0.000096	3.51	1.68	6820.65	474.85	0.12	0.17	0.09	0.07
Main	6825.169	15000 cfs	15000.00	986.50	1015.95	29.08		1016.07	0.000131	4.22	2.04	7353.96	474.85	0.14	0.24	0.13	0.10
Main	6825.169	0.75 PMF 21100 c	21100.00	986.50	1017.54	30.67		1017.73	0.000194	5.32	2.60	8108.66	474.85	0.17	0.37	0.21	0.17
Main	6825.169	PMF 31590 cfs	31590.00	986.50	1019.62	32.74		1019.93	0.000308	7.00	3.47	9092.82	474.85	0.22	0.63	0.36	0.30
Main	6825.169	Q50 1700 cfs	1700.00	986.50	993.22	6.35		993.79	0.002207	6.27	4.82	352.86	89.95	0.44	0.87	0.24	0.34
Main	6825.169	1300 cfs	1300.00	986.50	992.00	5.13		992.56	0.002807	6.13	5.17	251.25	69.36	0.48	0.89	0.24	0.34
Main	6825.169	2850 cfs	2850.00	986.50	1007.19	20.32		1007.22	0.000034	1.70	0.82	3480.12	383.34	0.07	0.04	0.02	0.02
Main	6790.440	900 cfs	900.00	986.40	990.46	4.06		991.25	0.006300	7.89	6.71	134.11	46.05	0.69	1.60	0.70	0.83
Main	6790.440	Q10 1100 cfs	1100.00	986.40	990.95	4.55	990.11	991.84	0.006139	8.42	6.96	158.14	50.47	0.70	1.75	0.72	0.90
Main	6790.440	Q100 1980 cfs	1980.00	986.40	995.45	9.05		995.81	0.001291	6.10	3.57	554.47	144.21	0.36	0.73	0.25	0.23
Main	6790.440	2400 cfs	2400.00	986.40	1000.77	14.37		1000.84	0.000183	3.13	1.48	1623.41	289.69	0.15	0.16	0.05	0.07
Main	6790.440	Q500 2650 cfs	2650.00	986.40	1004.26	17.85		1004.28	0.000062	2.10	0.96	2766.63	358.69	0.09	0.07	0.03	0.03
Main	6790.440	3000 cfs	3000.00	986.40	1008.42	22.02		1008.43	0.000023	1.48	0.68	4380.16	421.51	0.06	0.03	0.01	0.01
Main	6790.440	3500 cfs	3500.00	986.40	1009.27	22.87		1009.28	0.000026	1.59	0.74	4746.23	437.50	0.06	0.04	0.02	0.02
Main	6790.440	5227 cfs	5227.00	986.40	1010.80	24.40		1010.82	0.000040	2.08	0.96	5437.03	466.96	0.07	0.06	0.03	0.03
Main	6790.440	5346 cfs	5346.00	986.40	1010.94	24.54		1010.96	0.000041	2.10	0.97	5503.38	469.66	0.07	0.06	0.03	0.03
Main	6790.440	0.5 PMF 11457 cf	11457.00	986.40	1014.85	28.45		1014.90	0.000079	3.25	1.56	7356.66	474.85	0.11	0.14	0.08	0.07
Main	6790.440	15000 cfs	15000.00	986.40	1015.98	29.58		1016.06	0.000110	3.92	1.90	7893.07	474.85	0.13	0.20	0.11	0.10
Main	6790.440	0.75 PMF 21100 c	21100.00	986.40	1017.58	31.18		1017.70	0.000165	4.97	2.44	8653.19	474.85	0.16	0.32	0.18	0.17
Main	6790.440	PMF 31590 cfs	31590.00	986.40	1019.67	33.27		1019.89	0.000264	6.58	3.27	9647.18	474.85	0.20	0.55	0.33	0.30
Main	6790.440	Q50 1700 cfs	1700.00	986.40	992.82	6.42		993.66	0.004071	8.61	6.24	272.23	76.39	0.60	1.63	0.60	0.67
Main	6790.440	1300 cfs	1300.00	986.40	991.43	5.03	990.49	992.39	0.005931	8.84	7.09	183.30	55.20	0.69	1.86	0.74	0.95
Main	6790.440	2850 cfs	2850.00	986.40	1007.20	20.80		1007.21	0.000029	1.59	0.73	3880.14	400.02	0.06	0.04	0.02	0.02
Main	6768.254	900 cfs	900.00	986.10	989.62	3.42	989.62	991.00	0.012698	9.99	9.25	97.35	34.92	0.95	2.71	1.36	1.39
Main	6768.254	Q10 1100 cfs	1100.00	986.10	990.04	3.84	990.04	991.59	0.012154	10.57	9.79	112.42	36.08	0.95	2.91	1.48	1.49
Main	6768.254	Q100 1980 cfs	1980.00	986.10	995.30	9.10		995.77	0.001368	6.31	4.82	410.98	127.40	0.37	0.78	0.21	0.14
Main	6768.254	2400 cfs	2400.00	986.10	1000.79	14.59		1000.83	0.000083	2.12	1.43	1679.83	300.70	0.10	0.08	0.02	0.03
Main	6768.254	Q500 2650 cfs	2650.00	986.10	1004.26	18.06		1004.26	0.000025	1.36	0.93	2853.73	364.97	0.06	0.03	0.01	0.01
Main	6768.254	3000 cfs	3000.00	986.10	1008.42	22.22		1008.43	0.000010	0.97	0.66	4517.04	443.87	0.04	0.01	0.01	0.01
Main	6768.254	3500 cfs	3500.00	986.10	1009.27	23.07		1009.28	0.000011	1.05	0.71	4902.70	460.74	0.04	0.02	0.01	0.01
Main	6768.254	5227 cfs	5227.00	986.10	1010.80	24.60		1010.82	0.000017	1.37	0.93	5623.50	474.85	0.05	0.03	0.01	0.01
Main	6768.254	5346 cfs	5346.00	986.10	1010.94	24.74		1010.96	0.000017	1.38	0.94	5690.76	474.85	0.05	0.03	0.01	0.01
Main	6768.254	0.5 PMF 11457 cf	11457.00	986.10	1014.85	28.65		1014.90	0.000036	2.20	1.52	7547.36	474.85	0.07	0.06	0.04	0.03
Main	6768.254	15000 cfs	15000.00	986.10	1015.98	29.78		1016.05	0.000051	2.68	1.86	8083.59	474.85	0.09	0.09	0.05	0.05
Main	6768.254	0.75 PMF 21100 c	21100.00	986.10	1017.58	31.38		1017.70	0.000077	3.42	2.39	8843.11	474.85	0.11	0.15	0.09	0.08
Main	6768.254	PMF 31590 cfs	31590.00	986.10	1019.67	33.47		1019.89	0.000127	4.57	3.21	9835.35	474.85	0.14	0.26	0.16	0.14
Main	6768.254	Q50 1700 cfs	1700.00	986.10	992.37	6.17		993.53	0.004838	9.15	8.49	200.21	39.38	0.65	1.86	1.02	0.90
Main	6768.254	1300 cfs	1300.00	986.10	990.41	4.21	990.41	992.13	0.011974	11.15	10.34	125.73	36.58	0.96	3.14	1.65	1.60
Main	6768.254	2850 cfs	2850.00	986.10	1007.20	21.00		1007.21	0.000012	1.04	0.71	3992.69	416.41	0.04	0.02	0.01	0.01
Main	6755.926	900 cfs	900.00	985.90	989.09	3.19	989.33	990.79	0.017059	11.08	10.14	88.72	33.72	1.09	3.40	1.74	1.86
Main	6755.926	Q10 1100 cfs	1100.00	985.90	989.53	3.63	989.76	991.39	0.015928	11.65	10.62	103.57	34.90	1.08	3.61	1.85	1.76
Main	6755.926	Q100 1980 cfs	1980.00	985.90	995.34	9.44		995.73	0.001277	6.24	3.64	544.54	207.41	0.36	0.75	0.14	0.16
Main	6755.926	2400 cfs	2400.00	985.90	1000.79	14.89		1000.83	0.000119	2.58	1.23	1949.84	303.33	0.12	0.11	0.05	0.04
Main	6755.926	Q500 2650 cfs	2650.00	985.90	1004.26	18.36		1004.28	0.000044	1.80	0.85	3128.05	367.70	0.07	0.05	0.02	0.02
Main	6755.926	3000 cfs	3000.00	985.90	1008.42	22.52		1008.43	0.000019	1.34	0.62	4821.48	453.88	0.05	0.03	0.01	0.01
Main	6755.926	3500 cfs	3500.00	985.90	1009.27	23.37		1009.28	0.000021	1.45	0.67	5215.87	471.69	0.05	0.03	0.02	0.01
Main	6755.926	5227 cfs	5227.00	985.90	1010.80	24.90		1010.82	0.000032	1.90	0.88	5956.76	488.55	0.07	0.05	0.03	0.02
Main	6755.926	5346 cfs	5346.00	985.90	1010.94	25.04		1010.96	0.000033	1.92	0.89	6026.03	488.55	0.07	0.05	0.03	0.02
Main	6755.926	0.5 PMF 11457 cf	11457.00	985.90	1014.85	28.95		1014.90	0.000068	3.04	1.44	7937.23	488.55	0.10	0.12	0.07	0.06
Main	6755.926	15000 cfs	15000.00	985.90	1015.98	30.08		1016.05	0.000096	3.70	1.77	8489.78	488.55	0.12	0.18	0.10	0.09

HEC-RAS Plan: PrCondSSFISDesgn River: SippoCreek Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Hydr Depth C	Crit W.S	E.G. Elev	E.G. Slope	Vel Chnl	Vel Total	Flow Area	Top Width	Froude # Chl	Shear Chan	Shear LOB	Shear ROB
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)	(lb/sq ft)	(lb/sq ft)
Main	6755.926	0.75 PMF 21100 c	21100.00	985.90	1017.59	31.69		1017.69	0.000145	4.72	2.28	9273.02	488.55	0.15	0.29	0.17	0.15
Main	6755.926	PMF 31590 cfs	31590.00	985.90	1019.68	33.78		1019.88	0.000237	6.30	3.07	10297.83	488.55	0.19	0.50	0.31	0.27
Main	6755.926	Q50 1700 cfs	1700.00	985.90	992.36	6.46		993.46	0.004611	9.21	8.03	211.73	43.08	0.64	1.86	0.93	0.79
Main	6755.926	1300 cfs	1300.00	985.90	989.93	4.03	990.15	991.95	0.015038	12.15	11.02	117.99	36.01	1.07	3.79	1.95	1.84
Main	6755.926	2850 cfs	2850.00	985.90	1007.20	21.30		1007.21	0.000022	1.42	0.67	4284.95	425.70	0.05	0.03	0.02	0.01
Main	6737.893	900 cfs	900.00	985.70	988.80	2.96	989.03	990.44	0.019413	11.22	9.63	93.48	44.90	1.15	3.58	1.58	1.68
Main	6737.893	Q10 1100 cfs	1100.00	985.70	989.03	3.19	989.65	991.04	0.021909	12.53	10.56	104.20	49.60	1.24	4.36	1.83	1.75
Main	6737.893	Q100 1980 cfs	1980.00	985.70	995.53	9.69		995.63	0.000431	3.69	1.92	1030.06	228.75	0.21	0.26	0.12	0.08
Main	6737.893	2400 cfs	2400.00	985.70	1000.80	14.96		1000.82	0.000065	1.91	0.98	2440.05	310.89	0.09	0.06	0.03	0.02
Main	6737.893	Q500 2650 cfs	2650.00	985.70	1004.26	18.43		1004.28	0.000028	1.45	0.73	3638.88	376.42	0.06	0.03	0.02	0.01
Main	6737.893	3000 cfs	3000.00	985.70	1008.42	22.58		1008.43	0.000013	1.14	0.56	5383.63	472.08	0.04	0.02	0.01	0.01
Main	6737.893	3500 cfs	3500.00	985.70	1009.27	23.43		1009.28	0.000015	1.24	0.60	5789.76	480.54	0.05	0.02	0.01	0.01
Main	6737.893	5227 cfs	5227.00	985.70	1010.80	24.96		1010.82	0.000024	1.63	0.80	6534.04	488.55	0.06	0.04	0.02	0.02
Main	6737.893	5346 cfs	5346.00	985.70	1010.94	25.11		1010.96	0.000024	1.65	0.81	6603.31	488.55	0.06	0.04	0.02	0.02
Main	6737.893	0.5 PMF 11457 cf	11457.00	985.70	1014.86	29.02		1014.89	0.000052	2.67	1.35	8515.67	488.55	0.09	0.09	0.06	0.05
Main	6737.893	15000 cfs	15000.00	985.70	1015.99	30.15		1016.05	0.000074	3.26	1.65	9069.17	488.55	0.10	0.14	0.09	0.07
Main	6737.893	0.75 PMF 21100 c	21100.00	985.70	1017.60	31.76		1017.69	0.000114	4.19	2.14	9854.09	488.55	0.13	0.23	0.15	0.12
Main	6737.893	PMF 31590 cfs	31590.00	985.70	1019.70	33.86		1019.86	0.000189	5.63	2.90	10882.06	488.55	0.17	0.40	0.27	0.22
Main	6737.893	Q50 1700 cfs	1700.00	985.70	992.89	7.05		993.17	0.001517	5.60	3.24	524.33	150.73	0.37	0.67	0.28	0.26
Main	6737.893	1300 cfs	1300.00	985.70	989.27	3.43	990.14	991.58	0.023443	13.60	11.03	117.86	63.39	1.29	5.01	1.58	1.72
Main	6737.893	2850 cfs	2850.00	985.70	1007.20	21.36		1007.21	0.000016	1.20	0.59	4828.81	437.95	0.05	0.02	0.01	0.01
Main	6692.140	900 cfs	900.00	985.60	989.17	3.34	988.70	989.80	0.007884	7.76	4.98	180.69	91.57	0.75	1.64	0.75	0.83
Main	6692.140	Q10 1100 cfs	1100.00	985.60	989.29	3.46	989.02	990.14	0.010207	9.04	5.73	191.91	94.12	0.86	2.21	1.01	1.12
Main	6692.140	Q100 1980 cfs	1980.00	985.60	995.53	9.70		995.61	0.000363	3.39	1.50	1318.01	255.50	0.19	0.22	0.12	0.09
Main	6692.140	2400 cfs	2400.00	985.60	1000.80	14.97		1000.82	0.000070	1.99	0.84	2862.99	339.60	0.09	0.07	0.04	0.03
Main	6692.140	Q500 2650 cfs	2650.00	985.60	1004.26	18.44		1004.27	0.000031	1.52	0.64	4133.55	378.42	0.06	0.04	0.02	0.02
Main	6692.140	3000 cfs	3000.00	985.60	1008.42	22.59		1008.42	0.000015	1.22	0.52	5760.26	406.09	0.05	0.02	0.01	0.01
Main	6692.140	3500 cfs	3500.00	985.60	1009.27	23.44		1009.28	0.000018	1.34	0.57	6107.94	408.45	0.05	0.03	0.02	0.02
Main	6692.140	5227 cfs	5227.00	985.60	1010.80	24.97		1010.81	0.000029	1.80	0.78	6732.13	408.45	0.06	0.05	0.03	0.03
Main	6692.140	5346 cfs	5346.00	985.60	1010.94	25.11		1010.96	0.000030	1.82	0.79	6789.99	408.45	0.06	0.05	0.03	0.03
Main	6692.140	0.5 PMF 11457 cf	11457.00	985.60	1014.84	29.02		1014.89	0.000071	3.11	1.37	8384.50	408.45	0.10	0.13	0.09	0.08
Main	6692.140	15000 cfs	15000.00	985.60	1015.97	30.14		1016.04	0.000104	3.85	1.70	8843.76	408.45	0.12	0.19	0.13	0.13
Main	6692.140	0.75 PMF 21100 c	21100.00	985.60	1017.56	31.73		1017.68	0.000165	5.03	2.22	9492.53	408.45	0.16	0.33	0.22	0.21
Main	6692.140	PMF 31590 cfs	31590.00	985.60	1019.62	33.79		1019.85	0.000284	6.88	3.06	10335.26	408.45	0.21	0.60	0.42	0.40
Main	6692.140	Q50 1700 cfs	1700.00	985.60	992.86	7.04		993.08	0.001330	5.24	2.46	691.10	213.33	0.35	0.58	0.31	0.15
Main	6692.140	1300 cfs	1300.00	985.60	989.92	4.09	989.29	990.63	0.007244	8.51	5.09	255.39	107.42	0.74	1.85	0.86	0.95
Main	6692.140	2850 cfs	2850.00	985.60	1007.20	21.37		1007.21	0.000018	1.27	0.54	5271.26	396.89	0.05	0.02	0.01	0.01
Main	6564.443	900 cfs	900.00	984.00	987.49	3.34	987.49	988.57	0.011736	9.47	6.31	142.55	72.22	0.91	2.45	1.09	0.91
Main	6564.443	Q10 1100 cfs	1100.00	984.00	988.55	4.40	987.82	989.18	0.005393	7.71	4.15	265.23	160.48	0.65	1.48	0.72	0.30
Main	6564.443	Q100 1980 cfs	1980.00	984.00	995.54	11.39		995.57	0.000102	2.00	1.07	1855.77	276.73	0.10	0.07	0.04	0.04
Main	6564.443	2400 cfs	2400.00	984.00	1000.80	16.65		1000.81	0.000025	1.29	0.68	3514.05	355.15	0.06	0.03	0.01	0.02
Main	6564.443	Q500 2650 cfs	2650.00	984.00	1004.26	20.11		1004.27	0.000013	1.05	0.55	4816.92	400.09	0.04	0.02	0.01	0.01
Main	6564.443	3000 cfs	3000.00	984.00	1008.42	24.27		1008.42	0.000007	0.87	0.44	6808.27	509.29	0.03	0.01	0.01	0.01
Main	6564.443	3500 cfs	3500.00	984.00	1009.27	25.12		1009.28	0.000008	0.96	0.48	7244.56	514.29	0.03	0.01	0.01	0.01
Main	6564.443	5227 cfs	5227.00	984.00	1010.80	26.65		1010.81	0.000014	1.30	0.65	8041.44	532.07	0.04	0.02	0.01	0.01
Main	6564.443	5346 cfs	5346.00	984.00	1010.94	26.79		1010.95	0.000014	1.32	0.66	8117.02	534.46	0.04	0.02	0.01	0.01
Main	6564.443	0.5 PMF 11457 cf	11457.00	984.00	1014.85	30.70		1014.88	0.000035	2.26	1.11	10335.37	600.19	0.07	0.07	0.04	0.03
Main	6564.443	15000 cfs	15000.00	984.00	1015.98	31.83		1016.02	0.000050	2.78	1.36	11024.20	619.10	0.09	0.10	0.06	0.05
Main	6564.443	0.75 PMF 21100 c	21100.00	984.00	1017.58	33.43		1017.65	0.000080	3.63	1.75	12046.13	658.13	0.11	0.17	0.10	0.08
Main	6564.443	PMF 31590 cfs	31590.00	984.00	1019.68	35.52		1019.79	0.000133	4.87	2.35	13444.88	671.06	0.14	0.29	0.18	0.15
Main	6564.443	Q50 1700 cfs	1700.00	984.00	992.92	8.76		992.97	0.000282	2.79	1.45	1174.54	244.75	0.17	0.15	0.08	0.08
Main	6564.443	1300 cfs	1300.00	984.00	989.89	5.74		990.11	0.001691	5.15	2.58	504.82	198.32	0.38	0.61	0.31	0.20
Main	6564.443	2850 cfs	2850.00	984.00	1007.20	23.05		1007.21	0.000008	0.91	0.46	6192.38	502.07	0.03	0.01	0.01	0.01
Main	6469.916	900 cfs	900.00	982.80	987.80	5.00	985.88	987.99	0.001596	4.57	2.27	397.08	184.94	0.36	0.50	0.23	0.17
Main	6469.916	Q10 1100 cfs	1100.00	982.80	988.75	5.95		988.87	0.000928	3.91	1.89	583.32	207.75	0.28	0.34	0.16	0.14
Main	6469.916	Q100 1980 cfs	1980.00	982.80	995.54	12.74		995.56	0.000067	1.75	0.85	2316.40	289.69	0.09	0.05	0.03	0.03
Main	6469.916	2400 cfs	2400.00	982.80	1000.80	18.00		1000.81	0.000022	1.26	0.60	4004.91	355.51	0.05	0.02	0.01	0.01
Main	6469.916	Q500 2650 cfs	2650.00	982.80	1004.26	21.46		1004.27	0.000012	1.03	0.51	5244.65	360.89	0.04	0.02	0.01	0.01
Main	6469.916	3000 cfs	3000.00	982.80	1008.42	25.62		1008.42	0.000007	0.89	0.44	6757.74	367.33	0.03	0.01	0.01	0.01
Main	6469.916	3500 cfs	3500.00	982.80	1009.27	26.47		1009.28	0.000008	0.98	0.49	7071.33	368.62	0.03	0.01	0.01	0.01
Main	6469.916	5227 cfs	5227.00	982.80	1010.80	28.00		1010.81	0.000014	1.35	0.68	7636.59	371.19	0.05	0.02	0.01	0.02
Main	6469.916	5346 cfs	5346.00	982.80	1010.94	28.14		1010.95	0.000014	1.38	0.70	7689.19	371.44	0.05	0.03	0.02	0.02
Main	6469.916	0.5 PMF 11457 cf	11457.00	982.80	1014.84	32.04		1014.88	0.000039	2.46	1.25	9151.83	378.12	0.08	0.08	0.05	0.06
Main	6469.916	15000 cfs	15000.00	982.80	1015.97	33.17		1016.02	0.000058	3.08	1.57	9577.55	380.07	0.09	0.12	0.07	0.09
Main	6469.916	0.75 PMF 21100 c	21100.00	982.80	1017.55	34.75		1017.64	0.000095	4.07	2.07	10182.45	383.49	0.12	0.21	0.12	0.15
Main	6469.916	PMF 31590 cfs	31590.00	982.80	1019.60	36.80		1019.78	0.000171	5.65	2.88	10974.55	388.35	0.16	0.39	0.22	0.29
Main	6469.916	Q50 1700 cfs	1700.00	982.80	992.92	10.12		992.95	0.000147	2.22	1.07	1585.83	266.53	0.12	0.09	0.05	0.05
Main	6469.916	1300 cfs	1300.00	982.80	989.92	7.12		990.00	0.000503	3.25	1.54	842.82	233.86	0.21	0.22	0.11	0.10
Main	6469.916	2850 cfs	2850.00	982.80	1007.20	24.40		1007.20	0.000008	0.91	0.45	6311.53	365.50	0.03	0.01	0.01	0.01
Main	6368.388	900 cfs	900.00	982.60	987.68	5.01		987.85	0.001334	4.18	2.11	426.00	197.81	0.33	0.42	0.20	0.14
Main	6368.388	Q10 1100 cfs	1100.00	982.60	988.69	6.02		988.79	0.000723	3.48	1.73	636.24	217.84	0.25	0.27	0.13	0.11
Main	6368.388	Q100 1980 cfs	1980.00	982.60	995.54	12.86		995.56	0.000055	1.59	0.82	2417.45	293.79	0.08	0.04	0.02	0.03
Main	6368.388	2400 cfs	2400.00	982.60	1000.80	18.13		1000.81	0.000018	1.14	0.58	4127.26	346.72	0.05	0.02	0.01	0.01
Main	6368.388	Q500 2650 cfs	2650.00	982.60	1004.26	21.59		1004.27	0.000010	0.95	0.50	5338.75	353.37	0.04	0.01	0.01	0.01
Main	6368.388	3000 cfs	3000.00	982.60	1008.42	25.74		1008.42	0.000006	0.83	0.44	6830.46	364.85	0.03	0.01	0.00	0.01
Main	6368.388	3500 cfs	3500.00	982.60	1009.27	26.59		1009.27	0.000007	0.92	0.49	7142.40	367.28	0.03	0.01	0.00	0.01
Main	6368.388	5227 cfs	5227.00	982.60	1010.80	28.12		1010.81	0.000012	1.27	0.68	7706.91	371.61	0.04	0.02	0.01	0.02
Main	6368.388	5346 cfs	5346.00	982.60	1010.94	28.26		1010.95	0.000013	1.29	0.69	7759.56	372.00	0.04	0.02	0.01	0.02
Main	6368.388	0.5 PMF 11457 cf	11457.00	982.60	1014.84	32.16		1014.87	0.000034	2.32	1.24	9231.87	382.91	0.07	0.07	0.03	0.05
Main	6368.388	15000 cfs	15000.00	982.60	1015.96	33.29		1016.01	0.000052	2.91	1.55	9663.18	386.14	0.09	0.11	0.04	0.08
Main	6368.388	0.75 PMF 21100 c	21100.00	982.60	1017.54	34.87		1017.63	0.000085	3.85	2.05	10277.40	390.26	0.11	0.18	0.07	0.14
Main	6368.388	PMF 31590 cfs	31590.00	982.60	1019.59	36.92		1019.76	0.000152	5.35	2.85	11081.87	395.23	0.16	0.35	0.14	0.27
Main	6368.388	Q50 1700 cfs	1700.00	982.60	992.91	10.23		992.93	0.000117	1.99	1.01	1676.46	270.22	0.11	0.07	0.03	0.04
Main	6368.388	1300 cfs	1300.00	982.60	989.90	7.22		989.96	0.000388	2.88	1.42	912.44	239.98	0.19	0.17	0.08	0.08
Main	6368.388	2850 cfs	2850.00	982.60	1007.20	24.52		1007.20	0.000007	0.84	0.45	6388.26	361.36	0.03	0.01	0.00	0.01
Main	6261.580	900 cfs	900.00	982.25	987.62	5.37		987.73	0.000934	3.66	1.88	479.49	185.55	0.28	0.31	0.12	0.13
Main	6261.580	Q10 1100 cfs	1100.00	982.25	988.65	6.40		988.73	0.000563	3.20	1.61	685.05	210.70	0.22	0.23	0.09	0.10
Main	6261.580	Q100 1980 cfs	1980.00	982.25	995.54	13.29		995.55	0.000051	1.56	0.80	2476.96	296.03	0.08	0.04	0.02	0.03
Main	6261.580	2400 cfs	2400.00	982.25	1000.80	18.55		1000.81	0.000017	1.12	0.57	4199.60	347.30	0.05	0.02	0.01	0.01
Main	6261.580	Q500 2650 cfs	2650.00	982.25	1004.26	22.01		1004.27	0.000009	0.94	0.49	5422.83	357.16	0.04	0.01	0.01	0.01
Main	6261.580	3000 cfs	3000.00	982.25	1008.42	26.17		1008.42	0.000006	0.82	0.43	6923.37	365.02	0.03	0.01	0.00	0.01
Main	6261.580	3500 cfs	3500.00	982.25	1009.27	27.02		1009.27	0.000007	0.91	0.48	7235.07	366.57	0.03	0.01	0.00	0.01
Main	6261.580	5227 cfs	5227.00	982.25	1010.80	28.55		1010.81	0.000012	1.26	0.67	7797.12	369.28	0.04	0.02	0.01	0.02
Main	6261.580	5346 cfs	5346.00	982.25	1010.94	28.69		1010.95	0.000012	1.28	0.68	7849.45	369.53	0.04	0.02	0.01	0.02
Main	6261.580	0.5 PMF 11457 cf	11457.00	982.25	1014.84	32.59		1014.87	0.000033	2.31	1.23	9303.72	376.25	0.07	0.07	0.03	0.05
Main	6261.580	15000 cfs	15000.00	982.25	1015.96	33.71		1016.01	0.000050	2.89	1.54	9726.53	378.14	0.09	0.11	0.05	0.08
Main	6261.580	0.75 PMF 21100 c	21100.00	982.25	1017.54	35.29		1017.62	0.000083	3.83	2.04	10326.40	380.89	0.11	0.18	0.08	0.14
Main	6261.580	PMF 31590 cfs	31590.00	982.25	1019.59	37.33		1019.75	0.000149	5.33	2.84	11108.75	384.22	0.15	0.35	0.16	0.27
Main	6261.580	Q50 1700 cfs	1700.00	982.25	992.90	10.65		992.92	0.000104	1.93	0.98	1731.70	269.91	0.10	0.07	0.03	0.04
Main	6261.580	1300 cfs	1300.00	982.25	989.87	7.62		989.92	0.000327	2.74	1.36	958.79	237.75	0.17	0.16	0.06	0.08
Main	6261.580	2850 cfs	2850.00	982.25	1007.20	24.95		1007.20	0.000006	0.84	0.44	6480.18	362.79	0.03	0.01	0.00	0.01

HEC-RAS Plan: PrCondSSFISDesgn River: SippoCreek Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Hydr Depth C	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Vel Total	Flow Area	Top Width	Froude # Chl	Shear Chan	Shear LOB	Shear ROB
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)	(lb/sq ft)	(lb/sq ft)
Main	6131.449	900 cfs	900.00	981.90	987.35	5.45		987.57	0.001534	4.74	2.59	347.40	147.82	0.36	0.52	0.25	0.16
Main	6131.449	Q10 1100 cfs	1100.00	981.90	988.49	6.59		988.64	0.000863	4.04	2.06	534.61	178.74	0.28	0.36	0.17	0.13
Main	6131.449	Q100 1980 cfs	1980.00	981.90	995.52	13.62		995.54	0.000064	1.79	0.86	2304.86	295.47	0.09	0.05	0.03	0.03
Main	6131.449	2400 cfs	2400.00	981.90	1000.80	18.90		1000.80	0.000019	1.22	0.61	3944.60	323.71	0.05	0.02	0.01	0.01
Main	6131.449	Q500 2650 cfs	2650.00	981.90	1004.26	22.36		1004.27	0.000011	1.03	0.52	5094.38	340.50	0.04	0.02	0.01	0.01
Main	6131.449	3000 cfs	3000.00	981.90	1008.42	26.52		1008.42	0.000007	0.91	0.46	6547.93	358.60	0.03	0.01	0.01	0.01
Main	6131.449	3500 cfs	3500.00	981.90	1009.27	27.37		1009.27	0.000008	1.01	0.51	6854.72	361.63	0.03	0.01	0.01	0.01
Main	6131.449	5227 cfs	5227.00	981.90	1010.79	28.89		1010.80	0.000014	1.40	0.71	7410.04	365.90	0.05	0.03	0.01	0.02
Main	6131.449	5346 cfs	5346.00	981.90	1010.93	29.03		1010.95	0.000015	1.42	0.72	7461.88	366.24	0.05	0.03	0.01	0.02
Main	6131.449	0.5 PMF 11457 cf	11457.00	981.90	1014.83	32.93		1014.86	0.000041	2.56	1.29	8903.34	374.01	0.08	0.08	0.04	0.06
Main	6131.449	15000 cfs	15000.00	981.90	1015.94	34.04		1016.00	0.000061	3.20	1.61	9321.67	376.25	0.10	0.13	0.07	0.10
Main	6131.449	0.75 PMF 21100 c	21100.00	981.90	1017.51	35.61		1017.61	0.000100	4.24	2.13	9914.72	379.66	0.13	0.22	0.11	0.17
Main	6131.449	PMF 31590 cfs	31590.00	981.90	1019.53	37.63		1019.73	0.000181	5.91	2.96	10685.99	383.51	0.17	0.43	0.22	0.32
Main	6131.449	Q50 1700 cfs	1700.00	981.90	992.87	10.97		992.91	0.000145	2.32	1.10	1548.49	270.68	0.12	0.10	0.05	0.05
Main	6131.449	1300 cfs	1300.00	981.90	989.78	7.88		989.87	0.000485	3.41	1.65	788.61	215.82	0.21	0.24	0.12	0.09
Main	6131.449	2850 cfs	2850.00	981.90	1007.20	25.30		1007.20	0.000008	0.92	0.47	6114.21	353.60	0.03	0.01	0.01	0.01
Main	5982.247	900 cfs	900.00	981.25	987.17	5.92		987.37	0.001178	4.39	2.70	333.17	133.82	0.32	0.44	0.14	0.14
Main	5982.247	Q10 1100 cfs	1100.00	981.25	988.40	7.15		988.52	0.000635	3.66	2.08	528.80	196.56	0.24	0.28	0.11	0.05
Main	5982.247	Q100 1980 cfs	1980.00	981.25	995.52	14.27		995.53	0.000048	1.59	0.89	2223.06	266.96	0.07	0.04	0.03	0.02
Main	5982.247	2400 cfs	2400.00	981.25	1000.79	19.54		1000.80	0.000017	1.17	0.63	3833.49	353.05	0.05	0.02	0.01	0.01
Main	5982.247	Q500 2650 cfs	2650.00	981.25	1004.26	23.01		1004.26	0.000010	0.98	0.52	5124.51	405.98	0.04	0.01	0.01	0.01
Main	5982.247	3000 cfs	3000.00	981.25	1008.42	27.16		1008.42	0.000006	0.84	0.43	7014.18	487.16	0.03	0.01	0.01	0.00
Main	5982.247	3500 cfs	3500.00	981.25	1009.27	28.02		1009.27	0.000007	0.92	0.47	7433.51	497.34	0.03	0.01	0.01	0.00
Main	5982.247	5227 cfs	5227.00	981.25	1010.79	29.54		1010.80	0.000011	1.24	0.64	8204.87	511.48	0.04	0.02	0.01	0.01
Main	5982.247	5346 cfs	5346.00	981.25	1010.94	29.68		1010.94	0.000011	1.26	0.65	8277.39	512.44	0.04	0.02	0.01	0.01
Main	5982.247	0.5 PMF 11457 cf	11457.00	981.25	1014.83	33.58		1014.86	0.000027	2.11	1.11	10347.09	545.05	0.06	0.06	0.04	0.03
Main	5982.247	15000 cfs	15000.00	981.25	1015.95	34.70		1015.99	0.000039	2.60	1.37	10969.70	567.69	0.08	0.08	0.06	0.04
Main	5982.247	0.75 PMF 21100 c	21100.00	981.25	1017.53	36.28		1017.59	0.000061	3.36	1.77	11895.59	605.22	0.10	0.14	0.09	0.06
Main	5982.247	PMF 31590 cfs	31590.00	981.25	1019.57	38.32		1019.68	0.000104	4.53	2.40	13180.80	649.84	0.13	0.25	0.17	0.10
Main	5982.247	Q50 1700 cfs	1700.00	981.25	992.86	11.61		992.89	0.000099	2.00	1.11	1538.30	247.50	0.10	0.07	0.04	0.03
Main	5982.247	1300 cfs	1300.00	981.25	989.74	8.49		989.81	0.000326	2.94	1.61	806.88	219.12	0.18	0.17	0.08	0.04
Main	5982.247	2850 cfs	2850.00	981.25	1007.20	25.95		1007.20	0.000006	0.87	0.44	6429.60	471.78	0.03	0.01	0.01	0.00
Main	5779.970	900 cfs	900.00	980.30	987.24	6.84		987.26	0.000144	1.69	0.98	920.19	233.73	0.11	0.06	0.03	0.04
Main	5779.970	Q10 1100 cfs	1100.00	980.30	988.44	8.04		988.45	0.000099	1.56	0.91	1205.05	240.67	0.10	0.05	0.03	0.03
Main	5779.970	Q100 1980 cfs	1980.00	980.30	995.52	15.12		995.53	0.000021	1.10	0.65	3063.14	288.44	0.05	0.02	0.01	0.01
Main	5779.970	2400 cfs	2400.00	980.30	1000.79	20.39		1000.80	0.000009	0.88	0.50	4823.61	381.72	0.03	0.01	0.01	0.00
Main	5779.970	Q500 2650 cfs	2650.00	980.30	1004.26	23.86		1004.26	0.000006	0.77	0.42	5335.07	479.84	0.03	0.01	0.01	0.00
Main	5779.970	3000 cfs	3000.00	980.30	1008.42	28.01		1008.42	0.000003	0.67	0.36	8426.05	524.51	0.02	0.01	0.00	0.00
Main	5779.970	3500 cfs	3500.00	980.30	1009.27	28.87		1009.27	0.000004	0.75	0.39	8876.90	534.55	0.02	0.01	0.01	0.00
Main	5779.970	5227 cfs	5227.00	980.30	1010.79	30.39		1010.80	0.000007	1.03	0.54	9709.11	557.13	0.03	0.01	0.01	0.01
Main	5779.970	5346 cfs	5346.00	980.30	1010.94	30.53		1010.94	0.000008	1.05	0.55	9788.16	559.35	0.03	0.01	0.01	0.01
Main	5779.970	0.5 PMF 11457 cf	11457.00	980.30	1014.83	34.43		1014.85	0.000020	1.84	0.95	12061.88	605.36	0.06	0.04	0.03	0.02
Main	5779.970	15000 cfs	15000.00	980.30	1015.95	35.55		1015.98	0.000030	2.30	1.18	12748.21	623.23	0.07	0.07	0.05	0.03
Main	5779.970	0.75 PMF 21100 c	21100.00	980.30	1017.53	37.13		1017.58	0.000050	3.08	1.52	13889.90	741.47	0.09	0.12	0.08	0.04
Main	5779.970	PMF 31590 cfs	31590.00	980.30	1019.57	39.17		1019.66	0.000086	4.19	2.04	15449.85	786.88	0.12	0.21	0.15	0.07
Main	5779.970	Q50 1700 cfs	1700.00	980.30	992.86	12.46		992.87	0.000035	1.23	0.73	2326.84	266.67	0.06	0.03	0.02	0.02
Main	5779.970	1300 cfs	1300.00	980.30	989.75	9.35		989.77	0.000069	1.45	0.85	1527.05	248.47	0.08	0.04	0.02	0.03
Main	5779.970	2850 cfs	2850.00	980.30	1007.20	26.80		1007.20	0.000004	0.69	0.37	7794.62	512.65	0.02	0.01	0.00	0.00
Main	5673.110	900 cfs	900.00	980.25	987.23	6.98		987.24	0.000093	1.38	0.83	1087.46	257.10	0.09	0.04	0.02	0.02
Main	5673.110	Q10 1100 cfs	1100.00	980.25	988.43	8.18		988.44	0.000068	1.31	0.79	1399.79	262.46	0.08	0.03	0.02	0.02
Main	5673.110	Q100 1980 cfs	1980.00	980.25	995.52	15.27		995.52	0.000016	0.98	0.59	3377.99	295.71	0.04	0.02	0.01	0.01
Main	5673.110	2400 cfs	2400.00	980.25	1000.79	20.54		1000.80	0.000008	0.82	0.48	5034.33	338.96	0.03	0.01	0.01	0.01
Main	5673.110	Q500 2650 cfs	2650.00	980.25	1004.26	24.01		1004.26	0.000005	0.74	0.42	6273.65	373.92	0.03	0.01	0.01	0.00
Main	5673.110	3000 cfs	3000.00	980.25	1008.41	28.16		1008.42	0.000004	0.68	0.38	7906.95	416.20	0.02	0.01	0.00	0.00
Main	5673.110	3500 cfs	3500.00	980.25	1009.27	29.02		1009.27	0.000004	0.76	0.42	8267.28	429.96	0.03	0.01	0.01	0.00
Main	5673.110	5227 cfs	5227.00	980.25	1010.79	30.54		1010.80	0.000008	1.07	0.58	8949.55	453.17	0.03	0.02	0.01	0.01
Main	5673.110	5346 cfs	5346.00	980.25	1010.93	30.68		1010.94	0.000008	1.09	0.59	9015.27	455.06	0.03	0.02	0.01	0.01
Main	5673.110	0.5 PMF 11457 cf	11457.00	980.25	1014.83	34.58		1014.85	0.000022	1.96	1.05	10940.46	530.36	0.06	0.05	0.04	0.02
Main	5673.110	15000 cfs	15000.00	980.25	1015.94	35.69		1015.97	0.000033	2.44	1.29	11630.64	706.55	0.07	0.07	0.06	0.02
Main	5673.110	0.75 PMF 21100 c	21100.00	980.25	1017.52	37.27		1017.57	0.000053	3.18	1.61	13103.03	983.70	0.09	0.12	0.09	0.02
Main	5673.110	PMF 31590 cfs	31590.00	980.25	1019.56	39.31		1019.65	0.000090	4.30	2.08	15166.85	1032.17	0.12	0.22	0.16	0.04
Main	5673.110	Q50 1700 cfs	1700.00	980.25	992.86	12.61		992.87	0.000026	1.08	0.65	2608.73	283.34	0.05	0.02	0.01	0.01
Main	5673.110	1300 cfs	1300.00	980.25	989.75	9.50		989.76	0.000050	1.23	0.74	1749.83	268.74	0.07	0.03	0.02	0.02
Main	5673.110	2850 cfs	2850.00	980.25	1007.20	26.95		1007.20	0.000004	0.68	0.38	7410.57	400.50	0.02	0.01	0.00	0.00
Main	5526.262	900 cfs	900.00	979.25	987.20	7.95		987.23	0.000146	1.88	1.07	842.75	205.57	0.12	0.07	0.03	0.04
Main	5526.262	Q10 1100 cfs	1100.00	979.25	988.41	9.16		988.43	0.000105	1.75	1.01	1093.65	209.23	0.10	0.06	0.03	0.04
Main	5526.262	Q100 1980 cfs	1980.00	979.25	995.51	16.26		995.52	0.000025	1.25	0.75	2650.89	230.36	0.05	0.03	0.02	0.02
Main	5526.262	2400 cfs	2400.00	979.25	1000.79	21.54		1000.80	0.000012	1.03	0.61	3961.61	263.11	0.04	0.02	0.01	0.01
Main	5526.262	Q500 2650 cfs	2650.00	979.25	1004.26	25.00		1004.26	0.000008	0.93	0.54	4904.91	280.77	0.03	0.01	0.01	0.01
Main	5526.262	3000 cfs	3000.00	979.25	1008.41	29.16		1008.42	0.000005	0.86	0.49	6109.93	298.11	0.03	0.01	0.01	0.01
Main	5526.262	3500 cfs	3500.00	979.25	1009.26	30.01		1009.27	0.000007	0.96	0.55	6365.35	302.34	0.03	0.01	0.01	0.01
Main	5526.262	5227 cfs	5227.00	979.25	1010.79	31.54		1010.80	0.000012	1.35	0.76	6843.80	335.84	0.04	0.02	0.02	0.01
Main	5526.262	5346 cfs	5346.00	979.25	1010.93	31.68		1010.94	0.000012	1.37	0.78	6891.57	339.98	0.04	0.02	0.02	0.01
Main	5526.262	0.5 PMF 11457 cf	11457.00	979.25	1014.81	35.56		1014.84	0.000034	2.46	1.35	8496.14	472.13	0.07	0.08	0.05	0.02
Main	5526.262	15000 cfs	15000.00	979.25	1015.92	36.66		1015.97	0.000050	3.05	1.66	9021.02	476.20	0.09	0.11	0.08	0.04
Main	5526.262	0.75 PMF 21100 c	21100.00	979.25	1017.47	38.22		1017.56	0.000079	3.94	2.09	10075.56	815.04	0.11	0.19	0.13	0.03
Main	5526.262	PMF 31590 cfs	31590.00	979.25	1019.49	40.24		1019.63	0.000125	5.14	2.65	11924.58	942.38	0.14	0.31	0.22	0.06
Main	5526.262	Q50 1700 cfs	1700.00	979.25	992.85	13.60		992.87	0.000039	1.40	0.83	2051.32	221.59	0.07	0.03	0.02	0.02
Main	5526.262	1300 cfs	1300.00	979.25	989.73	10.48		989.75	0.000076	1.63	0.95	1373.13	213.19	0.09	0.05	0.03	0.03
Main	5526.262	2850 cfs	2850.00	979.25	1007.19	27.94		1007.20	0.000006	0.86	0.50	5749.67	293.47	0.03	0.01	0.01	0.01
Main	5409.418	900 cfs	900.00	978.25	986.01	7.76	983.28	987.08	0.002920	8.28	8.28	108.66	125.23	0.52	1.41		
Main	5409.418	Q10 1100 cfs	1100.00	978.25	987.03	8.78	984.00	988.28	0.002889	8.95	8.95	122.95	139.60	0.53	1.58		
Main	5409.418	Q100 1980 cfs	1980.00	978.25	994.16	15.91	986.76	995.39	0.001290	8.89	8.89	222.81	219.85	0.39	1.28		
Main	5409.418	2400 cfs	2400.00	978.25	999.70	21.45	987.95	1000.69	0.000701	7.99	7.99	300.32	279.42	0.30	0.94		
Main	5409.418	Q500 2650 cfs	2650.00	978.25	1003.28	25.03	988.61	1004.17	0.000511	7.56	7.56	350.43	314.97	0.27	0.80		
Main	5409.418	3000 cfs	3000.00	978.25	1007.50	29.25	989.47	1008.33	0.000390	7.33	7.33	409.47	363.37	0.24	0.71		
Main	5409.418	3500 cfs	3500.00	978.25	1008.07	29.87	990.71	1009.16	0.000797	8.37	7.89	443.64	378.48	0.32	1.04	0.00	0.00
Main	5409.418	5227 cfs	5227.00	978.25	1008.18	29.97	994.51	1010.56	0.001738	12.40	10.80	483.96	379.64	0.48	2.28	0.02	0.02
Main	5409.418	5346 cfs	5346.00	978.25	1008.23	21.02	994.76	1010.69	0.001797	12.62	10.63	502.73	380.50	0.49	2.36	0.03	0.02
Main	5409.418	0.5 PMF 11457 cf	11457.00	978.25	1013.44	26.24	1012.08	1014.71	0.001205	11.98	4.28	2678.41	469.58	0.41	1.97	0.37	0.31
Main	5409.418	15000 cfs	15000.00	978.25	1014.22	27.02	1013.07	1015.80	0.001560	13.90	4.91	3057.11	497.01	0.47	2.63	0.55	0.40
Main	5409.418	0.75 PMF 21100 c	21100.00	978.25	1014.66	27.45	1014.66	1017.28	0.002648	18.31	6.44	3276.49	511.49	0.62	4.54	1.01	0.70
Main	5409.418	PMF 31590 cfs	31590.00	978.25	1016.79	29.58	1016.79	1019.35	0.002839	19.93	7.03	4494.90	644.57	0.65	5.24	1.44	0.72
Main	5409.418	Q50 1700 cfs	1700.00	978.25	991.40	13.15	985.93	992.72	0.001798	9.24	9.24	184.05	189.26	0.45	1.48		
Main	5409.418	1300 cfs	1300.00	978.25	988.26	10.01	984.69	989.59	0.002611	9.28	9.28	140.10	154.71	0.52	1.63		
Main	5409.418	2850 cfs	2850.00	978.25	1006.30	28.05	989.10	1007.12	0.000404	7.26	7.26	392.66	351.92	0.24	0.71		
Main	5312.23		Culvert														
Main	5251.314	900 cfs	900.00	978.13	983.17	5.04	983.17	985.70	0.012291	12.75	12.75	70.60	34.95	1.00	3.87		
Main	5251.314	Q10 1100 cfs	1100.00	978.13	983.88	5.75	983.88	986.78	0.011838	13.66	13.66	80.53	38.71	1.00	4.25		
Main	5251.314	Q100 1980 cfs	1980.00	978.13	986.64	8.51	986.64	990.93	0.010413	16.63	16.63	119.08	54.10	1.00	5.53		
Main	5251.314	2400 cfs	2400.00	978.13	987.83	9.70	987.83	992.68	0.009876	17.67	17.67	135.79	61.38	1.00	5.98		

HEC-RAS Plan: PrCondSSFISDesgn River: SippoCreek Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Hydr Depth C	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Vel Total	Flow Area	Top Width	Froude # Chl	Shear Chan	Shear LOB	Shear ROB
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)	(lb/sq ft)	(lb/sq ft)
Main	5251.314	Q500 2650 cfs	2650.00	978.13	988.49	10.36	988.49	993.67	0.009679	18.28	18.28	144.98	65.82	1.00	6.26		
Main	5251.314	3000 cfs	3000.00	978.13	989.35	11.22	989.35	995.01	0.009487	19.09	19.09	157.13	72.82	1.00	6.65		
Main	5251.314	3500 cfs	3500.00	978.13	990.59	12.46	990.59	996.84	0.009109	20.06	20.06	174.47	86.73	1.00	7.09		
Main	5251.314	5227 cfs	5227.00	978.13	994.39	16.26	994.39	1002.58	0.008362	22.95	22.95	227.71	130.62	1.00	8.49		
Main	5251.314	5346 cfs	5346.00	978.13	994.64	16.51	994.64	1002.95	0.008314	23.12	23.12	231.21	133.42	1.00	8.57		
Main	5251.314	0.5 PMF 11457 cf	11457.00	978.13	1012.66	27.97	1012.66	1014.63	0.001718	14.16	5.07	2260.07	516.90	0.47	2.77	0.41	0.32
Main	5251.314	15000 cfs	15000.00	978.13	1013.41	28.72	1013.41	1015.72	0.002150	16.12	5.64	2658.74	551.74	0.53	3.56	0.59	0.46
Main	5251.314	0.75 PMF 21100 c	21100.00	978.13	1014.94	30.25	1014.94	1017.13	0.002285	17.20	5.94	3555.02	619.04	0.55	3.98	0.76	0.64
Main	5251.314	PMF 31590 cfs	31590.00	978.13	1016.29	31.60	1016.29	1019.01	0.003061	20.50	7.13	4428.98	685.60	0.64	5.57	1.19	0.98
Main	5251.314	Q50 1700 cfs	1700.00	978.13	985.81	7.68	985.81	989.69	0.010773	15.80	15.80	107.57	49.32	1.00	5.17		
Main	5251.314	1300 cfs	1300.00	978.13	984.57	6.44	984.57	987.80	0.011346	14.42	14.42	90.16	42.11	1.00	4.56		
Main	5251.314	2850 cfs	2850.00	978.13	988.98	10.85	988.98	994.45	0.009599	18.77	18.77	151.83	69.52	1.00	6.50		
Main	5207.865	900 cfs	900.00	978.00	981.14	2.67	982.24	984.51	0.046886	15.66	12.09	74.44	48.85	1.69	7.36	1.61	2.47
Main	5207.865	Q10 1100 cfs	1100.00	978.00	981.32	2.85	982.63	985.45	0.053753	17.51	13.18	83.45	51.81	1.83	9.01	2.14	3.18
Main	5207.865	Q100 1980 cfs	1980.00	978.00	981.92	3.45	983.93	989.10	0.077323	23.88	16.79	117.94	61.07	2.27	15.71	4.16	6.43
Main	5207.865	2400 cfs	2400.00	978.00	982.16	3.69	984.33	990.64	0.085742	26.28	18.04	133.01	67.35	2.41	18.61	3.77	8.15
Main	5207.865	Q500 2650 cfs	2650.00	978.00	982.28	3.81	984.54	991.51	0.090453	27.59	18.72	141.58	70.94	2.49	20.30	3.83	9.19
Main	5207.865	3000 cfs	3000.00	978.00	982.44	3.97	984.85	992.69	0.096571	29.31	19.55	153.48	76.74	2.59	22.59	3.95	10.62
Main	5207.865	3500 cfs	3500.00	978.00	982.65	4.18	985.27	994.28	0.104709	31.57	20.57	170.13	84.72	2.72	25.76	4.37	12.63
Main	5207.865	5227 cfs	5227.00	978.00	983.20	4.73	986.37	999.28	0.130710	38.32	23.33	224.08	108.27	3.10	36.41	6.75	19.33
Main	5207.865	5346 cfs	5346.00	978.00	983.23	4.76	986.43	999.60	0.132406	38.74	23.50	227.49	109.26	3.13	37.13	6.98	19.78
Main	5207.865	0.5 PMF 11457 cf	11457.00	978.00	984.71	6.24	988.63	1008.00	0.156038	50.36	27.28	419.93	149.60	3.55	57.34	16.45	33.93
Main	5207.865	15000 cfs	15000.00	978.00	985.48	7.00	989.64	1009.05	0.145844	52.58	27.71	541.35	168.21	3.50	60.15	19.35	36.69
Main	5207.865	0.75 PMF 21100 c	21100.00	978.00	986.54	8.07	991.15	1010.34	0.133024	55.20	28.79	732.78	186.61	3.42	63.23	23.82	39.55
Main	5207.865	PMF 31590 cfs	31590.00	978.00	988.08	9.59	993.45	1012.20	0.116802	58.01	30.79	1025.91	199.74	3.30	65.95	30.30	41.59
Main	5207.865	Q50 1700 cfs	1700.00	978.00	981.75	3.28	983.59	988.00	0.070766	22.09	15.78	107.76	58.60	2.15	13.67	3.74	5.34
Main	5207.865	1300 cfs	1300.00	978.00	981.48	3.01	983.04	986.35	0.059696	19.16	14.07	92.40	55.51	1.95	10.59	2.67	3.77
Main	5207.865	2850 cfs	2850.00	978.00	982.36	3.91	984.72	992.19	0.094008	28.59	19.20	148.40	74.27	2.55	21.61	3.87	10.01
Main	5095.508	900 cfs	900.00	975.80	979.00	3.10	979.61	980.75	0.020095	11.77	7.16	125.66	97.37	1.18	3.86	1.00	1.15
Main	5095.508	Q10 1100 cfs	1100.00	975.80	979.24	3.34	979.94	981.22	0.021429	12.78	7.23	152.14	118.73	1.23	4.46	1.10	1.35
Main	5095.508	Q100 1980 cfs	1980.00	975.80	979.84	3.94	980.80	982.84	0.029612	16.78	8.51	232.62	149.46	1.49	7.28	2.15	2.34
Main	5095.508	2400 cfs	2400.00	975.80	980.03	4.13	981.08	983.52	0.033630	18.46	9.14	262.46	158.16	1.60	8.67	2.69	2.87
Main	5095.508	Q500 2650 cfs	2650.00	975.80	980.13	4.23	981.28	983.89	0.035975	19.39	9.53	277.99	160.67	1.66	9.50	3.03	3.27
Main	5095.508	3000 cfs	3000.00	975.80	980.25	4.35	981.49	984.40	0.039161	20.63	10.06	298.35	163.90	1.74	10.64	3.51	3.83
Main	5095.508	3500 cfs	3500.00	975.80	980.42	4.52	981.80	985.11	0.043552	22.29	10.76	325.14	168.06	1.85	12.28	4.21	4.64
Main	5095.508	5227 cfs	5227.00	975.80	980.88	4.98	982.68	987.32	0.056775	27.18	12.86	406.39	180.41	2.15	17.66	6.58	7.48
Main	5095.508	5346 cfs	5346.00	975.80	980.91	5.01	982.73	987.47	0.057601	27.48	12.99	411.50	181.16	2.16	18.02	6.74	7.67
Main	5095.508	0.5 PMF 11457 cf	11457.00	975.80	982.21	6.31	984.81	992.41	0.077405	37.13	17.15	668.21	212.73	2.61	30.47	13.12	15.37
Main	5095.508	15000 cfs	15000.00	975.80	982.86	6.96	985.72	993.94	0.077908	39.78	18.52	810.00	220.74	2.66	33.85	15.75	18.00
Main	5095.508	0.75 PMF 21100 c	21100.00	975.80	983.88	7.98	987.09	996.10	0.076157	43.07	20.28	1040.49	232.55	2.69	37.91	19.18	21.29
Main	5095.508	PMF 31590 cfs	31590.00	975.80	992.96	17.06	989.15	994.96	0.004901	18.14	9.50	3324.62	270.96	0.77	5.22	3.68	3.04
Main	5095.508	Q50 1700 cfs	1700.00	975.80	979.69	3.79	980.54	982.36	0.026903	15.58	8.08	210.34	142.01	1.41	6.36	1.81	2.01
Main	5095.508	1300 cfs	1300.00	975.80	979.41	3.51	980.19	981.62	0.023282	13.77	7.52	172.95	127.23	1.30	5.10	1.34	1.57
Main	5095.508	2850 cfs	2850.00	975.80	980.20	4.30	981.41	984.18	0.037765	20.10	9.83	289.95	162.57	1.71	10.14	3.30	3.59
Main	4997.530	900 cfs	900.00	974.70	978.54	3.69	978.11	978.94	0.004983	6.59	3.50	256.85	155.98	0.60	1.15	0.42	0.40
Main	4997.530	Q10 1100 cfs	1100.00	974.70	978.83	3.98	978.36	979.25	0.004933	6.90	3.61	304.58	171.87	0.61	1.23	0.47	0.39
Main	4997.530	Q100 1980 cfs	1980.00	974.70	979.88	5.03	979.18	980.32	0.004491	7.69	3.85	513.84	228.64	0.60	1.41	0.60	0.42
Main	4997.530	2400 cfs	2400.00	974.70	980.30	5.45	979.46	980.74	0.004198	7.85	3.91	614.30	241.55	0.59	1.43	0.63	0.49
Main	4997.530	Q500 2650 cfs	2650.00	974.70	980.54	5.69	979.61	980.97	0.004051	7.93	3.95	671.52	246.63	0.59	1.44	0.65	0.52
Main	4997.530	3000 cfs	3000.00	974.70	980.85	6.00	979.83	981.29	0.003862	8.02	4.00	750.32	253.20	0.58	1.45	0.68	0.57
Main	4997.530	3500 cfs	3500.00	974.70	981.27	6.42	980.13	981.70	0.003673	8.18	4.08	857.03	261.83	0.57	1.47	0.71	0.62
Main	4997.530	5227 cfs	5227.00	974.70	982.52	7.67	980.84	982.97	0.003158	8.54	4.36	1199.75	278.99	0.54	1.51	0.80	0.75
Main	4997.530	5346 cfs	5346.00	974.70	982.60	7.75	980.89	983.05	0.003130	8.56	4.38	1221.32	279.27	0.54	1.51	0.81	0.76
Main	4997.530	0.5 PMF 11457 cf	11457.00	974.70	985.93	11.08	982.74	986.49	0.002445	9.61	5.27	2172.16	291.32	0.51	1.69	1.11	1.00
Main	4997.530	15000 cfs	15000.00	974.70	987.51	12.66	983.50	988.14	0.002298	10.18	5.69	2637.25	297.30	0.50	1.82	1.25	1.11
Main	4997.530	0.75 PMF 21100 c	21100.00	974.70	989.91	15.06	984.67	990.65	0.002149	11.05	6.28	3361.13	306.32	0.50	2.02	1.46	1.27
Main	4997.530	PMF 31590 cfs	31590.00	974.70	993.47	18.62		994.38	0.002003	12.29	7.06	4475.82	320.37	0.50	2.33	1.74	1.48
Main	4997.530	Q50 1700 cfs	1700.00	974.70	979.57	4.72	978.96	980.01	0.004645	7.50	3.80	446.82	213.28	0.61	1.37	0.57	0.40
Main	4997.530	1300 cfs	1300.00	974.70	979.09	4.24	978.58	979.52	0.004895	7.16	3.71	350.64	185.88	0.61	1.30	0.51	0.40
Main	4997.530	2850 cfs	2850.00	974.70	980.72	5.87	979.74	981.16	0.003926	7.97	3.97	717.69	250.50	0.58	1.44	0.66	0.55
Main	4873.143	900 cfs	900.00	972.80	977.89	3.89		978.30	0.005288	6.53	3.48	258.42	180.67	0.58	1.15	0.32	0.40
Main	4873.143	Q10 1100 cfs	1100.00	972.80	978.36	4.36		978.67	0.003943	6.08	3.12	352.55	210.69	0.51	0.96	0.29	0.38
Main	4873.143	Q100 1980 cfs	1980.00	972.80	979.55	5.55		979.82	0.002934	6.16	3.24	610.71	223.23	0.46	0.91	0.42	0.47
Main	4873.143	2400 cfs	2400.00	972.80	979.98	5.98		980.27	0.002823	6.36	3.38	709.29	227.93	0.46	0.94	0.48	0.51
Main	4873.143	Q500 2650 cfs	2650.00	972.80	980.22	6.22		980.51	0.002777	6.47	3.47	763.87	228.77	0.46	0.97	0.51	0.54
Main	4873.143	3000 cfs	3000.00	972.80	980.54	6.54		980.84	0.002720	6.62	3.58	837.42	229.72	0.46	0.99	0.55	0.58
Main	4873.143	3500 cfs	3500.00	972.80	980.96	6.96		981.28	0.002686	6.86	3.75	933.19	230.95	0.46	1.04	0.60	0.64
Main	4873.143	5227 cfs	5227.00	972.80	982.20	8.20		982.59	0.002651	7.60	4.27	1222.94	234.58	0.47	1.21	0.78	0.83
Main	4873.143	5346 cfs	5346.00	972.80	982.28	8.28		982.67	0.002654	7.66	4.31	1240.73	234.80	0.47	1.23	0.79	0.84
Main	4873.143	0.5 PMF 11457 cf	11457.00	972.80	985.52	11.52		986.16	0.002740	9.70	5.68	2017.80	244.29	0.50	1.76	1.29	1.38
Main	4873.143	15000 cfs	15000.00	972.80	987.05	13.05		987.81	0.002773	10.60	6.26	2394.40	248.81	0.52	2.02	1.51	1.63
Main	4873.143	0.75 PMF 21100 c	21100.00	972.80	989.37	15.37		990.32	0.002806	11.89	7.08	2978.75	255.63	0.53	2.41	1.85	1.99
Main	4873.143	PMF 31590 cfs	31590.00	972.80	992.80	18.81		994.05	0.002817	13.63	8.15	3874.49	265.56	0.55	2.96	2.30	2.51
Main	4873.143	Q50 1700 cfs	1700.00	972.80	979.23	5.23		979.50	0.003046	6.04	3.15	540.05	219.80	0.47	0.89	0.38	0.44
Main	4873.143	1300 cfs	1300.00	972.80	978.68	4.68		978.97	0.003488	6.00	3.09	421.16	214.00	0.49	0.91	0.32	0.40
Main	4873.143	2850 cfs	2850.00	972.80	980.41	6.41		980.71	0.002731	6.55	3.53	807.53	229.33	0.46	0.98	0.53	0.57
Main	4770.454	900 cfs	900.00	972.00	977.07	4.76	976.79	977.76	0.004866	7.55	4.40	204.32	126.43	0.61	1.40	0.39	0.30
Main	4770.454	Q10 1100 cfs	1100.00	972.00	977.15	4.84	977.15	978.09	0.006661	8.93	5.14	214.14	129.42	0.72	1.95	0.55	0.43
Main	4770.454	Q100 1980 cfs	1980.00	972.00	978.17	5.86	978.17	979.29	0.007310	10.63	5.50	360.22	154.52	0.77	2.59	0.87	0.82
Main	4770.454	2400 cfs	2400.00	972.00	978.52	6.20	978.52	979.73	0.007723	11.35	5.79	414.72	160.40	0.80	2.90	1.06	0.99
Main	4770.454	Q500 2650 cfs	2650.00	972.00	978.71	6.39	978.71	979.97	0.007953	11.75	5.96	444.83	162.70	0.82	3.07	1.17	1.09
Main	4770.454	3000 cfs	3000.00	972.00	978.93	6.61	978.93	980.29	0.008407	12.36	6.23	481.29	165.43	0.85	3.36	1.33	1.24
Main	4770.454	3500 cfs	3500.00	972.00	979.26	6.95	979.26	980.71	0.008710	13.00	6.52	537.13	169.54	0.87	3.66	1.53	1.43
Main	4770.454	5227 cfs	5227.00	972.00	980.21	7.89	980.21	981.98	0.009754	14.98	7.44	702.88	179.28	0.94	4.65	2.17	2.05
Main	4770.454	5346 cfs	5346.00	972.00	980.27	7.95	980.27	982.06	0.009801	15.09	7.49	713.55	179.46	0.94	4.71	2.21	2.10
Main	4770.454	0.5 PMF 11457 cf	11457.00	972.00	982.65	10.34	982.65	985.43	0.011933	19.84	9.96	1150.67	186.72	1.09	7.46	4.00	4.21
Main	4770.454	15000 cfs	15000.00	972.00	983.78	11.47	983.78	987.04	0.012527	21.78	11.00	1363.68	189.84	1.13	8.68	4.81	5.24
Main	4770.454	0.75 PMF 21100 c	21100.00	972.00	985.51	13.19	985.51	989.48	0.013132	24.48	12.45	1694.86	194.67	1.19	10.47	5.96	6.76
Main	4770.454	PMF 31590 cfs	31590.00	972.00	988.00	15.69	988.00	993.12	0.013874	28.25	14.43	2189.28	201.96	1.26	13.15	7.66	9.02
Main	4770.454	Q50 1700 cfs	1700.00	972.00	977.88	5.57	977.88	978.96	0.007211	10.21	5.38	316.17	148.61	0.76	2.43	0.76	0.71
Main	4770.454	1300 cfs	1300.00	972.00	977.43	5.11	977.43	978.41	0.006816	9.38	5.18	251.08	137.04	0.73	2.11	0.62	0.53
Main	4770.454	2850 cfs	2850.00	972.00	978.82	6.50	978.82	980.15	0.008340	12.17	6.15	463.11	164.08	0.84	3.28	1.28	1.19
Main	4694.740	900 cfs	900.00	971.00	975.54	4.04	975.36	977.12	0.012339	10.96	8.24	109.18	48.11	0.96	3.09	1.01	0.93
Main	4694.740	Q10 1100 cfs	1100.00	971.00	976.38	4.88	976.63	977.53	0.007716	9.84	5.59	196.95	145.92	0.78	2.34	0.85	0.31
Main	4694.740	Q100 1980 cfs	1980.00	971.00	977.24	5.74	977.50	978.64	0.009283	12.01	6.05	327.24	160.39	0.88	3.30	1.34	0.80
Main	4694.740	2400 cfs	2400.00	971.00	977.58	6.08	977.85	979.06	0.009582	12.69	6.26	383.63	166.84	0.91	3.61	1.49	1.00
Main	4694.740	Q500 2650 cfs	2650.00	971.00	977.77	6.27	978.07	979.28	0.009746	13.06	6.38	415.11	170.35	0.92	3.78	1.57	1.11
Main	4694.740	3000 cfs	3000.00	971.00	978.01	6.51	978.29	979.58	0.009982	13.55	6.57	456.65	174.76	0.94	4.03	1.69	1.26
Main	4694.740	3500 cfs	3500.00	971.00	978.29	6.79	978.57	979.97	0.010477	14.28	6.92	505.45	175.84	0.97	4.41	1.92	1.50
Main	4694.740	5227 cfs	5227.00	971.00	979.11	7.61	979.42	981.14	0.011860	16.39	8.03	651.22	179.05	1.05	5.59	2.63	2.27
Main	4694.740	5346 cfs	5346.00	971.00	979.16	7.66	979.47	981.22	0.011921	16.51	8.09	660.73	179.25	1.05	5.66	2.67	2.32
Main	4694.740	0.5 PMF 11457 cf	11457.00	971.00	981.91	10.41	981.75	984.37	0.010743	19.23	9.81	1168.05	189.11	1.05	6.93	3.89	3.82

HEC-RAS Plan: PrCondSSFISDesgn River: SippoCreek Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Hydr Depth C	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Vel Total	Flow Area	Top Width	Froude # Chl	Shear Chan	Shear LOB	Shear ROB
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)	(lb/sq ft)	(lb/sq ft)
Main	4694.740	10000 cfs	10000.00	971.00	983.20	11.70	982.82	985.93	0.010488	20.53	10.61	1413.31	192.49	1.06	7.60	4.22	4.50
Main	4694.740	0.75 PMF 21100 c	21100.00	971.00	985.19	13.69	984.41	988.34	0.010068	22.34	11.71	1801.84	198.22	1.06	8.54	4.89	5.44
Main	4694.740	PMF 31590 cfs	31590.00	971.00	987.83	16.33	986.83	991.85	0.010419	25.56	13.53	2335.50	206.33	1.11	10.54	6.12	7.11
Main	4694.740	Q50 1700 cfs	1700.00	971.00	977.00	5.50	977.26	978.33	0.008881	11.42	5.87	289.63	156.26	0.86	3.03	1.20	0.86
Main	4694.740	1300 cfs	1300.00	971.00	976.61	5.11	976.87	977.83	0.008162	10.43	5.64	230.40	149.73	0.81	2.58	0.98	0.43
Main	4694.740	2850 cfs	2850.00	971.00	977.92	6.42	978.20	979.45	0.009774	13.29	6.46	441.23	173.20	0.92	3.89	1.63	1.19
Main	4565.850	900 cfs	900.00	970.30	974.89	4.20	974.89	975.75	0.006704	8.18	5.18	173.71	114.64	0.70	1.71	0.32	0.39
Main	4565.850	Q10 1100 cfs	1100.00	970.30	974.75	4.06	975.20	976.26	0.011942	10.68	6.95	158.22	111.69	0.93	2.95	0.54	0.59
Main	4565.850	Q100 1980 cfs	1980.00	970.30	975.83	5.14	976.17	977.35	0.010785	11.67	6.81	290.85	137.05	0.92	3.37	0.79	1.18
Main	4565.850	2400 cfs	2400.00	970.30	976.22	5.53	976.52	977.76	0.010558	12.34	6.91	347.35	149.07	0.92	3.55	0.91	1.32
Main	4565.850	Q500 2650 cfs	2650.00	970.30	976.44	5.75	976.70	977.99	0.010386	12.56	6.97	380.42	153.53	0.92	3.63	0.97	1.41
Main	4565.850	3000 cfs	3000.00	970.30	976.72	6.04	976.93	978.29	0.010215	12.86	7.06	424.70	159.30	0.92	3.74	1.05	1.53
Main	4565.850	3500 cfs	3500.00	970.30	977.26	6.58	977.26	978.67	0.008666	12.54	6.80	514.35	169.65	0.86	3.48	1.06	1.53
Main	4565.850	5227 cfs	5227.00	970.30	978.21	7.52	978.21	979.84	0.009193	14.13	7.65	683.25	192.19	0.91	4.20	1.35	2.02
Main	4565.850	5346 cfs	5346.00	970.30	978.27	7.58	978.27	979.91	0.009214	14.22	7.70	694.56	193.29	0.91	4.24	1.37	2.04
Main	4565.850	0.5 PMF 11457 cf	11457.00	970.30	981.13	10.45		983.00	0.007960	16.36	8.70	1317.34	234.15	0.89	5.05	2.13	2.71
Main	4565.850	15000 cfs	15000.00	970.30	982.70	12.01		984.57	0.006953	16.79	8.86	1692.83	245.87	0.85	5.07	2.41	2.76
Main	4565.850	0.75 PMF 21100 c	21100.00	970.30	984.97	14.29		986.97	0.006173	17.76	9.29	2270.70	260.40	0.83	5.35	2.85	2.93
Main	4565.850	PMF 31590 cfs	31590.00	970.30	987.94	17.25		990.34	0.006032	19.90	10.32	3060.28	272.87	0.84	6.32	3.71	3.46
Main	4565.850	Q50 1700 cfs	1700.00	970.30	975.53	4.84	975.88	977.04	0.011074	11.56	6.77	251.17	127.86	0.93	3.25	0.72	1.07
Main	4565.850	1300 cfs	1300.00	970.30	975.04	4.35	975.45	976.55	0.011602	11.02	6.81	190.95	117.71	0.93	3.06	0.60	0.78
Main	4565.850	2850 cfs	2850.00	970.30	976.60	5.91	976.81	978.16	0.010308	12.74	7.03	405.52	156.83	0.92	3.70	1.02	1.49
Main	4407.253	900 cfs	900.00	969.40	973.91	4.50	972.58	974.18	0.002509	5.30	3.09	290.91	113.28	0.44	0.70	0.28	0.34
Main	4407.253	Q10 1100 cfs	1100.00	969.40	974.14	4.73	972.88	974.49	0.003099	6.08	3.42	321.69	149.39	0.49	0.90	0.12	0.45
Main	4407.253	Q100 1980 cfs	1980.00	969.40	975.04	5.63	973.82	975.54	0.003959	7.72	4.28	462.71	164.06	0.57	1.37	0.32	0.77
Main	4407.253	2400 cfs	2400.00	969.40	975.39	5.98	973.83	975.95	0.004234	8.31	4.61	520.80	169.97	0.60	1.56	0.40	0.90
Main	4407.253	Q500 2650 cfs	2650.00	969.40	975.58	6.17	974.72	976.18	0.004354	8.61	4.78	554.33	173.39	0.61	1.66	0.45	0.97
Main	4407.253	3000 cfs	3000.00	969.40	975.81	6.40	974.94	976.46	0.004614	9.08	5.05	594.29	177.38	0.63	1.82	0.51	1.08
Main	4407.253	3500 cfs	3500.00	969.40	976.16	6.75	975.25	976.87	0.004766	9.56	5.32	657.44	182.85	0.65	1.98	0.60	1.20
Main	4407.253	5227 cfs	5227.00	969.40	977.98	8.57	976.14	978.59	0.003255	9.26	5.16	1012.40	208.60	0.56	1.72	0.66	1.10
Main	4407.253	5346 cfs	5346.00	969.40	978.14	8.73	976.19	978.74	0.003104	9.16	5.10	1047.38	210.96	0.55	1.67	0.65	1.07
Main	4407.253	0.5 PMF 11457 cf	11457.00	969.40	980.87	11.46		981.90	0.004020	12.50	6.87	1667.68	243.18	0.65	2.84	1.34	1.83
Main	4407.253	15000 cfs	15000.00	969.40	982.40	12.99		983.55	0.003939	13.45	7.30	2053.72	264.35	0.66	3.16	1.60	1.94
Main	4407.253	0.75 PMF 21100 c	21100.00	969.40	984.70	15.29		986.01	0.003812	14.75	7.76	2719.32	310.00	0.66	3.59	1.91	1.99
Main	4407.253	PMF 31590 cfs	31590.00	969.40	988.02	18.61		989.51	0.003614	16.37	8.27	3820.20	354.03	0.67	4.15	2.29	2.32
Main	4407.253	Q50 1700 cfs	1700.00	969.40	974.78	5.37	973.64	975.24	0.003748	7.28	4.04	420.56	159.82	0.55	1.24	0.26	0.68
Main	4407.253	1300 cfs	1300.00	969.40	974.36	4.95	973.13	974.75	0.003398	6.56	3.67	354.44	152.93	0.52	1.04	0.16	0.54
Main	4407.253	2850 cfs	2850.00	969.40	975.72	6.31	974.84	976.35	0.004499	8.88	4.93	577.69	175.74	0.62	1.75	0.49	1.03
Main	4211.037	900 cfs	900.00	968.40	973.02	3.87	972.88	973.54	0.005185	6.90	3.88	231.98	173.30	0.62	1.24	0.33	0.31
Main	4211.037	Q10 1100 cfs	1100.00	968.40	973.36	4.21	973.11	973.83	0.004609	6.88	3.76	292.53	186.56	0.59	1.20	0.33	0.35
Main	4211.037	Q100 1980 cfs	1980.00	968.40	974.52	5.37	973.82	974.89	0.003303	6.85	3.69	536.97	226.29	0.52	1.10	0.32	0.45
Main	4211.037	2400 cfs	2400.00	968.40	974.91	5.76		975.29	0.003127	6.98	3.83	626.15	229.13	0.51	1.11	0.37	0.49
Main	4211.037	Q500 2650 cfs	2650.00	968.40	975.13	5.98		975.51	0.003051	7.07	3.92	675.87	230.73	0.51	1.13	0.40	0.52
Main	4211.037	3000 cfs	3000.00	968.40	975.35	6.20		975.75	0.003157	7.37	4.13	726.88	232.36	0.52	1.21	0.45	0.58
Main	4211.037	3500 cfs	3500.00	968.40	975.73	6.58		976.15	0.003039	7.53	4.28	817.04	235.21	0.52	1.24	0.50	0.62
Main	4211.037	5227 cfs	5227.00	968.40	977.82	8.67		978.13	0.001595	6.55	3.96	1321.31	248.47	0.39	0.86	0.43	0.51
Main	4211.037	5346 cfs	5346.00	968.40	978.00	8.85		978.30	0.001508	6.46	3.91	1366.16	249.61	0.38	0.83	0.42	0.50
Main	4211.037	0.5 PMF 11457 cf	11457.00	968.40	980.74	11.59		981.30	0.001970	8.84	5.52	2076.70	275.72	0.46	1.41	0.80	0.89
Main	4211.037	15000 cfs	15000.00	968.40	982.31	13.16		982.95	0.001927	9.51	5.92	2532.56	302.99	0.46	1.57	0.92	0.95
Main	4211.037	0.75 PMF 21100 c	21100.00	968.40	984.65	15.50		985.40	0.001874	10.46	6.47	3262.51	320.84	0.47	1.80	1.08	1.14
Main	4211.037	PMF 31590 cfs	31590.00	968.40	987.98	18.83		988.92	0.001852	11.84	7.23	4372.29	345.17	0.48	2.16	1.32	1.41
Main	4211.037	Q50 1700 cfs	1700.00	968.40	974.20	5.05	973.61	974.59	0.003622	6.88	3.66	464.45	224.12	0.54	1.13	0.28	0.42
Main	4211.037	1300 cfs	1300.00	968.40	973.69	4.54	973.28	974.11	0.004057	6.78	3.65	355.85	199.49	0.56	1.14	0.32	0.37
Main	4211.037	2850 cfs	2850.00	968.40	975.26	6.11		975.65	0.003102	7.23	4.04	706.20	231.70	0.52	1.17	0.43	0.55
Main	4069.035	900 cfs	900.00	967.70	971.69	3.92	971.69	972.64	0.008230	8.81	5.44	165.51	100.50	0.78	2.01	0.87	0.48
Main	4069.035	Q10 1100 cfs	1100.00	967.70	972.12	4.36	972.12	973.03	0.007347	8.93	5.14	213.98	122.30	0.75	1.99	0.86	0.51
Main	4069.035	Q100 1980 cfs	1980.00	967.70	973.09	5.32	973.09	974.20	0.008126	10.73	5.68	348.32	156.76	0.82	2.69	1.11	0.85
Main	4069.035	2400 cfs	2400.00	967.70	973.49	5.73	973.49	974.63	0.007919	11.12	5.78	414.93	169.60	0.82	2.82	1.15	0.95
Main	4069.035	Q500 2650 cfs	2650.00	967.70	973.69	5.92	973.69	974.85	0.008010	11.43	5.92	447.86	174.49	0.83	2.95	1.20	1.03
Main	4069.035	3000 cfs	3000.00	967.70	974.21	6.44		975.17	0.006288	10.72	5.54	541.77	184.51	0.74	2.52	1.03	0.97
Main	4069.035	3500 cfs	3500.00	967.70	974.84	7.08		975.65	0.004904	10.08	5.29	661.26	190.67	0.67	2.16	0.89	0.93
Main	4069.035	5227 cfs	5227.00	967.70	977.42	9.66		977.90	0.002066	8.04	4.42	1183.75	214.10	0.46	1.24	0.54	0.69
Main	4069.035	5346 cfs	5346.00	967.70	977.62	9.86		978.08	0.001951	7.92	4.38	1226.57	215.85	0.44	1.20	0.52	0.67
Main	4069.035	0.5 PMF 11457 cf	11457.00	967.70	979.99	12.23		980.97	0.003163	11.65	6.51	1758.70	232.29	0.59	2.41	1.14	1.48
Main	4069.035	15000 cfs	15000.00	967.70	981.50	13.73		982.62	0.003179	12.62	7.02	2137.95	264.73	0.60	2.72	1.39	1.53
Main	4069.035	0.75 PMF 21100 c	21100.00	967.70	983.76	16.00		985.07	0.003145	13.90	7.64	2763.11	284.88	0.61	3.13	1.69	1.81
Main	4069.035	PMF 31590 cfs	31590.00	967.70	986.97	19.21		988.58	0.003157	15.73	8.50	3717.76	309.14	0.63	3.78	2.13	2.27
Main	4069.035	Q50 1700 cfs	1700.00	967.70	972.82	5.08	972.82	973.88	0.007884	10.22	5.51	308.46	147.23	0.80	2.48	1.03	0.75
Main	4069.035	1300 cfs	1300.00	967.70	972.35	4.59	972.35	973.35	0.007834	9.54	5.36	242.46	129.86	0.78	2.24	0.95	0.61
Main	4069.035	2850 cfs	2850.00	967.70	973.99	6.22	973.83	975.04	0.007010	11.05	5.68	501.37	182.15	0.78	2.71	1.11	0.99
Main	3956.761	900 cfs	900.00	967.00	971.05	4.05	969.90	971.30	0.002859	5.32	2.85	315.28	130.26	0.47	0.72	0.39	0.37
Main	3956.761	Q10 1100 cfs	1100.00	967.00	971.47	4.47	970.14	971.74	0.002783	5.60	2.97	370.93	138.48	0.47	0.78	0.42	0.41
Main	3956.761	Q100 1980 cfs	1980.00	967.00	972.69	5.89	971.07	973.22	0.002622	6.53	3.38	585.38	159.97	0.47	0.96	0.55	0.54
Main	3956.761	2400 cfs	2400.00	967.00	973.46	6.46	971.43	973.82	0.002563	6.87	3.54	678.36	166.96	0.48	1.03	0.61	0.59
Main	3956.761	Q500 2650 cfs	2650.00	967.00	973.76	6.78	971.61	974.15	0.002529	7.04	3.62	732.34	170.94	0.48	1.07	0.64	0.61
Main	3956.761	3000 cfs	3000.00	967.00	974.20	7.20		974.59	0.002474	7.25	3.73	805.21	174.74	0.48	1.11	0.67	0.65
Main	3956.761	3500 cfs	3500.00	967.00	974.76	7.76		975.17	0.002389	7.49	3.87	904.42	177.76	0.47	1.16	0.70	0.70
Main	3956.761	5227 cfs	5227.00	967.00	977.31	10.31		977.67	0.001503	7.18	3.80	1375.04	191.83	0.39	0.97	0.60	0.64
Main	3956.761	5346 cfs	5346.00	967.00	977.52	10.52		977.87	0.001445	7.14	3.78	1413.74	192.75	0.39	0.95	0.58	0.63
Main	3956.761	0.5 PMF 11457 cf	11457.00	967.00	979.71	12.71		980.62	0.002963	11.59	6.18	1853.82	209.77	0.57	2.35	1.43	1.56
Main	3956.761	15000 cfs	15000.00	967.00	981.12	14.12		982.26	0.003288	13.10	6.95	2159.40	224.85	0.61	2.90	1.70	1.89
Main	3956.761	0.75 PMF 21100 c	21100.00	967.00	983.16	16.16		984.68	0.003737	15.28	7.99	2639.80	244.92	0.67	3.77	2.12	2.44
Main	3956.761	PMF 31590 cfs	31590.00	967.00	986.03	19.03		988.13	0.004294	18.26	9.34	3380.65	271.34	0.74	5.10	2.74	3.28
Main	3956.761	Q50 1700 cfs	1700.00	967.00	972.49	5.49	970.79	972.80	0.002659	6.27	3.26	521.61	155.00	0.47	0.91	0.51	0.50
Main	3956.761	1300 cfs	1300.00	967.00	971.84	4.84	970.39	972.13	0.002729	5.85	3.06	424.26	145.90	0.47	0.82	0.45	0.44
Main	3956.761	2850 cfs	2850.00	967.00	974.02	7.02		974.41	0.002505	7.18	3.68	774.33	173.79	0.48	1.10	0.66	0.63
Main	3844.176	900 cfs	900.00	966.25	969.63	3.36	969.55	970.66	0.011643	9.47	5.65	159.42	80.75	0.91	2.44	1.18	1.03
Main	3844.176	Q10 1100 cfs	1100.00	966.25	970.06	3.80	969.94	971.12	0.010564	9.78	5.60	196.57	90.38	0.88	2.50	1.22	1.05
Main	3844.176	Q100 1980 cfs	1980.00	966.25	971.53	5.27	971.20	972.67	0.008369	10.83	5.62	352.21	120.49	0.83	2.75	1.44	1.18
Main	3844.176	2400 cfs	2400.00	966.25	972.17	5.91	971.64	973.29	0.007445	11.03	5.54	433.47	134.34	0.80	2.75	1.46	1.17
Main	3844.176	Q500 2650 cfs	2650.00	966.25	972.52	6.26	971.85	973.64	0.007059	11.16	5.50	482.00	143.04	0.79	2.76	1.51	1.15
Main	3844.176	3000 cfs	3000.00	966.25	973.01	6.74	972.19	974.10	0.006483	11.24	5.41	554.15	155.07	0.76	2.73	1.54	1.12
Main	3844.176	3500 cfs	3500.00	966.25	973.68	7.42	972.68	974.72	0.005684	11.21	5.27	664.56	171.45	0.73	2.63	1.54	1.07
Main	3844.176	5227 cfs	5227.00	966.25	976.96	10.70	974.16	977.47	0.001996	8.48	4.12	1269.89	194.04	0.46	1.33	0.83	0.71
Main	3844.176	5346 cfs	5346.00	966.25	977.18	10.92	974.23	977.67	0.001895	8.38	4.07	1312.82	195.38	0.45	1.29	0.81	0.70
Main	3844.176	0.5 PMF 11457 cf	11457.00	966.25	978.80	12.53		980.17	0.004590	14.29	7.00	1636.23	205.84	0.71	3.59	2.25	2.04
Main	3844.176	15000 cfs	15000.00	966.25	980.06	13.79		981.76	0.005105	16.07	7.89	1901.34	214.35	0.76	4.40	2.74	2.57
Main	3844.176	0.75 PMF 21100 c	21100.00	966.25	981.82	15.56		984.10	0.005948	18.79	9.21	2292.09	228.84	0.84	5.78	3.56	3.41
Main	3844.176	PMF 31590 cfs	31590.00	966.25	984.10	17.83	981.93	987.40	0.007435	23.01	11.13	2837.47	251.37	0.96	8.28	4.86	4.90
Main	3844.176	Q50 1700 cfs	1700.00	966.25	971.11	4.85	970.87	972.23	0.008874	10.55	5.60	303.43	112.15	0.84	2.69	1.39	1.14
Main	3844.176	1300 cfs	1300.00	966.25	970.43	4.17	970.26	971.52	0.010011	10.13	5.62	231.33	98.45	0.87	2.60	1.31	1.06
Main	3844.176	2850 cfs	2850.00	966.25	972.80	6.54	972.03	973.91	0.006727	11.21	5.45	522.80	149.96	0.77	2.74	1.53	1.13

HEC-RAS Plan: PrCondSSFISDesgn River: SippoCreek Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Hydr Depth C	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Vel Total	Flow Area	Top Width	Froude # Chl	Shear Chan	Shear LOB	Shear ROB
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)	(lb/sq ft)	(lb/sq ft)
Main	3765.976	900 cfs	900.00	965.45	968.79	3.29	968.67	969.75	0.011056	9.08	6.29	143.11	64.76	0.88	2.27	1.21	1.02
Main	3765.976	Q10 1100 cfs	1100.00	965.45	969.00	3.50	969.00	970.19	0.012834	10.20	7.01	156.99	66.37	0.96	2.80	1.52	1.29
Main	3765.976	Q100 1980 cfs	1980.00	965.45	970.23	4.73	970.23	971.83	0.012409	12.26	8.11	244.07	75.18	0.99	3.66	2.14	1.80
Main	3765.976	2400 cfs	2400.00	965.45	970.68	5.18	970.68	972.46	0.012607	13.13	8.62	278.51	77.66	1.02	4.07	2.44	2.03
Main	3765.976	Q500 2650 cfs	2650.00	965.45	970.95	5.45	970.95	972.84	0.012500	13.53	8.84	299.87	79.16	1.02	4.25	2.58	2.14
Main	3765.976	3000 cfs	3000.00	965.45	971.32	5.81	971.32	973.33	0.012380	14.05	9.12	328.83	81.12	1.03	4.48	2.76	2.27
Main	3765.976	3500 cfs	3500.00	965.45	971.78	6.28	971.78	973.97	0.012374	14.79	9.53	367.16	83.54	1.04	4.84	3.02	2.48
Main	3765.976	5227 cfs	5227.00	965.45	971.80	6.30	971.80	976.65	0.027236	21.98	14.17	368.89	83.65	1.54	10.69	6.67	5.48
Main	3765.976	5346 cfs	5346.00	965.45	971.82	6.32	971.82	976.84	0.028154	22.40	14.43	370.46	83.75	1.57	11.08	6.92	5.68
Main	3765.976	0.5 PMF 11457 cf	11457.00	965.45	976.90	11.39	976.90	979.56	0.008889	18.64	9.66	1186.14	196.37	0.97	6.31	4.04	2.44
Main	3765.976	15000 cfs	15000.00	965.45	977.99	12.49	977.99	981.09	0.009575	20.57	10.68	1404.00	202.18	1.03	7.45	4.73	3.20
Main	3765.976	0.75 PMF 21100 c	21100.00	965.45	979.82	14.32	979.68	983.38	0.009645	22.62	11.83	1784.03	212.28	1.05	8.61	5.41	4.16
Main	3765.976	PMF 31590 cfs	31590.00	965.45	983.14	17.64	982.08	986.77	0.007818	23.40	12.54	2519.38	231.14	0.98	8.59	5.23	4.68
Main	3765.976	Q50 1700 cfs	1700.00	965.45	969.85	4.35	969.85	971.36	0.012891	11.81	7.88	215.62	72.77	1.00	3.49	2.00	1.69
Main	3765.976	1300 cfs	1300.00	965.45	969.29	3.79	969.29	970.61	0.013036	10.84	7.37	176.43	68.56	0.98	3.08	1.71	1.45
Main	3765.976	2650 cfs	2850.00	965.45	971.16	5.66	971.16	973.12	0.012423	13.83	9.00	316.60	80.31	1.02	4.38	2.69	2.21
Main	3588.168	900 cfs	900.00	963.40	967.06	3.59	965.91	967.94	0.010018	9.05	4.83	186.18	130.86	0.84	2.20	0.65	0.81
Main	3588.168	Q10 1100 cfs	1100.00	963.40	967.34	3.87	967.43	968.22	0.009791	9.40	4.93	223.13	135.48	0.84	2.31	0.78	0.86
Main	3588.168	Q100 1980 cfs	1980.00	963.40	968.61	5.15	968.22	969.33	0.008630	9.35	4.87	406.93	150.01	0.73	2.08	0.98	0.75
Main	3588.168	2400 cfs	2400.00	963.40	969.10	5.64	968.54	969.81	0.008055	9.50	4.98	481.54	153.40	0.70	2.08	1.06	0.75
Main	3588.168	Q500 2650 cfs	2650.00	963.40	969.38	5.91	968.71	970.09	0.007805	9.60	5.06	523.79	155.26	0.70	2.10	1.10	0.75
Main	3588.168	3000 cfs	3000.00	963.40	969.75	6.28	968.92	970.46	0.005494	9.73	5.15	582.02	157.77	0.68	2.11	1.15	0.76
Main	3588.168	3500 cfs	3500.00	963.40	970.24	6.77	969.19	970.97	0.005183	9.93	5.31	659.64	160.31	0.67	2.14	1.23	0.77
Main	3588.168	5227 cfs	5227.00	963.40	971.74	8.27	970.11	972.53	0.004496	10.57	5.78	904.24	165.91	0.65	2.27	1.44	0.84
Main	3588.168	5346 cfs	5346.00	963.40	971.83	8.37	970.17	972.63	0.004462	10.61	5.81	920.20	166.26	0.65	2.28	1.46	0.84
Main	3588.168	0.5 PMF 11457 cf	11457.00	963.40	976.01	12.54	972.52	977.06	0.003553	12.40	6.96	1645.69	181.19	0.62	2.72	1.96	1.03
Main	3588.168	15000 cfs	15000.00	963.40	977.95	14.48	973.66	979.15	0.003379	13.31	7.48	2004.55	188.19	0.62	2.99	2.20	1.14
Main	3588.168	0.75 PMF 21100 c	21100.00	963.40	980.30	16.83		981.87	0.003696	15.39	8.59	2457.75	198.88	0.66	3.80	2.81	1.44
Main	3588.168	PMF 31590 cfs	31590.00	963.40	983.17	19.70		985.44	0.004364	18.57	10.36	3048.83	216.23	0.74	5.25	3.70	1.99
Main	3588.168	Q50 1700 cfs	1700.00	963.40	966.25	4.78	966.01	968.99	0.007245	9.31	4.82	353.01	147.49	0.75	2.12	0.92	0.78
Main	3588.168	1300 cfs	1300.00	963.40	967.68	4.22	967.64	968.48	0.008485	9.26	4.80	270.91	141.16	0.80	2.18	0.82	0.81
Main	3588.168	2850 cfs	2850.00	963.40	969.59	6.13	968.83	970.30	0.005611	9.67	5.11	557.55	156.72	0.69	2.10	1.13	0.75
Main	3402.445	900 cfs	900.00	961.80	966.19	4.34		966.75	0.004875	7.27	3.84	234.35	119.58	0.61	1.32	0.43	0.61
Main	3402.445	Q10 1100 cfs	1100.00	961.80	966.60	4.75	966.11	967.14	0.004542	7.44	3.88	283.49	123.39	0.60	1.35	0.50	0.63
Main	3402.445	Q100 1980 cfs	1980.00	961.80	967.91	6.06		968.53	0.004265	8.49	4.36	453.83	135.80	0.61	1.61	0.77	0.77
Main	3402.445	2400 cfs	2400.00	961.80	968.42	6.57		969.07	0.004202	8.89	4.58	524.18	139.26	0.61	1.72	0.87	0.83
Main	3402.445	Q500 2650 cfs	2650.00	961.80	968.70	6.85		969.38	0.004179	9.12	4.70	563.52	140.98	0.61	1.79	0.93	0.86
Main	3402.445	3000 cfs	3000.00	961.80	969.09	7.24		969.79	0.004123	9.39	4.85	618.16	143.30	0.62	1.86	1.01	0.90
Main	3402.445	3500 cfs	3500.00	961.80	969.55	7.70		970.31	0.004184	9.87	5.11	684.90	146.05	0.63	2.02	1.13	0.98
Main	3402.445	5227 cfs	5227.00	961.80	970.98	9.13		971.91	0.004277	11.17	5.81	900.35	154.25	0.65	2.44	1.48	1.20
Main	3402.445	5346 cfs	5346.00	961.80	971.08	9.23		972.02	0.004273	11.24	5.84	914.86	154.77	0.65	2.46	1.50	1.21
Main	3402.445	0.5 PMF 11457 cf	11457.00	961.80	975.19	13.34		976.52	0.003978	13.87	7.18	1594.84	174.73	0.67	3.31	2.23	1.73
Main	3402.445	15000 cfs	15000.00	961.80	977.07	15.22		978.62	0.003991	15.17	7.76	1932.83	184.49	0.69	3.79	2.54	2.04
Main	3402.445	0.75 PMF 21100 c	21100.00	961.80	979.23	17.38		981.29	0.004484	17.57	9.03	2335.73	187.83	0.74	4.86	3.39	2.67
Main	3402.445	PMF 31590 cfs	31590.00	961.80	981.86	20.01		984.74	0.005460	21.30	10.67	2959.32	274.08	0.84	6.82	3.14	3.77
Main	3402.445	Q50 1700 cfs	1700.00	961.80	967.54	5.69		968.13	0.004297	8.17	4.21	403.97	132.18	0.60	1.53	0.69	0.73
Main	3402.445	1300 cfs	1300.00	961.80	966.94	5.09		967.49	0.004416	7.69	3.98	326.39	126.63	0.60	1.40	0.57	0.66
Main	3402.445	2850 cfs	2850.00	961.80	968.93	7.08		969.62	0.004137	9.27	4.79	595.48	142.37	0.61	1.83	0.98	0.88
Main	3205.869	900 cfs	900.00	961.00	965.69	4.69		966.00	0.002643	5.63	2.95	304.92	117.18	0.46	0.77	0.29	0.40
Main	3205.869	Q10 1100 cfs	1100.00	961.00	966.04	5.04		966.40	0.002912	6.20	3.17	346.75	124.49	0.49	0.92	0.34	0.48
Main	3205.869	Q100 1980 cfs	1980.00	961.00	967.17	6.17		967.75	0.003855	8.16	4.02	492.45	133.16	0.58	1.48	0.64	0.84
Main	3205.869	2400 cfs	2400.00	961.00	967.58	6.58		968.27	0.004272	8.98	4.38	548.21	136.33	0.62	1.76	0.78	1.01
Main	3205.869	Q500 2650 cfs	2650.00	961.00	967.79	6.79		968.55	0.004558	9.46	4.60	576.63	137.97	0.64	1.93	0.87	1.12
Main	3205.869	3000 cfs	3000.00	961.00	968.10	7.10		968.94	0.004813	10.02	4.84	620.18	140.25	0.66	2.13	0.97	1.24
Main	3205.869	3500 cfs	3500.00	961.00	968.38	7.38		969.38	0.005562	11.05	5.31	658.97	141.85	0.72	2.56	1.19	1.51
Main	3205.869	5227 cfs	5227.00	961.00	969.09	8.09		970.75	0.008367	14.41	6.86	761.85	145.98	0.89	4.23	2.02	2.53
Main	3205.869	5346 cfs	5346.00	961.00	969.14	8.14		970.84	0.008545	14.62	6.96	768.58	146.24	0.90	4.34	2.08	2.60
Main	3205.869	0.5 PMF 11457 cf	11457.00	961.00	971.54	10.54	971.54	975.06	0.013443	21.79	10.09	1135.59	159.27	1.18	8.84	4.44	5.46
Main	3205.869	15000 cfs	15000.00	961.00	973.13	12.13	973.13	977.14	0.013157	23.68	10.72	1399.87	170.69	1.20	9.97	4.88	6.21
Main	3205.869	0.75 PMF 21100 c	21100.00	961.00	975.98	14.98	975.98	979.89	0.010446	24.29	10.67	1978.19	233.96	1.11	9.77	3.51	6.17
Main	3205.869	PMF 31590 cfs	31590.00	961.00	979.24	18.24	978.72	983.34	0.009026	25.75	11.39	2773.13	253.27	1.06	10.28	3.99	6.51
Main	3205.869	Q50 1700 cfs	1700.00	961.00	966.85	5.85		967.36	0.003592	7.60	3.78	450.06	130.71	0.55	1.31	0.55	0.73
Main	3205.869	1300 cfs	1300.00	961.00	966.33	5.33		966.75	0.003159	6.71	3.39	383.68	126.77	0.51	1.05	0.41	0.56
Main	3205.869	2850 cfs	2850.00	961.00	967.97	6.97		968.78	0.004694	9.78	4.73	602.51	139.46	0.65	2.04	0.93	1.19
Main	3065.593	900 cfs	900.00	960.60	964.46	3.66	964.46	965.32	0.008857	8.68	4.63	194.49	131.95	0.80	2.00	0.30	1.22
Main	3065.593	Q10 1100 cfs	1100.00	960.60	964.75	3.95	964.75	965.68	0.009003	9.22	4.69	234.48	137.40	0.82	2.20	0.44	1.35
Main	3065.593	Q100 1980 cfs	1980.00	960.60	965.70	4.90	965.70	966.86	0.009867	11.15	5.30	373.38	154.81	0.89	3.00	0.92	1.88
Main	3065.593	2400 cfs	2400.00	960.60	966.07	5.27	966.07	967.32	0.010132	11.85	5.57	430.96	161.36	0.91	3.30	1.10	2.09
Main	3065.593	Q500 2650 cfs	2650.00	960.60	966.30	5.50	966.30	967.56	0.009997	12.11	5.66	468.22	165.24	0.91	3.40	1.18	2.16
Main	3065.593	3000 cfs	3000.00	960.60	966.50	5.70	966.50	967.89	0.010719	12.84	5.98	501.64	168.46	0.95	3.78	1.36	2.41
Main	3065.593	3500 cfs	3500.00	960.60	967.07	6.27	967.07	968.34	0.009142	12.64	5.78	605.39	206.94	0.89	3.55	1.12	2.30
Main	3065.593	5227 cfs	5227.00	960.60	967.97	7.16	967.97	969.40	0.009427	14.03	6.55	797.72	217.77	0.92	4.18	1.57	2.75
Main	3065.593	5346 cfs	5346.00	960.60	968.01	7.21	968.01	969.46	0.009489	14.14	6.62	808.07	218.05	0.93	4.24	1.60	2.78
Main	3065.593	0.5 PMF 11457 cf	11457.00	960.60	970.86	10.06	969.93	972.39	0.006942	15.09	7.91	1449.05	235.26	0.84	4.32	2.12	2.96
Main	3065.593	15000 cfs	15000.00	960.60	972.90	12.09	970.81	974.24	0.004706	14.06	7.69	1949.44	255.46	0.71	3.52	1.79	2.43
Main	3065.593	0.75 PMF 21100 c	21100.00	960.60	975.89	15.08	972.25	977.14	0.003212	13.45	7.66	2754.20	282.53	0.61	3.00	1.57	2.06
Main	3065.593	PMF 31590 cfs	31590.00	960.60	980.73	19.93		981.89	0.002117	13.15	7.43	4253.45	351.25	0.52	2.61	1.28	1.75
Main	3065.593	Q50 1700 cfs	1700.00	960.60	965.46	4.66	965.46	966.53	0.009419	10.53	5.06	335.88	150.32	0.86	2.72	0.77	1.70
Main	3065.593	1300 cfs	1300.00	960.60	965.03	4.22	965.03	965.99	0.009014	9.65	4.77	272.41	142.37	0.83	2.36	0.56	1.46
Main	3065.593	2850 cfs	2850.00	960.60	966.40	5.60	966.40	967.75	0.010510	12.57	5.87	485.90	167.00	0.94	3.65	1.29	2.32
Main	2954.488	900 cfs	900.00	960.00	963.84	3.82	963.54	964.18	0.003915	5.97	3.57	252.21	174.69	0.54	0.93	0.25	0.61
Main	2954.488	Q10 1100 cfs	1100.00	960.00	964.13	4.11	963.74	964.46	0.003655	6.06	3.63	303.12	178.02	0.53	0.94	0.29	0.62
Main	2954.488	Q100 1980 cfs	1980.00	960.00	965.11	5.08	964.34	965.46	0.003286	6.62	4.11	481.44	187.47	0.52	1.04	0.44	0.68
Main	2954.488	2400 cfs	2400.00	960.00	965.48	5.46	964.56	965.86	0.003254	6.91	4.35	551.94	191.08	0.52	1.11	0.50	0.72
Main	2954.488	Q500 2650 cfs	2650.00	960.00	965.69	5.67	964.67	966.08	0.003228	7.06	4.47	592.51	193.09	0.52	1.14	0.53	0.74
Main	2954.488	3000 cfs	3000.00	960.00	965.98	5.95	964.86	966.39	0.003189	7.24	4.63	647.72	195.70	0.52	1.18	0.56	0.76
Main	2954.488	3500 cfs	3500.00	960.00	966.37	6.34	965.10	966.80	0.003123	7.48	4.83	724.82	199.57	0.52	1.23	0.61	0.79
Main	2954.488	5227 cfs	5227.00	960.00	967.57	7.55	965.78	968.09	0.002942	8.15	5.37	974.13	213.12	0.52	1.38	0.73	0.87
Main	2954.488	5346 cfs	5346.00	960.00	967.65	7.63	965.83	968.17	0.002932	8.20	5.40	990.46	214.00	0.52	1.39	0.74	0.88
Main	2954.488	0.5 PMF 11457 cf	11457.00	960.00	970.95	10.92		971.69	0.002600	9.81	6.62	1730.63	232.60	0.52	1.77	1.07	1.03
Main	2954.488	15000 cfs	15000.00	960.00	972.93	12.90		973.71	0.002194	10.07	6.82	2200.78	242.42	0.49	1.76	1.10	1.00
Main	2954.488	0.75 PMF 21100 c	21100.00	960.00	975.88	15.86		976.75	0.001854	10.62	7.17	2942.04	259.24	0.47	1.83	1.15	0.99
Main	2954.488	PMF 31590 cfs	31590.00	960.00	980.69	20.66		981.62	0.001425	11.10	7.44	4244.66	284.97	0.43	1.84	1.14	0.95
Main	2954.488	Q50 1700 cfs	1700.00	960.00	964.84	4.82	964.16	965.17	0.003304	6.40	3.94	431.81	184.89	0.51	0.99	0.39	0.65
Main	2954.488	1300 cfs	1300.00	960.00	964.39	4.36	963.89	964.71	0.003496	6.17	3.72	349.01	180.50	0.52	0.95	0.33	0.63
Main	2954.488	2850 cfs	2850.00	960.00	965.86	5.83	964.77	966.26	0.003205	7.17	4.57	624.29	194.60	0.52	1.17	0.55	0.75
Main	2823.359	900 cfs	900.00	959.20	963.55	4.23		963.73	0.002037	4.59	2.68	335.44	159.35	0.39	0.53	0.22	0.12
Main	2823.359	Q10 1100 cfs	1100.00	959.20	963.82	4.50		964.01	0.002125	4.88	2.91	377.94	160.70	0.41	0.59	0.26	0.14
Main	2823.359	Q100 1980 cfs	1980.00	959.20	964.71	5.39		965.01	0.002528	6.01	3.78	524.17	164.62	0.46	0.84	0.43	0.20
Main	2823.359	2400 cfs	2400.00	959.20	965.05	5.73		965.40	0.002710	6.49	4.13	580.45	166.04	0.48	0.96	0.50	0.23
Main	2823.359	Q500 2650 cfs	2650.00	959.20	965.25	5.93		965.62	0.002788	6.73	4.32	613.17	166.87	0.49	1.02	0.54	0.25

HEC-RAS Plan: PrCondSSFISDesgn River: SippoCreek Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Hydr Depth C	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Vel Total	Flow Area	Top Width	Froude # Chl	Shear Chan	Shear LOB	Shear ROB
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)	(lb/sq ft)	(lb/sq ft)
Main	2823.359	3000 cfs	3000.00	959.20	965.52	6.20		965.92	0.002874	7.03	4.56	657.91	167.99	0.50	1.10	0.60	0.27
Main	2823.359	3500 cfs	3500.00	959.20	965.88	6.56		966.33	0.002968	7.43	4.87	719.36	169.51	0.51	1.21	0.66	0.30
Main	2823.359	5227 cfs	5227.00	959.20	967.00	7.68		967.61	0.003191	8.55	5.73	911.95	174.20	0.54	1.52	0.87	0.38
Main	2823.359	5346 cfs	5346.00	959.20	967.07	7.75		967.69	0.003204	8.62	5.78	924.24	174.50	0.55	1.54	0.89	0.38
Main	2823.359	0.5 PMF 11457 cf	11457.00	959.20	970.10	10.78		971.19	0.003611	11.41	7.78	1472.68	187.34	0.61	2.41	1.43	0.62
Main	2823.359	15000 cfs	15000.00	959.20	972.10	12.78		973.27	0.003144	11.92	8.09	1854.45	195.84	0.59	2.49	1.46	0.63
Main	2823.359	0.75 PMF 21100 c	21100.00	959.20	975.00	15.68		976.34	0.002827	12.95	8.62	2447.83	213.68	0.58	2.74	1.57	0.63
Main	2823.359	PMF 31590 cfs	31590.00	959.20	979.79	20.47		981.28	0.002327	14.04	8.91	3543.47	242.02	0.55	2.95	1.62	0.73
Main	2823.359	Q50 1700 cfs	1700.00	959.20	964.48	5.16		964.73	0.002369	5.65	3.51	484.92	163.62	0.44	0.76	0.37	0.18
Main	2823.359	1300 cfs	1300.00	959.20	964.05	4.73		964.27	0.002216	5.16	3.12	416.09	161.86	0.42	0.65	0.30	0.15
Main	2823.359	2850 cfs	2850.00	959.20	965.41	6.09		965.79	0.002840	6.91	4.46	638.91	167.52	0.49	1.07	0.57	0.28
Main	2705.758	900 cfs	900.00	958.50	962.65	3.88	962.65	963.28	0.006513	7.64	4.15	216.81	145.05	0.68	1.53	0.43	0.65
Main	2705.758	Q10 1100 cfs	1100.00	958.50	962.85	4.08	962.85	963.54	0.006968	8.18	4.45	246.94	145.34	0.71	1.73	0.54	0.74
Main	2705.758	Q100 1980 cfs	1980.00	958.50	963.63	4.86		964.45	0.007707	9.66	5.47	362.10	155.47	0.77	2.27	0.88	0.99
Main	2705.758	2400 cfs	2400.00	958.50	964.05	5.28		964.85	0.006913	9.67	5.58	430.03	162.99	0.74	2.21	0.91	0.97
Main	2705.758	Q500 2650 cfs	2650.00	958.50	964.29	5.52		965.07	0.006593	9.72	5.66	467.80	163.72	0.73	2.20	0.95	0.97
Main	2705.758	3000 cfs	3000.00	958.50	964.58	5.81		965.38	0.006298	9.84	5.81	516.59	164.65	0.72	2.22	1.01	0.98
Main	2705.758	3500 cfs	3500.00	958.50	964.97	6.20		965.79	0.006044	10.06	6.03	580.40	165.85	0.71	2.27	1.09	1.00
Main	2705.758	5227 cfs	5227.00	958.50	966.10	7.33		967.05	0.005708	10.93	6.79	769.28	169.38	0.71	2.53	1.34	1.12
Main	2705.758	5346 cfs	5346.00	958.50	966.16	7.39		967.13	0.005703	10.99	6.85	780.88	169.60	0.71	2.56	1.35	1.13
Main	2705.758	0.5 PMF 11457 cf	11457.00	958.50	969.05	10.28		970.58	0.005708	13.70	8.92	1284.37	178.79	0.75	3.56	2.08	1.57
Main	2705.758	15000 cfs	15000.00	958.50	971.29	12.52		972.78	0.004260	13.49	8.86	1692.53	186.02	0.67	3.23	1.89	1.42
Main	2705.758	0.75 PMF 21100 c	21100.00	958.50	974.26	15.49		975.92	0.003586	14.27	9.34	2259.96	195.77	0.64	3.37	1.94	1.47
Main	2705.758	PMF 31590 cfs	31590.00	958.50	979.11	20.34		980.93	0.002831	15.20	9.73	3246.03	211.52	0.59	3.49	1.91	1.51
Main	2705.758	Q50 1700 cfs	1700.00	958.50	963.34	4.57	963.34	964.16	0.008203	9.57	5.34	318.47	149.95	0.79	2.27	0.84	0.99
Main	2705.758	1300 cfs	1300.00	958.50	963.04	4.27	963.04	963.77	0.007352	8.65	4.75	273.79	145.60	0.74	1.90	0.65	0.82
Main	2705.758	2850 cfs	2850.00	958.50	964.46	5.69		965.25	0.006409	9.78	5.74	496.18	164.26	0.72	2.21	0.98	0.97
Main	2605.517	900 cfs	900.00	957.20	961.65	4.45	961.21	962.35	0.005185	7.62	4.77	188.83	106.30	0.64	1.44	0.34	0.51
Main	2605.517	Q10 1100 cfs	1100.00	957.20	961.99	4.79	961.66	962.72	0.005227	8.03	4.79	229.61	132.91	0.65	1.56	0.36	0.55
Main	2605.517	Q100 1980 cfs	1980.00	957.20	963.03	5.83		963.82	0.005140	9.08	5.32	372.26	139.97	0.66	1.87	0.64	0.69
Main	2605.517	2400 cfs	2400.00	957.20	963.38	6.18		964.23	0.005326	9.61	5.69	421.88	142.40	0.68	2.06	0.76	0.76
Main	2605.517	Q500 2650 cfs	2650.00	957.20	963.57	6.37		964.46	0.005429	9.91	5.90	449.29	143.72	0.69	2.16	0.83	0.80
Main	2605.517	3000 cfs	3000.00	957.20	963.83	6.63		964.77	0.005556	10.28	6.17	485.92	145.71	0.70	2.30	0.91	0.86
Main	2605.517	3500 cfs	3500.00	957.20	964.12	6.92		965.17	0.005939	10.94	6.63	528.30	148.11	0.73	2.56	1.05	0.96
Main	2605.517	5227 cfs	5227.00	957.20	965.05	7.85		966.40	0.006637	12.59	7.78	672.00	161.13	0.79	3.25	1.41	1.24
Main	2605.517	5346 cfs	5346.00	957.20	965.11	7.91		966.48	0.006676	12.69	7.85	681.45	162.18	0.79	3.30	1.43	1.25
Main	2605.517	0.5 PMF 11457 cf	11457.00	957.20	968.36	11.16		970.01	0.005449	14.42	8.99	1274.69	191.62	0.76	3.80	1.91	1.48
Main	2605.517	15000 cfs	15000.00	957.20	970.96	13.76		972.37	0.003598	13.47	8.40	1785.35	202.12	0.64	3.09	1.68	1.22
Main	2605.517	0.75 PMF 21100 c	21100.00	957.20	974.05	16.85		975.54	0.002980	14.03	8.69	2429.21	214.28	0.60	3.13	1.77	1.25
Main	2605.517	PMF 31590 cfs	31590.00	957.20	979.01	21.81		980.60	0.002333	14.75	8.92	3543.34	234.80	0.56	3.18	1.80	1.28
Main	2605.517	Q50 1700 cfs	1700.00	957.20	962.75	5.55	962.51	963.51	0.005093	8.75	5.09	333.69	138.20	0.65	1.77	0.56	0.64
Main	2605.517	1300 cfs	1300.00	957.20	962.32	5.12	962.12	963.02	0.004876	8.12	4.73	274.73	135.69	0.63	1.56	0.42	0.56
Main	2605.517	2850 cfs	2850.00	957.20	963.72	6.52		964.64	0.005518	10.14	6.06	470.03	144.81	0.70	2.25	0.88	0.83
Main	2500.830	900 cfs	900.00	955.85	959.95	3.36	959.95	961.42	0.014729	10.61	6.79	132.64	59.71	1.02	3.07	1.50	1.17
Main	2500.830	Q10 1100 cfs	1100.00	955.85	961.06	4.47	961.06	962.05	0.007358	9.07	4.35	252.95	140.65	0.76	2.04	0.59	0.81
Main	2500.830	Q100 1980 cfs	1980.00	955.85	962.20	5.61	962.20	963.19	0.006760	10.11	4.52	437.89	178.30	0.75	2.35	0.84	0.96
Main	2500.830	2400 cfs	2400.00	955.85	962.51	5.92	962.51	963.57	0.007157	10.78	4.86	493.92	179.87	0.78	2.63	1.03	1.08
Main	2500.830	Q500 2650 cfs	2650.00	955.85	962.67	6.08	962.67	963.78	0.007432	11.19	5.07	522.87	180.68	0.80	2.80	1.14	1.15
Main	2500.830	3000 cfs	3000.00	955.85	962.87	6.28	962.87	964.06	0.007857	11.75	5.37	559.09	181.68	0.83	3.06	1.29	1.27
Main	2500.830	3500 cfs	3500.00	955.85	963.18	6.60	963.18	964.43	0.008028	12.27	5.68	616.45	183.25	0.84	3.29	1.47	1.36
Main	2500.830	5227 cfs	5227.00	955.85	963.95	7.37	963.95	965.55	0.009547	14.41	6.89	759.13	187.10	0.94	4.36	2.18	1.83
Main	2500.830	5346 cfs	5346.00	955.85	964.00	7.41	964.00	965.62	0.009649	14.54	6.96	767.71	187.35	0.94	4.44	2.23	1.86
Main	2500.830	0.5 PMF 11457 cf	11457.00	955.85	968.10	11.51		969.38	0.004740	13.67	7.26	1578.34	208.05	0.71	3.39	2.17	1.47
Main	2500.830	15000 cfs	15000.00	955.85	970.84	14.25		971.93	0.003076	12.70	6.92	2167.42	221.57	0.59	2.72	1.85	1.21
Main	2500.830	0.75 PMF 21100 c	21100.00	955.85	973.99	17.41		975.16	0.002559	13.23	7.31	2888.37	235.38	0.56	2.76	1.94	1.29
Main	2500.830	PMF 31590 cfs	31590.00	955.85	979.02	22.44		980.28	0.001997	13.84	7.66	4124.99	256.89	0.52	2.78	1.98	1.35
Main	2500.830	Q50 1700 cfs	1700.00	955.85	961.96	5.38	961.96	962.90	0.006448	9.80	4.29	396.21	175.94	0.73	2.15	0.72	0.87
Main	2500.830	1300 cfs	1300.00	955.85	961.39	4.80	961.39	962.38	0.007121	9.35	4.31	301.51	153.55	0.75	2.12	0.65	0.85
Main	2500.830	2850 cfs	2850.00	955.85	962.79	6.20	962.79	963.95	0.007643	11.49	5.23	544.79	181.28	0.81	2.94	1.22	1.21
Main	2428.753	900 cfs	900.00	954.15	957.22	2.83	957.91	959.79	0.031366	13.74	10.47	86.00	40.90	1.44	5.47	3.18	1.46
Main	2428.753	Q10 1100 cfs	1100.00	954.15	957.37	2.98	957.99	960.76	0.038811	15.82	11.92	92.27	41.91	1.62	7.13	4.17	1.99
Main	2428.753	Q100 1980 cfs	1980.00	954.15	959.73	5.34	960.95	962.31	0.014939	14.48	8.07	245.33	98.54	1.10	4.92	1.57	1.84
Main	2428.753	2400 cfs	2400.00	954.15	960.65	6.26	961.39	962.81	0.010963	13.79	6.62	362.63	148.17	0.97	4.23	1.19	1.64
Main	2428.753	Q500 2650 cfs	2650.00	954.15	960.93	6.54	961.58	963.03	0.010508	13.90	6.51	407.22	176.93	0.96	4.24	1.07	1.66
Main	2428.753	3000 cfs	3000.00	954.15	961.23	6.83	961.83	963.30	0.010276	14.16	6.52	460.43	179.05	0.95	4.33	1.23	1.71
Main	2428.753	3500 cfs	3500.00	954.15	961.56	7.17	962.16	963.66	0.010372	14.69	6.72	520.49	181.41	0.97	4.59	1.44	1.83
Main	2428.753	5227 cfs	5227.00	954.15	962.49	8.10	962.99	964.72	0.010665	16.16	7.55	692.28	186.99	1.00	5.33	2.07	2.23
Main	2428.753	5346 cfs	5346.00	954.15	962.55	8.15	963.04	964.79	0.010686	16.25	7.61	702.76	187.28	1.00	5.38	2.10	2.26
Main	2428.753	0.5 PMF 11457 cf	11457.00	954.15	968.04	13.65		969.00	0.002792	11.71	6.34	1806.10	213.35	0.56	2.35	1.40	1.17
Main	2428.753	15000 cfs	15000.00	954.15	970.80	16.41		971.67	0.001979	11.15	6.22	2413.26	226.62	0.48	2.00	1.28	1.01
Main	2428.753	0.75 PMF 21100 c	21100.00	954.15	973.96	19.57		974.94	0.001759	11.82	6.69	3152.81	241.59	0.47	2.12	1.41	1.08
Main	2428.753	PMF 31590 cfs	31590.00	954.15	979.01	24.61		980.10	0.001454	12.52	7.14	4425.15	262.33	0.44	2.21	1.52	1.14
Main	2428.753	Q50 1700 cfs	1700.00	954.15	959.06	4.67	959.96	961.94	0.018999	14.94	9.13	186.27	78.56	1.22	5.47	1.82	1.95
Main	2428.753	1300 cfs	1300.00	954.15	957.83	3.44	959.12	961.18	0.032179	15.86	11.57	112.33	44.99	1.51	6.83	4.05	2.10
Main	2428.753	2850 cfs	2850.00	954.15	961.10	6.71	961.73	963.19	0.010384	14.07	6.50	438.18	178.17	0.96	4.30	1.16	1.69
Main	2316.257	900 cfs	900.00	951.80	955.90	4.05	954.87	956.56	0.005865	7.61	5.02	179.36	58.02	0.67	1.48	0.86	0.92
Main	2316.257	Q10 1100 cfs	1100.00	951.80	956.30	4.45	955.28	957.14	0.006525	8.55	5.37	204.72	69.48	0.71	1.81	0.62	1.12
Main	2316.257	Q100 1980 cfs	1980.00	951.80	957.99	6.14	957.15	959.01	0.005709	9.91	5.67	349.07	99.48	0.70	2.19	0.68	1.31
Main	2316.257	2400 cfs	2400.00	951.80	958.68	6.83	957.64	959.72	0.005308	10.25	5.66	423.71	116.25	0.69	2.26	0.66	1.33
Main	2316.257	Q500 2650 cfs	2650.00	951.80	959.02	7.17	957.95	960.09	0.005234	10.52	5.71	464.28	123.31	0.69	2.34	0.69	1.37
Main	2316.257	3000 cfs	3000.00	951.80	959.63	7.78	958.34	960.65	0.004664	10.48	5.52	543.24	135.54	0.66	2.26	0.66	1.31
Main	2316.257	3500 cfs	3500.00	951.80	960.16	8.31	958.85	961.25	0.004687	10.98	5.66	617.84	142.58	0.67	2.43	0.77	1.41
Main	2316.257	5227 cfs	5227.00	951.80	962.05	10.20	960.37	963.11	0.003884	11.46	5.67	922.45	169.66	0.63	2.47	0.72	1.46
Main	2316.257	5346 cfs	5346.00	951.80	962.17	10.32	960.41	963.22	0.003824	11.46	5.66	944.92	190.26	0.63	2.46	0.73	1.45
Main	2316.257	0.5 PMF 11457 cf	11457.00	951.80	967.94	16.09		968.71	0.001861	10.75	5.38	2128.70	219.80	0.47	1.87	0.76	1.12
Main	2316.257	15000 cfs	15000.00	951.80	970.70	18.85		971.46	0.001556	10.92	5.45	2752.12	232.93	0.44	1.83	0.77	1.10
Main	2316.257	0.75 PMF 21100 c	21100.00	951.80	973.82	21.97		974.75	0.001644	12.43	5.95	3548.44	272.93	0.47	2.25	0.88	1.34
Main	2316.257	PMF 31590 cfs	31590.00	951.80	978.91	27.06		979.93	0.001439	13.37	6.32	5001.96	297.93	0.45	2.43	1.02	1.41
Main	2316.257	Q50 1700 cfs	1700.00	951.80	957.55	5.70	956.00	958.50	0.005791	9.49	5.53	307.58	87.68	0.70	2.06	0.73	1.24
Main	2316.257	1300 cfs	1300.00	951.80	956.70	4.85	955.67	957.65	0.006706	9.17	5.53	235.05	83.54	0.73	2.03	0.53	1.24
Main	2316.257	2850 cfs	2850.00	951.80	959.37	7.52	958.19	960.41	0.004901	10.50	5.60	508.66	130.34	0.68	2.30	0.68	1.34
Main	2232.403	900 cfs	900.00	950.85	954.71	3.83	954.46	955.88	0.010093	9.62	6.41	140.36	57.89	0.87	2.42	0.44	1.16
Main	2232.403	Q10 1100 cfs	1100.00	950.85	955.29	4.41	954.94	956.47	0.008775	9.85	6.23	176.64	67.79	0.83	2.42	0.46	1.15
Main	2232.403	Q100 1980 cfs	1980.00	950.85	957.77	6.90		958.54	0.003918	8.87	4.17	474.77	168.95	0.60	1.69	0.32	0.76
Main	2232.403	2400 cfs	2400.00	950.85	958.66	7.79		959.27	0.002914	8.30	3.80	631.82	177.96	0.52	1.42	0.37	0.71
Main	2232.403	Q500 2650 cfs	2650.00	950.85	959.06	8.19		959.63	0.002693	8.24	3.77	702.88	178.81	0.51	1.38	0.40	0.72
Main	2232.403	3000 cfs	3000.00	950.85	959.73	8.86		960.23	0.002255	7.95	3.64	823.06	180.23	0.47	1.25	0.43	0.68
Main	2232.403	3500 cfs	3500.00	950.85	960.30	9.43		960.82	0.002210	8.20	3.78	926.31	181.48	0.47	1.30	0.49	0.73
Main	2232.403	5227 cfs	5227.00	950.85	962.19	11.32		962.73	0.001976	8.76	4.08	1281.46	230.82	0.46	1.40	0.43	0.85
Main	2232.403	5346 cfs	5346.00	950.85	962.31	11.43		962.84	0.001964	8.79	4.09	1307.90	231.52	0.46	1.40	0.44	0.85
Main	2232.403	0.5 PMF 11457 cf	11457.00	950.85	968.06	17.19		968.50	0.001060	6.48	4.20	2730.54	260.41	0.36	1.14	0.51	0.75
Main	2232.403	15000 cfs	15000.00	950.85	970.83	19.95		971.27	0.000873	8.50	4.32	3469.55	273.08	0.34	1.09	0.52	0.72

HEC-RAS Plan: PrCondSSFISDesgn River: SippoCreek Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Hydr Depth C	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Vel Total	Flow Area	Top Width	Froude # Chl	Shear Chan	Shear LOB	Shear ROB
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)	(lb/sq ft)	(lb/sq ft)
Main	2232.403	0.75 PMF 21100 c	21100.00	950.85	974.00	23.13		974.53	0.000863	9.33	4.84	4357.15	285.88	0.34	1.25	0.61	0.83
Main	2232.403	PMF 31590 cfs	31590.00	950.85	979.09	28.22		979.73	0.000798	10.24	5.39	5862.55	306.04	0.34	1.41	0.70	0.94
Main	2232.403	Q50 1700 cfs	1700.00	950.85	957.17	6.30		958.05	0.004666	9.11	4.48	379.78	147.52	0.64	1.83	0.32	0.75
Main	2232.403	1300 cfs	1300.00	950.85	955.81	4.93	955.37	957.01	0.007925	10.09	6.06	214.56	78.34	0.80	2.44	0.51	1.13
Main	2232.403	2850 cfs	2850.00	950.85	959.45	8.58		959.98	0.002417	8.06	3.69	772.74	179.64	0.48	1.29	0.42	0.69
Main	2143.723	900 cfs	900.00	949.70	954.27	4.49		955.13	0.005552	7.92	5.91	152.24	46.54	0.66	1.55	0.69	0.71
Main	2143.723	Q10 1100 cfs	1100.00	949.70	954.78	5.00		955.80	0.005697	8.62	6.18	177.92	53.66	0.68	1.78	0.73	0.71
Main	2143.723	Q100 1980 cfs	1980.00	949.70	956.72	6.94	955.48	958.08	0.005327	10.37	5.75	344.41	138.54	0.69	2.30	0.38	0.68
Main	2143.723	2400 cfs	2400.00	949.70	957.63	7.84	956.81	958.88	0.004496	10.34	4.94	485.95	174.10	0.65	2.20	0.41	0.80
Main	2143.723	Q500 2650 cfs	2650.00	949.70	957.91	8.12	957.12	959.25	0.004681	10.60	4.95	535.89	183.89	0.67	2.37	0.46	0.91
Main	2143.723	3000 cfs	3000.00	949.70	958.68	8.89		959.90	0.003979	10.58	4.40	681.24	189.82	0.63	2.21	0.56	0.94
Main	2143.723	3500 cfs	3500.00	949.70	958.96	9.18	958.03	960.44	0.004695	11.74	4.76	735.73	190.33	0.68	2.69	0.74	1.16
Main	2143.723	5227 cfs	5227.00	949.70	960.20	10.42	959.49	962.29	0.005956	14.39	5.37	973.50	192.54	0.79	3.87	1.38	1.89
Main	2143.723	5346 cfs	5346.00	949.70	960.25	10.46	959.58	962.40	0.006120	14.62	5.45	981.63	192.61	0.80	3.99	1.43	1.95
Main	2143.723	0.5 PMF 11457 cf	11457.00	949.70	967.16	17.37		968.30	0.002339	12.67	4.41	2599.44	262.67	0.54	2.53	1.14	1.44
Main	2143.723	15000 cfs	15000.00	949.70	970.13	20.35		971.11	0.001800	12.35	4.39	3417.25	286.97	0.48	2.28	1.10	1.22
Main	2143.723	0.75 PMF 21100 c	21100.00	949.70	973.37	23.59		974.38	0.001670	13.13	4.83	4367.81	300.13	0.48	2.46	1.23	1.39
Main	2143.723	PMF 31590 cfs	31590.00	949.70	978.55	28.77		979.60	0.001434	13.89	5.28	5977.62	321.40	0.46	2.57	1.31	1.52
Main	2143.723	Q50 1700 cfs	1700.00	949.70	956.10	6.32	955.05	957.52	0.005986	10.33	6.40	265.65	116.89	0.72	2.36	0.39	0.55
Main	2143.723	1300 cfs	1300.00	949.70	955.26	5.48		956.39	0.005709	9.17	6.34	204.93	59.42	0.69	1.95	0.77	0.76
Main	2143.723	2850 cfs	2850.00	949.70	958.36	8.58	957.35	959.63	0.004223	10.64	4.58	621.88	189.26	0.64	2.26	0.51	0.93
Main	2051.261	900 cfs	900.00	949.10	953.97	4.81		954.54	0.005472	6.68	4.86	192.96	53.90	0.54	1.62	0.53	0.93
Main	2051.261	Q10 1100 cfs	1100.00	949.10	954.51	5.35		955.17	0.005560	7.24	4.92	223.65	60.89	0.55	1.84	0.38	1.06
Main	2051.261	Q100 1980 cfs	1980.00	949.10	956.59	7.43		957.45	0.005029	8.57	4.63	427.42	175.08	0.55	2.31	0.26	1.36
Main	2051.261	2400 cfs	2400.00	949.10	957.64	8.48		958.34	0.003818	8.15	3.90	615.81	186.12	0.49	2.00	0.42	1.20
Main	2051.261	Q500 2650 cfs	2650.00	949.10	957.95	8.79		958.67	0.003857	8.39	3.92	675.28	189.49	0.50	2.09	0.49	1.26
Main	2051.261	3000 cfs	3000.00	949.10	958.79	9.63		959.40	0.003092	7.99	3.58	837.06	196.86	0.45	1.84	0.53	1.12
Main	2051.261	3500 cfs	3500.00	949.10	959.14	9.98		959.84	0.003500	8.70	3.86	906.95	199.86	0.49	2.16	0.67	1.32
Main	2051.261	5227 cfs	5227.00	949.10	960.63	11.47		961.49	0.003927	10.11	4.30	1215.45	219.40	0.53	2.78	1.01	1.71
Main	2051.261	5346 cfs	5346.00	949.10	960.69	11.53		961.57	0.004011	10.25	4.35	1229.03	221.26	0.53	2.86	1.03	1.75
Main	2051.261	0.5 PMF 11457 cf	11457.00	949.10	967.54	18.38		967.92	0.001285	7.92	3.65	3142.18	304.24	0.33	1.46	0.74	0.82
Main	2051.261	15000 cfs	15000.00	949.10	970.46	21.30		970.81	0.000999	7.70	3.70	4050.57	317.46	0.29	1.31	0.74	0.74
Main	2051.261	0.75 PMF 21100 c	21100.00	949.10	973.69	24.53		974.09	0.000961	8.30	4.14	5094.26	327.98	0.30	1.45	0.88	0.83
Main	2051.261	PMF 31590 cfs	31590.00	949.10	978.86	29.70		979.33	0.000861	8.93	4.62	6833.14	345.00	0.29	1.58	1.02	0.92
Main	2051.261	Q50 1700 cfs	1700.00	949.10	955.99	6.83	954.03	956.83	0.005318	8.33	5.13	331.12	90.98	0.56	2.24	0.36	1.30
Main	2051.261	1300 cfs	1300.00	949.10	955.02	5.86		955.75	0.005539	7.67	5.06	256.93	68.94	0.56	2.00	0.37	1.16
Main	2051.261	2850 cfs	2850.00	949.10	958.45	9.30		959.10	0.003352	8.12	3.69	771.34	193.99	0.47	1.92	0.52	1.17
Main	1964.138	900 cfs	900.00	948.20	952.39	3.58	952.14	953.79	0.011368	9.67	8.38	107.40	39.35	0.90	2.51	0.84	0.79
Main	1964.138	Q10 1100 cfs	1100.00	948.20	953.09	4.27	952.69	954.49	0.009113	9.75	8.00	137.48	47.08	0.83	2.40	0.70	0.82
Main	1964.138	Q100 1980 cfs	1980.00	948.20	956.21	7.39	954.97	957.10	0.003315	8.47	4.48	441.75	155.07	0.55	1.51	0.37	0.60
Main	1964.138	2400 cfs	2400.00	948.20	957.41	8.60		958.08	0.002274	7.76	3.77	636.89	168.53	0.47	1.21	0.40	0.49
Main	1964.138	Q500 2650 cfs	2650.00	948.20	957.72	8.91		958.42	0.002319	8.03	3.84	689.74	171.88	0.47	1.27	0.44	0.53
Main	1964.138	3000 cfs	3000.00	948.20	958.60	9.78		959.19	0.001886	7.70	3.55	844.94	185.34	0.43	1.14	0.43	0.48
Main	1964.138	3500 cfs	3500.00	948.20	958.88	10.06		959.61	0.002254	8.58	3.90	897.73	192.28	0.48	1.40	0.53	0.59
Main	1964.138	5227 cfs	5227.00	948.20	960.34	11.52		961.23	0.002527	9.95	4.32	1210.38	240.23	0.52	1.80	0.65	0.78
Main	1964.138	5346 cfs	5346.00	948.20	960.41	11.59		961.31	0.002558	10.05	4.36	1226.34	240.98	0.52	1.83	0.67	0.80
Main	1964.138	0.5 PMF 11457 cf	11457.00	948.20	967.43	18.62		967.84	0.000822	7.81	3.75	3057.32	273.77	0.32	0.94	0.54	0.43
Main	1964.138	15000 cfs	15000.00	948.20	970.34	21.52		970.74	0.000680	7.83	3.88	3870.39	285.49	0.30	0.90	0.56	0.40
Main	1964.138	0.75 PMF 21100 c	21100.00	948.20	973.54	24.73		974.02	0.000695	8.68	4.39	4809.04	301.03	0.31	1.06	0.69	0.46
Main	1964.138	PMF 31590 cfs	31590.00	948.20	978.69	29.87		979.26	0.000656	9.57	4.92	6425.79	327.15	0.31	1.21	0.82	0.52
Main	1964.138	Q50 1700 cfs	1700.00	948.20	955.26	6.44	953.96	956.39	0.004634	9.14	5.54	307.09	125.53	0.63	1.84	0.36	0.71
Main	1964.138	1300 cfs	1300.00	948.20	953.80	4.98	953.17	955.14	0.007279	9.65	7.48	173.68	54.13	0.76	2.24	0.69	0.81
Main	1964.138	2850 cfs	2850.00	948.20	958.25	9.43		958.88	0.002023	7.79	3.64	782.02	179.26	0.45	1.18	0.43	0.49
Main	1862.561	900 cfs	900.00	946.35	951.04	4.26	950.75	952.66	0.010445	10.48	9.03	99.64	27.96	0.89	2.77	0.97	1.03
Main	1862.561	Q10 1100 cfs	1100.00	946.35	951.57	4.79	951.31	953.45	0.010429	11.32	9.59	114.73	29.16	0.91	3.11	1.09	1.16
Main	1862.561	Q100 1980 cfs	1980.00	946.35	953.62	6.85	953.62	956.38	0.009743	13.88	10.71	184.83	40.76	0.93	4.15	1.08	1.48
Main	1862.561	2400 cfs	2400.00	946.35	955.18	8.40	955.18	957.54	0.006640	13.14	8.50	282.49	88.74	0.80	3.47	0.53	1.21
Main	1862.561	Q500 2650 cfs	2650.00	946.35	956.34	9.56	955.96	958.00	0.004318	11.55	6.62	400.07	106.39	0.66	2.57	0.56	0.90
Main	1862.561	3000 cfs	3000.00	946.35	957.84	11.06	956.40	958.92	0.002603	9.88	5.32	563.87	157.92	0.52	1.79	0.34	0.64
Main	1862.561	3500 cfs	3500.00	946.35	956.94	10.16	956.94	959.12	0.005486	13.55	7.53	464.52	108.05	0.75	3.47	0.90	1.23
Main	1862.561	5227 cfs	5227.00	946.35	958.94	12.17	958.94	960.80	0.004383	13.66	6.83	765.08	187.53	0.69	3.32	0.75	1.21
Main	1862.561	5346 cfs	5346.00	946.35	959.04	12.26	959.02	960.88	0.004354	13.68	6.83	782.88	188.00	0.69	3.32	0.76	1.22
Main	1862.561	0.5 PMF 11457 cf	11457.00	946.35	967.21	20.44		967.74	0.000854	8.52	4.63	2476.78	225.51	0.33	1.09	0.48	0.44
Main	1862.561	15000 cfs	15000.00	946.35	970.12	23.34		970.65	0.000735	8.63	4.76	3150.97	239.18	0.31	1.07	0.50	0.43
Main	1862.561	0.75 PMF 21100 c	21100.00	946.35	973.26	26.48		973.93	0.000783	9.69	5.37	3926.44	254.42	0.33	1.29	0.62	0.52
Main	1862.561	PMF 31590 cfs	31590.00	946.35	978.34	31.57		979.17	0.000773	10.83	5.99	5269.59	272.75	0.34	1.52	0.75	0.65
Main	1862.561	Q50 1700 cfs	1700.00	946.35	952.85	6.07	952.82	955.54	0.011033	13.64	10.95	155.21	35.57	0.98	4.17	1.15	1.49
Main	1862.561	1300 cfs	1300.00	946.35	952.03	5.25	951.82	954.18	0.010601	12.14	10.12	128.45	30.39	0.93	3.46	1.20	1.27
Main	1862.561	2850 cfs	2850.00	946.35	957.40	10.63	956.22	958.58	0.002890	10.13	5.54	514.66	109.32	0.55	1.91	0.55	0.68
Main	1782.724	900 cfs	900.00	945.35	950.21	4.38	949.96	951.83	0.010370	10.61	8.67	103.79	29.89	0.89	2.82	1.09	1.20
Main	1782.724	Q10 1100 cfs	1100.00	945.35	950.70	4.87	950.50	952.60	0.010671	11.55	9.26	118.77	31.23	0.92	3.22	1.25	1.38
Main	1782.724	Q100 1980 cfs	1980.00	945.35	953.21	7.38	952.57	955.56	0.007899	13.11	9.61	206.11	38.75	0.85	3.61	1.37	1.54
Main	1782.724	2400 cfs	2400.00	945.35	954.10	8.27	953.49	956.75	0.007747	14.01	9.92	242.03	42.99	0.86	3.97	1.36	1.69
Main	1782.724	Q500 2650 cfs	2650.00	945.35	954.22	8.40	953.77	957.37	0.009024	15.27	10.71	247.48	45.04	0.93	4.70	1.45	2.00
Main	1782.724	3000 cfs	3000.00	945.35	955.15	9.32	953.97	958.37	0.008098	15.51	10.06	298.23	68.07	0.90	4.68	0.84	2.00
Main	1782.724	3500 cfs	3500.00	945.35	956.47	10.65	957.12	958.68	0.005329	13.75	6.94	504.57	211.36	0.74	3.52	0.42	1.51
Main	1782.724	5227 cfs	5227.00	945.35	959.26	13.43	957.97	959.99	0.001889	9.56	4.71	1108.95	222.33	0.46	1.57	0.46	0.68
Main	1782.724	5346 cfs	5346.00	945.35	959.70	13.88		960.31	0.001558	8.87	4.42	1208.26	224.16	0.42	1.34	0.42	0.58
Main	1782.724	0.5 PMF 11457 cf	11457.00	945.35	967.32	21.49		967.62	0.000479	6.59	3.78	3030.22	253.40	0.25	0.64	0.33	0.27
Main	1782.724	15000 cfs	15000.00	945.35	970.22	24.39		970.54	0.000424	6.74	3.97	3781.20	264.18	0.24	0.64	0.36	0.27
Main	1782.724	0.75 PMF 21100 c	21100.00	945.35	973.38	27.56		973.81	0.000461	7.62	4.55	4641.33	280.26	0.26	0.79	0.47	0.31
Main	1782.724	PMF 31590 cfs	31590.00	945.35	978.49	32.67		979.03	0.000463	8.56	5.15	6134.31	302.88	0.26	0.94	0.59	0.36
Main	1782.724	Q50 1700 cfs	1700.00	945.35	952.12	6.29	951.97	954.64	0.010305	13.46	10.25	165.84	35.15	0.95	4.02	1.55	1.73
Main	1782.724	1300 cfs	1300.00	945.35	951.16	5.34	951.03	953.32	0.010808	12.36	9.73	133.57	32.49	0.94	3.58	1.39	1.54
Main	1782.724	2850 cfs	2850.00	945.35	955.17	9.34	953.98	958.06	0.007254	14.70	9.52	299.47	68.60	0.65	4.20	0.75	1.80
Main	1715.933	900 cfs	900.00	944.60	949.57	4.27	949.35	951.11	0.010419	10.40	8.64	104.18	33.19	0.89	2.74	0.93	1.08
Main	1715.933	Q10 1100 cfs	1100.00	944.60	950.21	4.91	949.88	951.85	0.009433	10.85	8.72	126.11	35.91	0.86	2.84	1.00	1.16
Main	1715.933	Q100 1980 cfs	1980.00	944.60	953.38	8.08	951.85	954.90	0.004844	10.85	7.54	262.55	50.90	0.67	2.41	0.83	1.06
Main	1715.933	2400 cfs	2400.00	944.60	954.66	9.36	952.65	956.00	0.003801	10.59	6.54	367.08	118.10	0.61	2.19	0.28	0.97
Main	1715.933	Q500 2650 cfs	2650.00	944.60	955.28	9.98		956.43	0.003196	10.14	5.95	445.06	132.06	0.57	1.96	0.32	0.86
Main	1715.933	3000 cfs	3000.00	944.60	956.73	11.43		957.38	0.001740	8.19	4.49	668.20	172.80	0.43	1.22	0.25	0.54
Main	1715.933	3500 cfs	3500.00	944.60	957.36	12.06	955.52	957.98	0.001637	8.23	4.50	777.78	176.12	0.42	1.21	0.29	0.54
Main	1715.933	5227 cfs	5227.00	944.60	959.24	13.94		959.83	0.001403	8.40	4.67	1118.14	183.15	0.40	1.20	0.39	0.55
Main	1715.933	5346 cfs	5346.00	944.60	959.67	14.37		960.19	0.001219	7.98	4.47	1195.53	184.17	0.37	1.08	0.36	0.49
Main	1715.933	0.5 PMF 11457 cf	11457.00	944.60	967.15	21.85		967.57	0.000572	7.24	4.39	2609.82	194.35	0.27	0.77	0.35	0.40
Main	1715.933	15000 cfs	15000.00	944.60	970.01	24.71		970.50	0.000551	7.71	4.72	3180.25	204.28	0.27	0.84	0.37	0.44
Main	1715.933	0.75 PMF 21100 c	21100.00	944.60	973.09	27.79		973.75	0.000646	9.03	5.52	3823.30	215.23	0.30	1.10	0.48	0.57
Main	1715.933	PMF 31590 cfs	31590.00	944.60	978.06	32.76		978.96	0.000721	10.64	6.37	4958.44	241.55	0.33	1.45	0.61	0.68
Main	1715.933	Q50 1700 cfs	1700.00	944.60	952.11	6.81		953.85	0.006771	11.44	8.41	202.11	44.11	0.77	2.83	1.03	1.22
Main	1715.933	1300 cfs	1300.00	944.60	950.84	5.54	950.40	952.55	0.008443	11.14	8.68	149.84	38.59	0.83	2.88	1.03	1.20
Main	1715.933	2850 cfs	2850.00	944.60	956.50	11.20		957.18	0.001806	8.24	4.53	629.10	171.60	0.43	1.24	0.24	0.55

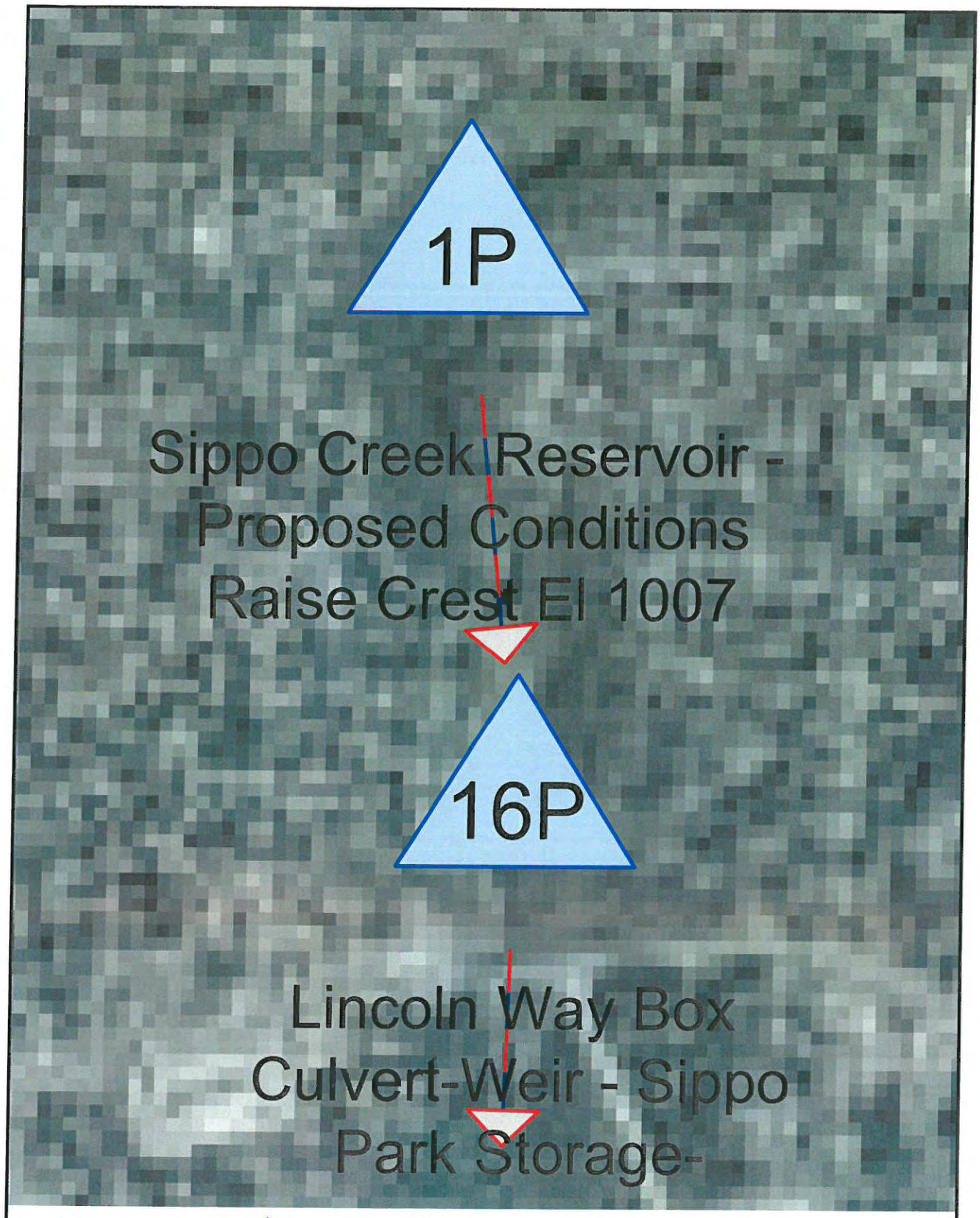
HEC-RAS Plan: PrCondSSFISDesgn River: SippoCreek Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Hydr Depth C	Crit W.S	E.G. Elev	E.G. Slope	Vel Chnl	Vel Total	Flow Area	Top Width	Froude # Chl	Shear Chan	Shear LOB	Shear ROB
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)	(lb/sq ft)	(lb/sq ft)
Main	1601.778	900 cfs	900.00	943.35	948.69	4.56	948.03	950.02	0.007808	9.43	8.27	108.88	29.10	0.78	2.20	0.65	0.74
Main	1601.778	Q10 1100 cfs	1100.00	943.35	949.45	5.32	948.58	950.87	0.006857	9.79	8.36	131.62	30.85	0.75	2.25	0.70	0.78
Main	1601.778	Q100 1980 cfs	1980.00	943.35	953.79	9.67		954.30	0.001520	6.86	3.55	558.48	198.99	0.39	0.91	0.18	0.33
Main	1601.778	2400 cfs	2400.00	943.35	955.22	11.10		955.50	0.000820	5.53	2.82	850.89	207.98	0.29	0.56	0.16	0.18
Main	1601.778	Q500 2650 cfs	2650.00	943.35	955.75	11.63		956.00	0.000725	5.36	2.76	961.67	210.99	0.28	0.52	0.17	0.16
Main	1601.778	3000 cfs	3000.00	943.35	956.86	12.83		957.13	0.000485	4.69	2.46	1221.16	219.68	0.23	0.38	0.15	0.11
Main	1601.778	3500 cfs	3500.00	943.35	957.56	13.44		957.74	0.000495	4.88	2.58	1354.63	224.25	0.23	0.41	0.17	0.11
Main	1601.778	5227 cfs	5227.00	943.35	959.40	15.28		959.62	0.000512	5.41	2.94	1780.74	238.15	0.24	0.48	0.22	0.13
Main	1601.778	5346 cfs	5346.00	943.35	959.80	15.68		960.00	0.000462	5.22	2.85	1876.43	241.16	0.23	0.45	0.21	0.13
Main	1601.778	0.5 PMF 11457 cf	11457.00	943.35	967.26	23.13		967.46	0.000277	5.24	2.99	3826.73	275.50	0.19	0.40	0.24	0.15
Main	1601.778	15000 cfs	15000.00	943.35	970.14	26.02		970.37	0.000272	5.62	3.24	4635.33	285.17	0.19	0.44	0.27	0.18
Main	1601.778	0.75 PMF 21100 c	21100.00	943.35	973.27	29.15		973.58	0.000321	6.58	3.81	5544.43	295.85	0.21	0.58	0.37	0.25
Main	1601.778	PMF 31590 cfs	31590.00	943.35	976.33	34.20		976.75	0.000356	7.71	4.46	7082.27	312.49	0.23	0.75	0.50	0.34
Main	1601.778	Q50 1700 cfs	1700.00	943.35	951.49	7.36	950.04	953.15	0.005287	10.68	8.54	199.17	35.45	0.69	2.40	0.79	0.86
Main	1601.778	1300 cfs	1300.00	943.35	950.15	6.03	949.12	951.67	0.006206	10.13	8.44	154.05	32.44	0.73	2.31	0.74	0.81
Main	1601.778	2850 cfs	2850.00	943.35	956.75	12.62		956.92	0.000487	4.64	2.43	1174.82	218.07	0.23	0.38	0.14	0.11
Main	1526.039	900 cfs	900.00	942.35	947.12	4.44	947.12	949.21	0.012468	11.77	10.96	82.15	21.38	0.98	3.45	0.49	0.77
Main	1526.039	Q10 1100 cfs	1100.00	942.35	947.73	5.05	947.73	950.11	0.011967	12.57	11.51	95.55	22.39	0.99	3.76	0.56	0.89
Main	1526.039	Q100 1980 cfs	1980.00	942.35	952.89	10.21	950.09	954.08	0.002727	9.59	6.06	326.89	134.80	0.53	1.73	0.17	0.51
Main	1526.039	2400 cfs	2400.00	942.35	955.00	12.32		955.41	0.000992	6.56	3.67	653.53	182.32	0.33	0.76	0.16	0.12
Main	1526.039	Q500 2650 cfs	2650.00	942.35	955.56	12.88		955.92	0.000864	6.30	3.49	760.01	196.97	0.31	0.69	0.17	0.10
Main	1526.039	3000 cfs	3000.00	942.35	956.85	14.17		957.09	0.000546	5.34	2.92	1028.29	214.07	0.25	0.48	0.14	0.09
Main	1526.039	3500 cfs	3500.00	942.35	957.45	14.77		957.70	0.000553	5.52	3.02	1158.12	218.04	0.25	0.51	0.16	0.10
Main	1526.039	5227 cfs	5227.00	942.35	959.29	16.61		959.57	0.000561	6.02	3.33	1570.84	230.27	0.26	0.58	0.21	0.15
Main	1526.039	5346 cfs	5346.00	942.35	959.70	17.03		959.96	0.000502	5.78	3.21	1666.22	233.05	0.25	0.53	0.20	0.14
Main	1526.039	0.5 PMF 11457 cf	11457.00	942.35	967.19	24.52		967.43	0.000287	5.58	3.20	3584.26	273.85	0.20	0.44	0.20	0.17
Main	1526.039	15000 cfs	15000.00	942.35	970.08	27.40		970.34	0.000280	5.93	3.42	4390.73	285.17	0.20	0.48	0.22	0.21
Main	1526.039	0.75 PMF 21100 c	21100.00	942.35	973.20	30.52		973.55	0.000327	6.89	3.98	5296.37	295.75	0.22	0.62	0.29	0.29
Main	1526.039	PMF 31590 cfs	31590.00	942.35	976.26	35.57		976.72	0.000359	8.00	4.62	6833.96	313.05	0.24	0.80	0.37	0.39
Main	1526.039	Q50 1700 cfs	1700.00	942.35	949.38	6.70	949.38	952.45	0.010788	14.41	12.62	134.74	25.16	0.98	4.50	0.75	1.17
Main	1526.039	1300 cfs	1300.00	942.35	948.32	5.65	948.32	950.94	0.011421	13.22	11.92	109.09	23.36	0.98	4.01	0.63	0.99
Main	1526.039	2850 cfs	2850.00	942.35	956.63	13.96		956.87	0.000550	5.31	2.90	982.79	212.66	0.25	0.48	0.14	0.08
Main	1480.719	900 cfs	900.00	935.38	938.07	2.69	940.60	947.95	0.009301	25.22	25.22	35.69	19.09	2.71	1.56		
Main	1480.719	Q10 1100 cfs	1100.00	935.38	938.61	3.23	941.35	948.69	0.007610	25.73	25.73	42.75	19.19	2.52	1.53		
Main	1480.719	Q100 1980 cfs	1980.00	935.38	953.19	12.71	944.23	953.92	0.000205	7.11	4.36	454.28	126.43	0.35	0.09	0.02	0.02
Main	1480.719	2400 cfs	2400.00	935.38	954.74	14.27	945.41	955.38	0.000168	6.95	3.49	686.75	169.13	0.32	0.08	0.03	0.02
Main	1480.719	Q500 2650 cfs	2650.00	935.38	955.23	14.75	946.13	955.88	0.000172	7.18	3.44	770.09	177.48	0.33	0.09	0.04	0.02
Main	1480.719	3000 cfs	3000.00	935.38	956.49	16.01	947.04	957.04	0.000141	6.88	2.98	1006.51	194.56	0.30	0.08	0.04	0.02
Main	1480.719	3500 cfs	3500.00	935.38	957.00	16.52	948.30	957.64	0.000162	7.53	3.16	1107.19	198.38	0.33	0.09	0.05	0.03
Main	1480.719	5227 cfs	5227.00	935.38	958.58	18.10	954.79	959.49	0.000222	9.35	3.66	1429.92	209.80	0.39	0.14	0.08	0.05
Main	1480.719	5346 cfs	5346.00	935.38	959.04	18.57	954.92	959.89	0.000203	9.09	3.50	1528.04	212.93	0.37	0.13	0.08	0.05
Main	1480.719	0.5 PMF 11457 cf	11457.00	935.38	966.52	26.04	959.06	967.36	0.000167	10.34	3.50	3276.76	252.99	0.36	0.15	0.11	0.10
Main	1480.719	15000 cfs	15000.00	935.38	969.31	28.83	960.67	970.26	0.000176	11.36	3.75	4002.78	266.77	0.37	0.18	0.13	0.12
Main	1480.719	0.75 PMF 21100 c	21100.00	935.38	972.13	31.66	963.16	973.45	0.000225	13.66	4.42	4771.04	276.94	0.43	0.25	0.19	0.19
Main	1480.719	PMF 31590 cfs	31590.00	935.38	976.80	36.33	966.53	978.58	0.000271	16.44	5.13	6156.04	323.29	0.48	0.34	0.24	0.28
Main	1480.719	Q50 1700 cfs	1700.00	935.38	950.42	9.94	943.36	951.51	0.000398	8.40	8.07	210.68	42.93	0.47	0.14	0.01	0.01
Main	1480.719	1300 cfs	1300.00	935.38	939.13	3.75	942.05	949.76	0.006435	26.16	26.16	49.70	19.29	2.38	1.51		
Main	1480.719	2850 cfs	2850.00	935.38	956.30	15.82	946.66	956.83	0.000136	6.70	2.94	970.43	193.17	0.30	0.07	0.04	0.02
Main	1430.15		Culvert														
Main	1379.577	900 cfs	900.00	934.98	938.35	3.37	940.20	944.67	0.004420	20.17	20.17	44.61	23.45	1.94	0.93		
Main	1379.577	Q10 1100 cfs	1100.00	934.98	939.00	4.02	940.94	945.62	0.003647	20.64	20.64	53.31	24.12	1.81	0.92		
Main	1379.577	Q100 1980 cfs	1980.00	934.98	952.65	14.83	943.83	953.71	0.000104	8.32	7.05	280.92	100.24	0.38	0.10	0.00	
Main	1379.577	2400 cfs	2400.00	934.98	954.31	13.40	945.04	955.32	0.000120	8.34	5.24	458.30	127.06	0.40	0.10	0.01	0.00
Main	1379.577	Q500 2650 cfs	2650.00	934.98	954.74	13.82	945.71	955.83	0.000127	8.77	5.16	513.36	133.24	0.42	0.11	0.02	0.01
Main	1379.577	3000 cfs	3000.00	934.98	956.01	15.09	946.64	957.00	0.000108	8.58	4.32	694.61	151.90	0.39	0.10	0.02	0.01
Main	1379.577	3500 cfs	3500.00	934.98	956.35	15.44	947.92	957.58	0.000132	9.63	4.68	748.18	156.86	0.43	0.13	0.03	0.01
Main	1379.577	5227 cfs	5227.00	934.98	957.24	16.32	955.27	959.42	0.000226	13.07	5.86	892.67	169.56	0.57	0.23	0.05	0.03
Main	1379.577	5346 cfs	5346.00	934.98	957.85	16.94	955.43	959.81	0.000198	12.54	5.35	999.07	178.34	0.54	0.21	0.05	0.03
Main	1379.577	0.5 PMF 11457 cf	11457.00	934.98	965.25	24.33	960.65	967.25	0.000160	14.36	4.59	2497.03	224.10	0.51	0.24	0.08	0.07
Main	1379.577	15000 cfs	15000.00	934.98	967.87	26.96	962.61	970.18	0.000171	15.89	4.83	3105.73	240.44	0.54	0.29	0.10	0.10
Main	1379.577	0.75 PMF 21100 c	21100.00	934.98	969.85	28.94	965.87	973.35	0.000246	19.96	5.87	3595.34	254.50	0.65	0.44	0.16	0.15
Main	1379.577	PMF 31590 cfs	31590.00	934.98	973.47	32.56	970.07	978.46	0.000321	24.66	6.96	4537.28	265.34	0.76	0.65	0.23	0.26
Main	1379.577	Q50 1700 cfs	1700.00	934.98	948.66	13.68	942.96	950.03	0.000147	9.38	9.38	181.30	33.98	0.45	0.13		
Main	1379.577	1300 cfs	1300.00	934.98	939.65	4.67	941.66	946.49	0.003089	20.99	20.99	61.94	24.79	1.71	0.90		
Main	1379.577	2850 cfs	2850.00	934.98	955.86	14.94	946.25	956.79	0.000102	8.29	4.24	672.25	149.66	0.38	0.10	0.02	0.01
Main	1317.58		Culvert														
Main	1255.590	900 cfs	900.00	934.00	941.91	7.91	939.22	943.05	0.000257	8.59	8.59	104.79	28.95	0.54	0.13		
Main	1255.590	Q10 1100 cfs	1100.00	934.00	942.94	8.94	939.96	944.28	0.000254	9.28	9.28	118.50	30.12	0.55	0.14		
Main	1255.590	Q100 1980 cfs	1980.00	934.00	952.06	14.39	942.84	953.12	0.000107	8.27	8.13	243.46	105.20	0.38	0.10	0.00	
Main	1255.590	2400 cfs	2400.00	934.00	954.15	13.73	944.03	955.17	0.000115	8.29	5.50	435.98	116.34	0.39	0.10	0.01	0.00
Main	1255.590	Q500 2650 cfs	2650.00	934.00	954.63	14.21	944.75	955.73	0.000121	8.70	5.33	497.28	138.76	0.41	0.11	0.01	0.00
Main	1255.590	3000 cfs	3000.00	934.00	955.91	15.49	945.65	956.93	0.000105	8.58	4.21	712.88	196.07	0.38	0.10	0.02	0.01
Main	1255.590	3500 cfs	3500.00	934.00	956.24	15.82	946.92	957.51	0.000129	9.66	4.49	779.60	202.84	0.43	0.13	0.02	0.01
Main	1255.590	5227 cfs	5227.00	934.00	950.65	16.65	950.65	959.37	0.000724	23.70	23.70	220.55	38.82	1.02	0.75		
Main	1255.590	5346 cfs	5346.00	934.00	950.85	16.85	950.85	959.75	0.000728	23.95	23.95	223.24	39.05	1.03	0.77		
Main	1255.590	0.5 PMF 11457 cf	11457.00	934.00	965.28	24.85	960.71	967.15	0.000148	13.99	3.83	2984.27	271.33	0.49	0.23	0.08	0.07
Main	1255.590	15000 cfs	15000.00	934.00	967.99	27.56	962.70	970.08	0.000155	15.33	4.00	3749.15	285.24	0.51	0.27	0.10	0.10
Main	1255.590	0.75 PMF 21100 c	21100.00	934.00	970.12	29.69	965.59	973.19	0.000216	19.03	4.83	4365.94	294.26	0.62	0.40	0.15	0.15
Main	1255.590	PMF 31590 cfs	31590.00	934.00	974.17	33.74	969.59	978.36	0.000268	23.10	5.66	5581.13	305.79	0.70	0.56	0.21	0.25
Main	1255.590	Q50 1700 cfs	1700.00	934.00	947.97	13.97	941.98	949.28	0.000137	9.18	9.18	185.10	35.80	0.43	0.12		
Main	1255.590	1300 cfs	1300.00	934.00	943.92	9.92	940.68	945.44	0.000252	9.89	9.89	131.39	31.22	0.55	0.16		
Main	1255.590	2850 cfs	2850.00	934.00	955.77	15.34	945.25	956.72	0.000099	8.29	4.16	684.66	190.25	0.37	0.09	0.02	0.01
Main	1166.32		Culvert														
Main	1077.047	900 cfs	900.00	933.00	941.31	8.31	938.22	942.34	0.000218	8.18	8.18	110.06	26.93	0.50	0.11		
Main	1077.047	Q10 1100 cfs	1100.00	933.00	942.35	9.35	938.96	943.57	0.000220	8.88	8.88	123.86	27.79	0.51	0.13		
Main	1077.047	Q100 1980 cfs	1980.00	933.00	951.07	18.07	941.84	952.13	0.000079	8.27	8.27	239.40	34.96	0.34	0.09		
Main	1077.047	2400 cfs	2400.00	933.00	953.81	16.79	943.06	954.89	0.000090	8.42	6.58	364.90	100.09	0.36	0.09	0.01	
Main	1077.047	Q500 2650 cfs	2650.00	933.00	954.46	14.54	943.74	955.58	0.000117	8.69	5.67	467.69	187.43	0.40	0.11	0.01	0.00
Main	1077.047	3000 cfs	3000.00	933.00	955.87	15.96	944.66	956.86	0.000096	8.41	4.09	733.69	189.77	0.37	0.10	0.02	0.01
Main	1077.047	3500 cfs	3500.00	933.00	956.24	16.32	945.94	957.46	0.000117	9.42	4.35	804.26	192.36	0.41	0.12	0.02	0.01
Main	1077.047	5227 cfs	5227.00	933.00	956.52	16.60	949.88	959.05	0.000241	13.65	6.09	858.17	193.84	0.59	0.25	0.05	0.03
Main	1077.047	5346 cfs	5346.00	933.00	953.58	16.56	950.14	959.17	0.000474	19.10	15.48	345.25	99.57	0.83	0.49	0.02	
Main	1077.047	0.5 PMF 11457 cf	11457.00	933.00	964.95	25.03	960.39	967.07	0.000158	14.53	4.35	2634.42	225.02	0.51	0.25	0.09	0.07
Main	1077.047	15000 cfs	15000.00	933.00	967.52	27.60	962.42	970.04	0.000174	16.27	4.65	3222.40	230.97	0.55	0.30	0.12	0.10
Main	1077.047	0.75 PMF 21100 c	21100.00	933.00	968.90	28.98	965.43	973.09	0.000277	21.22	5.96	3542.68	232.99	0.69	0.50	0.20	0.17
Main	1077.047	PMF 31590 cfs	31590.00	933.00	969.35	29.43	969.35	978.24	0.000581	31.03	8.66	3647.46	233.55	1.01	1.07	0.44	0.36
Main	1077.047	Q50 1700 cfs	1700.00	933.00	947.10	14.10	940.98	948.39	0.000133	9.10	9.10	186.82	31.70	0.43	0.12		
Main	1077.047	1300 cfs	1300.00	933.00	943.33	10.33	939.68	944.73	0.000220	9.50	9.50	136.82	28.59	0.52	0.14		
Main	1077.047	2850 cfs	2850.00	933.00	955.73	15.81	944.25	956.66	0.000091	8.11	4.03	706.96	188.32	0.36	0.09	0.01	0.01

HEC-RAS Plan: PrCondSSFISDesgn River: SippoCreek Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Hydr Depth C	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Vel Total	Flow Area	Top Width	Froude # Chl	Shear Chan	Shear LOB	Shear ROB
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)	(lb/sq ft)	(lb/sq ft)
Main	993.45		Culvert														
Main	910.2854	900 cfs	900.00	932.00	940.75	8.75	937.22	941.69	0.000183	7.76	7.76	115.93	35.93	0.46	0.10		
Main	910.2854	Q10 1100 cfs	1100.00	932.00	941.80	9.80	937.96	942.91	0.000188	8.47	8.47	129.83	37.82	0.48	0.11		
Main	910.2854	Q100 1980 cfs	1980.00	932.00	949.80	17.80	940.84	950.89	0.000083	8.40	8.40	235.82	52.16	0.35	0.09		
Main	910.2854	2400 cfs	2400.00	932.00	952.87	20.87	942.06	954.04	0.000072	8.68	8.68	276.57	90.66	0.33	0.09		
Main	910.2854	Q500 2650 cfs	2650.00	932.00	953.69	21.69	942.73	955.01	0.000077	9.22	9.22	287.35	114.61	0.35	0.10		
Main	910.2854	3000 cfs	3000.00	932.00	955.60	16.00	943.64	956.75	0.000106	8.82	5.14	584.00	192.80	0.39	0.11	0.01	0.01
Main	910.2854	3500 cfs	3500.00	932.00	955.95	16.35	944.94	957.37	0.000129	9.90	5.37	651.19	197.07	0.43	0.13	0.01	0.01
Main	910.2854	5227 cfs	5227.00	932.00	953.96	21.96	948.88	958.97	0.000288	17.97	17.97	290.90	124.20	0.68	0.39		
Main	910.2854	5346 cfs	5346.00	932.00	953.75	21.75	949.14	959.09	0.000311	18.55	18.55	288.19	116.89	0.70	0.42		
Main	910.2854	0.5 PMF 11457 cf	11457.00	932.00	965.81	26.21	960.77	966.93	0.000093	11.49	3.94	2908.39	251.27	0.40	0.15	0.05	0.05
Main	910.2854	15000 cfs	15000.00	932.00	968.78	29.19	962.69	969.87	0.000087	11.91	4.10	3662.38	255.15	0.39	0.16	0.06	0.05
Main	910.2854	0.75 PMF 21100 c	21100.00	932.00	971.46	31.86	965.01	972.88	0.000108	14.08	4.78	4417.08	304.92	0.44	0.21	0.07	0.07
Main	910.2854	PMF 31590 cfs	31590.00	932.00	974.29	34.69	967.91	976.37	0.000151	17.68	5.98	5285.80	309.26	0.53	0.33	0.11	0.12
Main	910.2854	Q50 1700 cfs	1700.00	932.00	946.26	14.26	939.98	947.52	0.000128	9.00	9.00	188.97	45.82	0.42	0.11		
Main	910.2854	1300 cfs	1300.00	932.00	942.78	10.78	938.68	944.07	0.000190	9.10	9.10	142.86	39.58	0.49	0.13		
Main	910.2854	2850 cfs	2850.00	932.00	955.46	15.86	943.28	956.53	0.000100	8.51	5.12	556.64	191.03	0.38	0.10	0.01	0.01
Main	793.67		Culvert														
Main	677.0554	900 cfs	900.00	931.00	939.84	8.84	936.22	940.76	0.000177	7.69	7.69	117.11	28.16	0.46	0.10		
Main	677.0554	Q10 1100 cfs	1100.00	931.00	940.89	9.89	936.96	941.98	0.000182	8.39	8.39	131.03	28.95	0.47	0.11		
Main	677.0554	Q100 1980 cfs	1980.00	931.00	948.27	17.27	939.84	949.43	0.000092	8.65	8.65	226.80	34.50	0.37	0.10		
Main	677.0554	2400 cfs	2400.00	931.00	950.52	19.52	941.06	951.86	0.000090	9.28	9.28	258.64	36.20	0.37	0.11		
Main	677.0554	Q500 2650 cfs	2650.00	931.00	951.45	20.45	941.72	952.93	0.000094	9.78	9.78	270.90	36.90	0.38	0.12		
Main	677.0554	3000 cfs	3000.00	931.00	954.46	23.46	942.64	955.91	0.000076	9.65	9.65	310.86	169.08	0.35	0.11		
Main	677.0554	3500 cfs	3500.00	931.00	954.73	23.73	943.94	956.65	0.000100	11.13	11.13	314.42	177.18	0.40	0.15		
Main	677.0554	5227 cfs	5227.00	931.00	953.48	22.48	947.88	958.26	0.000266	17.55	17.55	297.81	104.36	0.65	0.37		
Main	677.0554	5346 cfs	5346.00	931.00	953.38	22.38	948.14	958.43	0.000282	18.03	18.03	296.58	100.88	0.67	0.39		
Main	677.0554	0.5 PMF 11457 cf	11457.00	931.00	961.69	21.32	961.69	966.87	0.000381	20.26	5.21	2199.19	336.73	0.77	0.51	0.09	0.14
Main	677.0554	15000 cfs	15000.00	931.00	964.92	24.56	964.92	969.75	0.000328	20.66	3.91	3833.52	677.24	0.73	0.50	0.06	0.17
Main	677.0554	0.75 PMF 21100 c	21100.00	931.00	968.69	28.33	968.69	972.72	0.000274	20.77	3.00	7036.99	950.50	0.68	0.48	0.09	0.20
Main	677.0554	PMF 31590 cfs	31590.00	931.00	971.43	31.06	971.43	976.18	0.000332	24.33	3.28	9644.85	954.93	0.77	0.64	0.16	0.29
Main	677.0554	Q50 1700 cfs	1700.00	931.00	945.22	14.22	938.98	946.48	0.000130	9.02	9.02	188.38	32.21	0.42	0.12		
Main	677.0554	1300 cfs	1300.00	931.00	941.87	10.87	937.68	943.14	0.000185	9.02	9.02	144.09	29.69	0.48	0.13		
Main	677.0554	2850 cfs	2850.00	931.00	954.34	23.34	942.25	955.66	0.000070	9.22	9.22	309.21	165.59	0.34	0.10		
Main	510.57		Culvert														
Main	344.0778	900 cfs	900.00	930.00	938.41	8.41	935.22	939.43	0.000209	8.07	8.07	111.47	40.08	0.49	0.11		
Main	344.0778	Q10 1100 cfs	1100.00	930.00	939.46	9.46	935.96	940.65	0.000211	8.78	8.78	125.29	42.56	0.50	0.12		
Main	344.0778	Q100 1980 cfs	1980.00	930.00	946.33	16.33	938.64	947.63	0.000111	9.15	9.15	216.42	58.93	0.40	0.11		
Main	344.0778	2400 cfs	2400.00	930.00	947.53	17.53	940.06	949.19	0.000128	10.33	10.33	232.33	61.78	0.43	0.14		
Main	344.0778	Q500 2650 cfs	2650.00	930.00	947.69	17.69	940.73	949.68	0.000152	11.30	11.30	234.44	62.16	0.47	0.17		
Main	344.0778	3000 cfs	3000.00	930.00	947.66	17.66	941.64	950.21	0.000196	12.82	12.82	233.97	62.08	0.54	0.22		
Main	344.0778	3500 cfs	3500.00	930.00	946.41	16.41	942.94	950.43	0.000340	16.10	16.10	217.44	59.11	0.70	0.35		
Main	344.0778	5227 cfs	5227.00	930.00	946.65	16.65	946.65	955.37	0.000724	23.70	23.70	220.55	59.67	1.02	0.75		
Main	344.0778	5346 cfs	5346.00	930.00	946.85	16.85	946.85	955.75	0.000728	23.95	23.95	223.24	60.15	1.03	0.77		
Main	344.0778	0.5 PMF 11457 cf	11457.00	930.00	959.02	22.90	959.02	962.58	0.000269	17.87	2.88	3972.55	764.12	0.66	0.38	0.07	0.11
Main	344.0778	15000 cfs	15000.00	930.00	960.51	24.40	960.51	964.56	0.000309	19.98	2.90	5168.65	833.97	0.71	0.47	0.10	0.14
Main	344.0778	0.75 PMF 21100 c	21100.00	930.00	963.64	27.52	963.64	967.30	0.000285	20.79	2.57	8201.37	1057.70	0.70	0.49	0.12	0.15
Main	344.0778	PMF 31590 cfs	31590.00	930.00	966.07	29.95	966.07	970.48	0.000356	24.58	2.92	10829.88	1109.01	0.79	0.67	0.21	0.20
Main	344.0778	Q50 1700 cfs	1700.00	930.00	943.86	13.86	937.98	945.19	0.000141	9.25	9.25	183.71	53.05	0.44	0.12		
Main	344.0778	1300 cfs	1300.00	930.00	940.44	10.44	936.68	941.81	0.000212	9.40	9.40	138.27	44.89	0.51	0.14		
Main	344.0778	2850 cfs	2850.00	930.00	947.87	17.67	941.25	949.97	0.000176	12.17	12.17	234.16	62.11	0.51	0.19		
Main	226.91		Culvert														
Main	109.7401	900 cfs	900.00	929.00	932.67	3.67	934.22	937.98	0.003302	18.48	18.48	48.69	27.25	1.70	0.76		
Main	109.7401	Q10 1100 cfs	1100.00	929.00	933.28	4.28	934.96	939.13	0.002976	19.41	19.41	56.66	28.44	1.65	0.79		
Main	109.7401	Q100 1980 cfs	1980.00	929.00	934.70	5.70	937.84	945.36	0.003692	26.20	26.20	75.57	31.27	1.93	1.31		
Main	109.7401	2400 cfs	2400.00	929.00	939.06	10.06	939.06	944.09	0.000818	18.00	18.00	133.31	39.90	1.00	0.51		
Main	109.7401	Q500 2650 cfs	2650.00	929.00	939.73	10.73	939.73	945.12	0.000804	18.64	18.64	142.18	41.23	1.00	0.54		
Main	109.7401	3000 cfs	3000.00	929.00	940.64	11.64	940.64	946.52	0.000786	19.45	19.45	154.25	43.03	1.00	0.57		
Main	109.7401	3500 cfs	3500.00	929.00	941.94	12.94	941.94	948.41	0.000753	20.42	20.42	171.39	45.59	1.00	0.61		
Main	109.7401	5227 cfs	5227.00	929.00	945.64	16.64	945.64	954.37	0.000726	23.71	23.71	220.42	52.92	1.02	0.75		
Main	109.7401	5346 cfs	5346.00	929.00	945.85	16.85	945.85	954.75	0.000728	23.95	23.95	223.24	53.34	1.03	0.77		
Main	109.7401	0.5 PMF 11457 cf	11457.00	929.00	954.11	18.86	954.11	957.69	0.000399	19.13	2.84	4340.77	937.35	0.78	0.47	0.10	0.12
Main	109.7401	15000 cfs	15000.00	929.00	956.19	20.96	956.19	959.30	0.000352	19.27	2.29	6542.74	1158.88	0.74	0.46	0.12	0.11
Main	109.7401	0.75 PMF 21100 c	21100.00	929.00	958.44	23.22	958.44	961.31	0.000341	20.31	2.21	9553.31	1410.29	0.74	0.49	0.15	0.11
Main	109.7401	PMF 31590 cfs	31590.00	929.00	960.04	24.82	960.04	963.85	0.000471	24.94	2.66	11872.03	1484.49	0.88	0.73	0.25	0.19
Main	109.7401	Q50 1700 cfs	1700.00	929.00	934.34	5.34	936.98	943.31	0.003393	24.03	24.03	70.73	30.54	1.83	1.13		
Main	109.7401	1300 cfs	1300.00	929.00	933.85	4.85	935.68	940.20	0.002726	20.22	20.22	64.30	29.58	1.62	0.83		
Main	109.7401	2850 cfs	2850.00	929.00	940.25	11.25	940.25	945.93	0.000794	19.12	19.12	149.09	42.26	1.00	0.56		

HydroCAD Output



Drainage Diagram for Proposed Conditions Sippo Resevoir-Raise Crest 1007

Prepared by URS Corporation, Printed 1/15/2013

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Pond 1P: Sippo Creek Peak Elev=1,017.06' Storage=569.655 af Inflow=31,590.46 cfs 16,996.776 af
41 af Secondary=19,682.82 cfs 9,649.484 af Tertiary=5,517.44 cfs 2,301.910 af Outflow=31,427.22 cfs 16,982.935 af

Pond 16P: Lincoln Way Box Peak Elev=1,013.93' Storage=286.768 af Inflow=25,909.92 cfs 14,680.757 af
Primary=2,930.52 cfs 4,184.525 af Secondary=23,177.97 cfs 10,494.830 af Outflow=25,907.79 cfs 14,679.355 af

Summary for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 21.56" for 6 hr PMF TR-60 event
Inflow = 31,590.46 cfs @ 6.02 hrs, Volume= 16,996.776 af
Outflow = 31,427.22 cfs @ 6.19 hrs, Volume= 16,982.935 af, Atten= 1%, Lag= 10.2 min
Primary = 6,227.11 cfs @ 6.18 hrs, Volume= 5,031.541 af
Secondary = 19,682.82 cfs @ 6.18 hrs, Volume= 9,649.484 af
Tertiary = 5,517.44 cfs @ 6.20 hrs, Volume= 2,301.910 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,001.64' Surf.Area= 6.730 ac Storage= 37.975 af
Peak Elev= 1,017.06' @ 6.20 hrs Surf.Area= 76.796 ac Storage= 569.655 af (531.680 af above start)
Flood Elev= 1,005.00' Surf.Area= 12.657 ac Storage= 68.385 af (30.411 af above start)

Plug-Flow detention time= 18.9 min calculated for 16,940.254 af (100% of inflow)
Center-of-Mass det. time= 13.1 min (502.7 - 489.6)

Volume	Invert	Avail.Storage	Storage Description
#1	987.68'	1,269.498 af	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
987.68	0.500	500.0	0.000	0.000	0.500
990.00	1.200	1,000.0	1.914	1.914	1.871
994.00	2.000	2,500.0	6.332	8.246	11.463
998.00	3.060	2,611.0	10.045	18.291	12.526
1,000.00	6.204	3,251.0	9.081	27.372	19.381
1,001.64	6.730	4,770.0	10.603	37.975	41.639
1,002.00	7.243	5,147.0	2.515	40.489	48.470
1,004.00	9.610	10,274.0	16.797	57.287	192.907
1,006.00	16.124	11,202.9	25.455	82.741	229.356
1,008.00	21.577	15,736.9	37.569	120.310	452.497
1,010.00	29.674	20,301.4	51.036	171.347	753.009
1,012.00	39.539	22,845.5	68.977	240.324	953.544
1,014.00	68.669	34,370.5	106.876	347.201	2,158.194
1,025.00	100.000	50,000.0	922.298	1,269.498	4,567.224

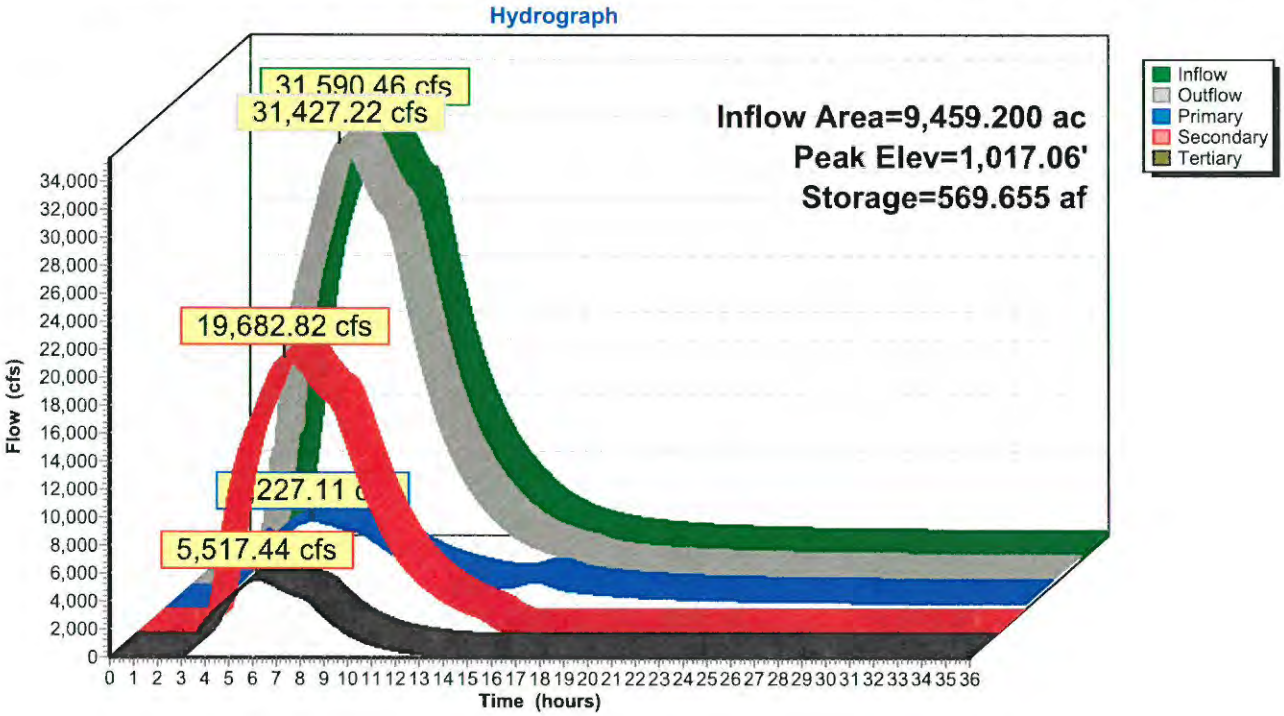
Device	Routing	Invert	Outlet Devices
#1	Primary	1,001.64'	**50.0' long x 2.9' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.45 2.58 2.66 2.66 2.65 2.64 2.65 2.69 2.69 2.73 2.83 2.95 3.01 3.12 3.32
#2	Secondary	1,007.00'	**Right Embankment Weir - Building side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 3.00 4.00 22.00 Width (feet) 78.00 78.00 78.00 78.00
#3	Secondary	1,007.00'	**Left Embankment Weir - Playground side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 3.00 13.00 15.00 Width (feet) 115.00 130.00 180.00 205.00 225.00
#4	Tertiary	1,008.00'	**Weir Flow around Bldg. X 0.50, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 2.00 4.00 6.00 8.00 10.00 12.00 Width (feet) 50.00 90.00 122.00 166.00 240.00 334.00 420.00

Primary OutFlow Max=6,226.82 cfs @ 6.18 hrs HW=1,017.06' TW=1,013.93' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 6,226.82 cfs @ 8.08 fps)

Secondary OutFlow Max=19,681.90 cfs @ 6.18 hrs HW=1,017.06' TW=1,013.93' (Dynamic Tailwater)
└─**2=Right Embankment Weir - Building side** (Weir Controls 6,110.97 cfs @ 7.79 fps)
└─**3=Left Embankment Weir - Playground side** (Weir Controls 13,570.93 cfs @ 7.69 fps)

Tertiary OutFlow Max=5,517.41 cfs @ 6.20 hrs HW=1,017.06' (Free Discharge)
└─**4=Weir Flow around Bldg.** (Weir Controls 5,517.41 cfs @ 4.16 fps)

Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007



Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
0.00	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.10	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.20	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.30	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.40	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.50	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.60	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.70	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.80	0.35	37.976	1,001.64	0.00	0.00	0.00	0.00
0.90	1.51	37.982	1,001.64	0.00	0.00	0.00	0.00
1.00	5.01	38.005	1,001.64	0.04	0.04	0.00	0.00
1.10	12.32	38.068	1,001.65	0.20	0.20	0.00	0.00
1.20	25.69	38.211	1,001.67	0.79	0.79	0.00	0.00
1.30	47.72	38.487	1,001.72	2.53	2.53	0.00	0.00
1.40	81.50	38.967	1,001.78	6.69	6.69	0.00	0.00
1.50	129.90	39.727	1,001.89	15.70	15.70	0.00	0.00
1.60	194.54	40.839	1,002.05	33.64	33.64	0.00	0.00
1.70	277.79	42.360	1,002.25	63.51	63.51	0.00	0.00
1.80	382.73	44.349	1,002.51	108.06	108.06	0.00	0.00
1.90	512.38	46.865	1,002.82	170.20	170.20	0.00	0.00
2.00	672.72	49.959	1,003.19	259.30	259.30	0.00	0.00
2.10	869.78	53.672	1,003.61	376.99	376.99	0.00	0.00
2.20	1,117.12	58.060	1,004.08	536.32	536.32	0.00	0.00
2.30	1,425.42	63.241	1,004.57	734.52	734.52	0.00	0.00
2.40	1,565.63	68.150	1,004.98	912.28	912.28	0.00	0.00
2.50	2,017.59	74.347	1,005.44	1,141.88	1,141.88	0.00	0.00
2.60	2,609.96	82.552	1,005.99	1,477.49	1,477.49	0.00	0.00
2.70	3,370.30	93.257	1,006.62	1,844.62	1,844.62	0.00	0.00
2.80	4,319.32	107.527	1,007.38	2,431.93	2,282.48	149.45	0.00
2.90	5,452.77	123.283	1,008.13	3,541.13	2,746.98	790.06	4.09
3.00	6,761.94	138.963	1,008.81	4,877.81	3,183.98	1,627.02	66.81
3.10	8,212.83	154.545	1,009.41	6,323.70	3,591.99	2,564.67	167.04
3.20	9,768.55	170.207	1,009.96	7,866.16	3,984.18	3,586.71	295.27
3.30	11,356.62	187.002	1,010.51	9,060.58	3,881.70	4,724.60	454.28
3.40	12,939.14	209.073	1,011.16	9,377.73	3,100.97	5,586.94	689.82
3.50	14,439.77	242.445	1,012.05	10,467.34	3,014.30	6,367.51	1,085.53
3.60	15,857.90	273.137	1,012.73	12,440.47	3,331.77	7,657.20	1,451.49
3.70	17,160.82	299.820	1,013.24	14,136.25	3,612.31	8,761.05	1,762.88
3.80	18,340.76	323.857	1,013.64	15,588.47	3,850.26	9,703.15	2,035.06
3.90	19,412.33	345.796	1,013.98	16,874.61	4,058.56	10,535.18	2,280.87
4.00	20,355.23	365.947	1,014.27	18,040.65	4,245.30	11,287.48	2,507.87
4.10	21,212.98	384.221	1,014.53	19,131.51	4,418.13	11,989.00	2,724.38
4.20	21,972.45	400.553	1,014.77	20,118.51	4,572.32	12,621.02	2,925.18
4.30	22,641.89	415.089	1,014.97	21,017.09	4,711.00	13,194.12	3,111.98
4.40	23,211.05	427.665	1,015.15	21,797.72	4,830.00	13,689.94	3,277.79
4.50	23,775.64	438.774	1,015.30	22,505.62	4,937.53	14,138.78	3,429.31
4.60	24,360.60	448.962	1,015.44	23,161.05	5,036.42	14,553.31	3,571.32
4.70	24,969.31	458.745	1,015.58	23,799.08	5,132.34	14,956.19	3,710.56
4.80	25,622.17	468.443	1,015.71	24,443.04	5,228.69	15,362.04	3,852.30
4.90	26,296.92	478.234	1,015.84	25,099.17	5,326.24	15,774.57	3,998.36
5.00	26,989.50	488.213	1,015.98	25,774.05	5,425.94	16,197.83	4,150.28
5.10	27,686.32	498.300	1,016.12	26,459.81	5,526.37	16,626.51	4,306.93
5.20	28,362.66	508.397	1,016.25	27,150.36	5,626.65	17,056.71	4,466.99

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continued

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
5.30	29,016.56	518.324	1,016.38	27,834.30	5,725.23	17,481.46	4,627.61
5.40	29,628.28	527.858	1,016.51	28,497.99	5,820.06	17,892.10	4,785.83
5.50	30,196.16	536.973	1,016.63	29,138.76	5,911.05	18,287.41	4,940.30
5.60	30,648.35	545.275	1,016.74	29,718.51	5,992.48	18,643.48	5,082.54
5.70	31,003.75	552.415	1,016.83	30,220.12	6,062.36	18,950.45	5,207.30
5.80	31,283.09	558.370	1,016.91	30,641.07	6,120.65	19,207.35	5,313.07
5.90	31,486.96	563.159	1,016.98	30,980.79	6,167.40	19,414.09	5,399.30
6.00	**31,588.55**	566.805	1,017.02	31,238.21	6,202.50	19,570.17	5,465.53
6.10	**31,549.50**	569.003	1,017.05	**31,386.99**	**6,222.26**	**19,659.50**	5,505.23
6.20	31,410.43	**569.676**	**1,017.06**	**31,426.34**	**6,226.85**	**19,682.08**	**5,517.41**
6.30	31,202.27	568.964	1,017.05	31,367.01	6,217.85	19,644.64	5,504.51
6.40	30,944.93	567.145	1,017.03	31,229.60	6,198.15	19,559.79	5,471.66
6.50	30,645.86	564.419	1,016.99	31,026.10	6,169.29	19,434.65	5,422.16
6.60	30,311.44	560.963	1,016.95	30,770.76	6,133.25	19,277.87	5,359.64
6.70	29,960.77	556.946	1,016.89	30,477.19	6,091.88	19,097.67	5,287.65
6.80	29,590.33	552.487	1,016.83	30,153.76	6,046.22	18,898.97	5,208.57
6.90	29,202.27	547.682	1,016.77	29,808.00	5,997.32	18,686.34	5,124.34
7.00	28,810.68	542.559	1,016.70	29,442.43	5,945.49	18,461.26	5,035.68
7.10	28,424.44	537.285	1,016.64	29,069.49	5,892.51	18,231.39	4,945.60
7.20	28,047.02	531.949	1,016.56	28,691.86	5,838.67	17,998.25	4,854.94
7.30	27,675.20	526.620	1,016.49	28,315.47	5,784.86	17,765.57	4,765.05
7.40	27,343.38	521.443	1,016.42	27,954.53	5,733.25	17,542.35	4,678.93
7.50	27,027.25	516.489	1,016.36	27,610.96	5,683.90	17,329.45	4,597.60
7.60	26,733.41	511.773	1,016.30	27,286.24	5,637.13	17,127.97	4,521.15
7.70	26,479.49	507.360	1,016.24	26,985.07	5,593.67	16,940.94	4,450.46
7.80	26,306.22	503.468	1,016.18	26,722.70	5,555.90	16,778.08	4,388.72
7.90	26,301.91	500.691	1,016.15	26,541.09	5,530.33	16,666.13	4,344.63
8.00	26,069.19	498.573	1,016.12	26,394.53	5,508.80	16,574.51	4,311.22
8.10	25,574.82	495.036	1,016.07	26,140.55	5,470.46	16,414.25	4,255.84
8.20	24,919.99	489.393	1,015.99	25,742.69	5,410.64	16,163.55	4,168.50
8.30	24,169.24	481.751	1,015.89	25,211.37	5,330.96	15,828.98	4,051.44
8.40	23,366.25	472.471	1,015.76	24,578.16	5,235.87	15,430.02	3,912.27
8.50	22,539.69	461.988	1,015.62	23,870.40	5,129.29	14,983.58	3,757.53
8.60	21,709.65	450.669	1,015.47	23,120.09	5,015.56	14,509.19	3,595.35
8.70	20,885.65	438.806	1,015.30	22,343.14	4,896.82	14,016.57	3,429.75
8.80	20,078.65	426.671	1,015.13	21,557.95	4,775.97	13,517.53	3,264.46
8.90	19,293.87	414.406	1,014.96	20,781.34	4,655.52	13,022.68	3,103.14
9.00	18,534.36	402.162	1,014.79	20,007.97	4,534.24	12,528.23	2,945.49
9.10	17,801.66	390.041	1,014.62	19,258.14	4,415.66	12,047.62	2,794.86
9.20	17,039.08	377.935	1,014.44	18,514.20	4,296.51	11,569.15	2,648.54
9.30	16,311.12	365.751	1,014.27	17,779.28	4,178.01	11,095.65	2,505.62
9.40	15,624.55	353.704	1,014.09	17,065.11	4,061.61	10,634.35	2,369.15
9.50	14,973.86	341.959	1,013.92	16,363.71	3,945.98	10,180.27	2,237.46
9.60	14,356.19	330.672	1,013.75	15,694.54	3,835.11	9,746.85	2,112.57
9.70	13,768.22	319.919	1,013.58	15,020.62	3,721.75	9,309.26	1,989.61
9.80	13,207.85	309.826	1,013.41	14,395.27	3,616.25	8,903.23	1,875.79
9.90	12,672.33	300.228	1,013.25	13,784.68	3,511.28	8,505.63	1,767.76
10.00	12,160.71	291.343	1,013.08	13,198.19	3,410.62	8,124.10	1,663.48
10.10	11,670.76	282.976	1,012.93	12,656.00	3,316.50	7,770.90	1,568.59
10.20	11,201.96	275.114	1,012.77	12,106.99	3,219.33	7,412.40	1,475.27
10.30	10,752.75	267.855	1,012.63	11,602.76	3,130.27	7,083.45	1,389.03
10.40	10,322.83	260.981	1,012.48	11,134.95	3,046.86	6,778.03	1,310.06
10.50	9,911.04	254.578	1,012.34	10,649.06	2,958.41	6,460.16	1,230.49

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continued

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
10.60	9,516.73	248.644	1,012.20	10,212.51	2,879.18	6,174.86	1,158.47
10.70	9,138.84	243.008	1,012.07	9,805.23	2,804.46	5,908.53	1,092.24
10.80	8,777.23	237.709	1,011.93	9,391.08	2,727.13	5,637.43	1,026.52
10.90	8,431.19	232.768	1,011.80	9,012.19	2,656.64	5,389.69	965.86
11.00	8,100.07	228.060	1,011.68	8,657.44	2,589.94	5,157.69	909.80
11.10	7,783.53	223.564	1,011.56	8,309.94	2,523.65	4,930.34	855.95
11.20	7,479.57	219.293	1,011.45	7,985.15	2,461.67	4,717.97	805.52
11.30	7,189.10	215.175	1,011.33	7,679.17	2,402.92	4,517.90	758.34
11.40	6,911.75	211.181	1,011.22	7,385.62	2,345.90	4,325.94	713.78
11.50	6,646.38	207.357	1,011.11	7,098.37	2,289.65	4,138.11	670.62
11.60	6,392.26	203.677	1,011.01	6,829.72	2,236.93	3,962.46	630.34
11.70	6,151.66	200.143	1,010.91	6,569.18	2,185.29	3,792.10	591.79
11.80	5,923.56	196.748	1,010.80	6,323.84	2,136.60	3,631.66	555.58
11.90	5,705.01	193.518	1,010.71	6,086.83	2,089.27	3,476.64	520.92
12.00	5,494.75	190.410	1,010.61	5,864.93	2,044.88	3,331.46	488.59
12.10	5,290.16	187.380	1,010.52	5,652.89	2,002.16	3,192.71	458.02
12.20	5,091.37	184.402	1,010.43	5,449.24	1,960.91	3,059.41	428.92
12.30	4,898.41	181.496	1,010.33	5,243.13	1,918.53	2,924.54	400.06
12.40	4,710.12	178.671	1,010.24	5,048.85	1,879.03	2,797.25	372.57
12.50	4,528.42	175.890	1,010.15	4,862.43	1,840.94	2,675.06	346.43
12.60	4,352.25	173.142	1,010.06	4,683.04	1,804.14	2,557.41	321.49
12.70	4,182.64	170.425	1,009.97	4,505.00	1,767.00	2,440.73	297.26
12.80	4,019.60	167.796	1,009.88	4,333.66	1,731.72	2,328.23	273.71
12.90	3,863.27	165.219	1,009.79	4,172.66	1,698.82	2,222.31	251.53
13.00	3,713.85	162.679	1,009.70	4,018.82	1,667.31	2,120.96	230.54
13.10	3,570.80	160.171	1,009.61	3,872.74	1,637.60	2,024.46	210.68
13.20	3,434.85	157.709	1,009.52	3,725.90	1,607.20	1,927.45	191.26
13.30	3,305.20	155.328	1,009.43	3,590.58	1,580.47	1,837.21	172.89
13.40	3,182.37	152.984	1,009.35	3,463.91	1,556.17	1,752.08	155.65
13.50	3,065.80	150.670	1,009.26	3,344.28	1,533.81	1,671.02	139.45
13.60	2,955.32	148.377	1,009.18	3,231.54	1,513.60	1,593.75	124.19
13.70	2,850.97	146.136	1,009.09	3,117.75	1,493.29	1,515.23	109.24
13.80	2,750.76	143.938	1,009.00	3,016.26	1,477.95	1,443.02	95.29
13.90	2,655.71	141.741	1,008.92	2,922.10	1,465.85	1,374.07	82.18
14.00	2,564.91	139.530	1,008.83	2,834.34	1,457.05	1,307.46	69.84
14.10	2,478.70	137.285	1,008.74	2,751.35	1,451.80	1,241.50	58.05
14.20	2,397.11	135.026	1,008.64	2,676.00	1,453.92	1,175.57	46.52
14.30	2,318.44	132.646	1,008.54	2,617.48	1,470.06	1,111.91	35.51
14.40	2,243.65	130.111	1,008.43	2,558.81	1,493.21	1,040.47	25.12
14.50	2,172.82	127.462	1,008.32	2,496.20	1,523.23	957.25	15.72
14.60	2,105.06	124.812	1,008.20	2,422.61	1,559.00	855.89	7.71
14.70	2,040.96	122.218	1,008.09	2,349.14	1,607.69	739.37	2.09
14.80	1,980.10	119.684	1,007.97	2,285.75	1,662.87	622.89	0.00
14.90	1,921.81	117.169	1,007.85	2,224.53	1,715.00	509.54	0.00
15.00	1,866.04	114.669	1,007.73	2,168.60	1,764.69	403.91	0.00
15.10	1,813.24	112.165	1,007.61	2,116.98	1,809.94	307.04	0.00
15.20	1,763.28	109.649	1,007.49	2,066.83	1,848.32	218.50	0.00
15.30	1,715.68	107.156	1,007.36	2,016.02	1,877.69	138.33	0.00
15.40	1,670.40	104.673	1,007.23	1,971.79	1,899.83	71.96	0.00
15.50	1,627.31	102.167	1,007.11	1,933.77	1,911.91	21.86	0.00
15.60	1,586.18	99.598	1,006.97	1,907.65	1,907.65	0.00	0.00
15.70	1,547.01	96.871	1,006.82	1,883.72	1,883.72	0.00	0.00
15.80	1,509.19	94.082	1,006.67	1,844.05	1,844.05	0.00	0.00

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continuec

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
15.90	1,473.28	91.386	1,006.51	1,784.87	1,784.87	0.00	0.00
16.00	1,439.20	88.972	1,006.37	1,709.22	1,709.22	0.00	0.00
16.10	1,406.83	86.868	1,006.25	1,643.36	1,643.36	0.00	0.00
16.20	1,376.07	85.025	1,006.14	1,583.63	1,583.63	0.00	0.00
16.30	1,346.59	83.460	1,006.04	1,516.20	1,516.20	0.00	0.00
16.40	1,318.21	82.164	1,005.96	1,460.67	1,460.67	0.00	0.00
16.50	1,290.96	81.065	1,005.89	1,413.57	1,413.57	0.00	0.00
16.60	1,264.87	80.110	1,005.83	1,372.15	1,372.15	0.00	0.00
16.70	1,239.88	79.271	1,005.78	1,335.08	1,335.08	0.00	0.00
16.80	1,215.88	78.518	1,005.73	1,302.33	1,302.33	0.00	0.00
16.90	1,192.85	77.830	1,005.68	1,272.74	1,272.74	0.00	0.00
17.00	1,170.48	77.188	1,005.64	1,245.82	1,245.82	0.00	0.00
17.10	1,149.01	76.571	1,005.59	1,222.88	1,222.88	0.00	0.00
17.20	1,128.46	75.966	1,005.55	1,200.63	1,200.63	0.00	0.00
17.30	1,108.78	75.377	1,005.51	1,179.12	1,179.12	0.00	0.00
17.40	1,089.92	74.802	1,005.48	1,158.36	1,158.36	0.00	0.00
17.50	1,071.85	74.244	1,005.44	1,137.83	1,137.83	0.00	0.00
17.60	1,054.49	73.713	1,005.40	1,116.95	1,116.95	0.00	0.00
17.70	1,037.64	73.207	1,005.36	1,097.29	1,097.29	0.00	0.00
17.80	1,021.18	72.723	1,005.32	1,078.61	1,078.61	0.00	0.00
17.90	1,005.09	72.255	1,005.29	1,060.72	1,060.72	0.00	0.00
18.00	989.54	71.802	1,005.26	1,043.51	1,043.51	0.00	0.00
18.10	974.52	71.362	1,005.22	1,026.94	1,026.94	0.00	0.00
18.20	960.02	70.934	1,005.19	1,010.97	1,010.97	0.00	0.00
18.30	946.02	70.518	1,005.16	995.56	995.56	0.00	0.00
18.40	932.50	70.114	1,005.13	980.99	980.99	0.00	0.00
18.50	919.45	69.715	1,005.10	967.38	967.38	0.00	0.00
18.60	906.85	69.321	1,005.07	954.03	954.03	0.00	0.00
18.70	894.67	68.935	1,005.04	940.99	940.99	0.00	0.00
18.80	882.90	68.558	1,005.01	927.36	927.36	0.00	0.00
18.90	871.46	68.198	1,004.98	914.03	914.03	0.00	0.00
19.00	860.29	67.852	1,004.95	901.30	901.30	0.00	0.00
19.10	849.49	67.518	1,004.93	889.10	889.10	0.00	0.00
19.20	839.05	67.196	1,004.90	877.37	877.37	0.00	0.00
19.30	828.95	66.883	1,004.87	866.08	866.08	0.00	0.00
19.40	819.15	66.581	1,004.85	855.19	855.19	0.00	0.00
19.50	809.60	66.286	1,004.82	844.67	844.67	0.00	0.00
19.60	800.30	66.000	1,004.80	834.48	834.48	0.00	0.00
19.70	791.25	65.721	1,004.78	824.59	824.59	0.00	0.00
19.80	782.44	65.448	1,004.76	814.99	814.99	0.00	0.00
19.90	773.87	65.182	1,004.73	805.66	805.66	0.00	0.00
20.00	765.52	64.922	1,004.71	796.59	796.59	0.00	0.00
20.10	757.39	64.668	1,004.69	787.76	787.76	0.00	0.00
20.20	749.47	64.419	1,004.67	779.18	779.18	0.00	0.00
20.30	741.75	64.176	1,004.65	770.82	770.82	0.00	0.00
20.40	734.21	63.939	1,004.63	762.41	762.41	0.00	0.00
20.50	726.76	63.710	1,004.61	753.56	753.56	0.00	0.00
20.60	719.51	63.495	1,004.59	744.78	744.78	0.00	0.00
20.70	712.45	63.290	1,004.57	736.52	736.52	0.00	0.00
20.80	705.57	63.095	1,004.55	728.66	728.66	0.00	0.00
20.90	698.85	62.907	1,004.54	721.14	721.14	0.00	0.00
21.00	692.31	62.726	1,004.52	713.90	713.90	0.00	0.00
21.10	685.92	62.550	1,004.50	706.91	706.91	0.00	0.00

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continuec

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
21.20	679.68	62.378	1,004.49	700.14	700.14	0.00	0.00
21.30	673.58	62.211	1,004.47	693.57	693.57	0.00	0.00
21.40	667.62	62.047	1,004.46	687.17	687.17	0.00	0.00
21.50	661.79	61.887	1,004.44	680.94	680.94	0.00	0.00
21.60	656.09	61.731	1,004.43	674.86	674.86	0.00	0.00
21.70	650.51	61.577	1,004.41	668.92	668.92	0.00	0.00
21.80	645.03	61.426	1,004.40	663.11	663.11	0.00	0.00
21.90	639.67	61.278	1,004.39	657.44	657.44	0.00	0.00
22.00	634.42	61.132	1,004.37	651.88	651.88	0.00	0.00
22.10	629.27	60.989	1,004.36	646.44	646.44	0.00	0.00
22.20	624.21	60.848	1,004.35	641.11	641.11	0.00	0.00
22.30	619.25	60.709	1,004.33	635.89	635.89	0.00	0.00
22.40	614.38	60.573	1,004.32	630.76	630.76	0.00	0.00
22.50	609.60	60.438	1,004.31	625.73	625.73	0.00	0.00
22.60	604.89	60.306	1,004.30	620.80	620.80	0.00	0.00
22.70	600.24	60.175	1,004.28	615.95	615.95	0.00	0.00
22.80	595.70	60.046	1,004.27	611.18	611.18	0.00	0.00
22.90	591.28	59.919	1,004.26	606.50	606.50	0.00	0.00
23.00	586.95	59.794	1,004.25	601.92	601.92	0.00	0.00
23.10	582.73	59.672	1,004.24	597.43	597.43	0.00	0.00
23.20	578.62	59.551	1,004.23	593.04	593.04	0.00	0.00
23.30	574.60	59.433	1,004.22	588.75	588.75	0.00	0.00
23.40	570.67	59.317	1,004.20	584.45	584.45	0.00	0.00
23.50	566.84	59.205	1,004.19	580.05	580.05	0.00	0.00
23.60	563.09	59.098	1,004.18	575.84	575.84	0.00	0.00
23.70	559.43	58.994	1,004.17	571.77	571.77	0.00	0.00
23.80	555.85	58.893	1,004.16	567.85	567.85	0.00	0.00
23.90	552.34	58.795	1,004.15	564.04	564.04	0.00	0.00
24.00	548.91	58.700	1,004.14	560.33	560.33	0.00	0.00
24.10	545.55	58.606	1,004.13	556.77	556.77	0.00	0.00
24.20	542.25	58.514	1,004.12	553.29	553.29	0.00	0.00
24.30	539.02	58.423	1,004.11	549.89	549.89	0.00	0.00
24.40	535.85	58.334	1,004.11	546.54	546.54	0.00	0.00
24.50	532.74	58.247	1,004.10	543.26	543.26	0.00	0.00
24.60	529.68	58.160	1,004.09	540.04	540.04	0.00	0.00
24.70	526.68	58.075	1,004.08	536.88	536.88	0.00	0.00
24.80	523.73	57.992	1,004.07	533.77	533.77	0.00	0.00
24.90	520.82	57.909	1,004.06	530.72	530.72	0.00	0.00
25.00	517.95	57.828	1,004.05	527.72	527.72	0.00	0.00
25.10	515.13	57.748	1,004.05	524.76	524.76	0.00	0.00
25.20	512.34	57.668	1,004.04	521.85	521.85	0.00	0.00
25.30	509.60	57.590	1,004.03	518.99	518.99	0.00	0.00
25.40	506.89	57.513	1,004.02	516.17	516.17	0.00	0.00
25.50	504.22	57.437	1,004.02	513.39	513.39	0.00	0.00
25.60	501.58	57.361	1,004.01	510.64	510.64	0.00	0.00
25.70	498.97	57.287	1,004.00	507.94	507.94	0.00	0.00
25.80	496.39	57.213	1,003.99	505.16	505.16	0.00	0.00
25.90	493.85	57.142	1,003.98	502.45	502.45	0.00	0.00
26.00	491.34	57.071	1,003.98	499.80	499.80	0.00	0.00
26.10	488.83	57.002	1,003.97	497.19	497.19	0.00	0.00
26.20	486.33	56.933	1,003.96	494.61	494.61	0.00	0.00
26.30	483.87	56.865	1,003.96	492.06	492.06	0.00	0.00
26.40	481.43	56.797	1,003.95	489.55	489.55	0.00	0.00

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continued

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
26.50	479.03	56.731	1,003.94	487.06	487.06	0.00	0.00
26.60	476.65	56.664	1,003.93	484.61	484.61	0.00	0.00
26.70	474.29	56.599	1,003.93	482.18	482.18	0.00	0.00
26.80	471.97	56.534	1,003.92	479.78	479.78	0.00	0.00
26.90	469.66	56.470	1,003.91	477.41	477.41	0.00	0.00
27.00	467.39	56.406	1,003.91	475.06	475.06	0.00	0.00
27.10	465.13	56.343	1,003.90	472.74	472.74	0.00	0.00
27.20	462.89	56.280	1,003.89	470.45	470.45	0.00	0.00
27.30	460.67	56.218	1,003.89	468.17	468.17	0.00	0.00
27.40	458.47	56.156	1,003.88	465.92	465.92	0.00	0.00
27.50	456.29	56.095	1,003.87	463.68	463.68	0.00	0.00
27.60	454.12	56.034	1,003.87	461.47	461.47	0.00	0.00
27.70	451.98	55.973	1,003.86	459.28	459.28	0.00	0.00
27.80	449.85	55.913	1,003.86	457.10	457.10	0.00	0.00
27.90	447.74	55.853	1,003.85	454.95	454.95	0.00	0.00
28.00	445.65	55.794	1,003.84	452.81	452.81	0.00	0.00
28.10	443.57	55.735	1,003.84	450.69	450.69	0.00	0.00
28.20	441.51	55.676	1,003.83	448.58	448.58	0.00	0.00
28.30	439.47	55.618	1,003.82	446.50	446.50	0.00	0.00
28.40	437.44	55.560	1,003.82	444.43	444.43	0.00	0.00
28.50	435.42	55.502	1,003.81	442.37	442.37	0.00	0.00
28.60	433.42	55.445	1,003.81	440.34	440.34	0.00	0.00
28.70	431.44	55.388	1,003.80	438.31	438.31	0.00	0.00
28.80	429.46	55.331	1,003.79	436.29	436.29	0.00	0.00
28.90	427.51	55.275	1,003.79	434.23	434.23	0.00	0.00
29.00	425.56	55.220	1,003.78	432.20	432.20	0.00	0.00
29.10	423.63	55.166	1,003.78	430.20	430.20	0.00	0.00
29.20	421.72	55.112	1,003.77	428.22	428.22	0.00	0.00
29.30	419.82	55.058	1,003.76	426.26	426.26	0.00	0.00
29.40	417.93	55.005	1,003.76	424.33	424.33	0.00	0.00
29.50	416.06	54.952	1,003.75	422.41	422.41	0.00	0.00
29.60	414.21	54.900	1,003.75	420.51	420.51	0.00	0.00
29.70	412.38	54.848	1,003.74	418.63	418.63	0.00	0.00
29.80	410.58	54.797	1,003.73	416.77	416.77	0.00	0.00
29.90	408.80	54.746	1,003.73	414.93	414.93	0.00	0.00
30.00	407.03	54.695	1,003.72	413.11	413.11	0.00	0.00
30.10	405.29	54.645	1,003.72	411.31	411.31	0.00	0.00
30.20	403.56	54.596	1,003.71	409.53	409.53	0.00	0.00
30.30	401.85	54.546	1,003.71	407.77	407.77	0.00	0.00
30.40	400.15	54.498	1,003.70	406.03	406.03	0.00	0.00
30.50	398.47	54.449	1,003.70	404.30	404.30	0.00	0.00
30.60	396.81	54.401	1,003.69	402.59	402.59	0.00	0.00
30.70	395.15	54.354	1,003.69	400.90	400.90	0.00	0.00
30.80	393.52	54.306	1,003.68	399.22	399.22	0.00	0.00
30.90	391.89	54.259	1,003.68	397.55	397.55	0.00	0.00
31.00	390.27	54.213	1,003.67	395.90	395.90	0.00	0.00
31.10	388.67	54.166	1,003.67	394.26	394.26	0.00	0.00
31.20	387.08	54.120	1,003.66	392.64	392.64	0.00	0.00
31.30	385.49	54.074	1,003.66	391.03	391.03	0.00	0.00
31.40	383.90	54.029	1,003.65	389.42	389.42	0.00	0.00
31.50	382.32	53.983	1,003.65	387.83	387.83	0.00	0.00
31.60	380.74	53.938	1,003.64	386.23	386.23	0.00	0.00
31.70	379.18	53.892	1,003.64	384.65	384.65	0.00	0.00

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continuec

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
31.80	377.63	53.847	1,003.63	383.08	383.08	0.00	0.00
31.90	376.09	53.802	1,003.63	381.52	381.52	0.00	0.00
32.00	374.56	53.758	1,003.62	379.96	379.96	0.00	0.00
32.10	373.05	53.713	1,003.62	378.42	378.42	0.00	0.00
32.20	371.54	53.669	1,003.61	376.89	376.89	0.00	0.00
32.30	370.03	53.625	1,003.61	375.36	375.36	0.00	0.00
32.40	368.54	53.581	1,003.60	373.85	373.85	0.00	0.00
32.50	367.06	53.537	1,003.60	372.34	372.34	0.00	0.00
32.60	365.59	53.493	1,003.59	370.84	370.84	0.00	0.00
32.70	364.12	53.450	1,003.59	369.36	369.36	0.00	0.00
32.80	362.67	53.407	1,003.58	367.88	367.88	0.00	0.00
32.90	361.22	53.364	1,003.58	366.41	366.41	0.00	0.00
33.00	359.78	53.321	1,003.57	364.95	364.95	0.00	0.00
33.10	358.35	53.278	1,003.57	363.50	363.50	0.00	0.00
33.20	356.93	53.236	1,003.56	362.05	362.05	0.00	0.00
33.30	355.52	53.194	1,003.56	360.62	360.62	0.00	0.00
33.40	354.12	53.152	1,003.55	359.19	359.19	0.00	0.00
33.50	352.72	53.110	1,003.55	357.78	357.78	0.00	0.00
33.60	351.34	53.068	1,003.54	356.37	356.37	0.00	0.00
33.70	349.95	53.027	1,003.54	354.97	354.97	0.00	0.00
33.80	348.57	52.985	1,003.54	353.57	353.57	0.00	0.00
33.90	347.17	52.944	1,003.53	352.18	352.18	0.00	0.00
34.00	345.78	52.902	1,003.53	350.79	350.79	0.00	0.00
34.10	344.38	52.861	1,003.52	349.40	349.40	0.00	0.00
34.20	342.98	52.819	1,003.52	348.02	348.02	0.00	0.00
34.30	341.59	52.778	1,003.51	346.63	346.63	0.00	0.00
34.40	340.20	52.736	1,003.51	345.24	345.24	0.00	0.00
34.50	338.82	52.694	1,003.50	343.86	343.86	0.00	0.00
34.60	337.44	52.653	1,003.50	342.48	342.48	0.00	0.00
34.70	336.07	52.611	1,003.49	341.10	341.10	0.00	0.00
34.80	334.71	52.570	1,003.49	339.72	339.72	0.00	0.00
34.90	333.35	52.528	1,003.49	338.36	338.36	0.00	0.00
35.00	332.01	52.487	1,003.48	337.00	337.00	0.00	0.00
35.10	330.67	52.446	1,003.48	335.64	335.64	0.00	0.00
35.20	329.34	52.405	1,003.47	334.29	334.29	0.00	0.00
35.30	328.03	52.364	1,003.47	332.96	332.96	0.00	0.00
35.40	326.72	52.323	1,003.46	331.63	331.63	0.00	0.00
35.50	325.43	52.283	1,003.46	330.30	330.30	0.00	0.00
35.60	324.14	52.243	1,003.45	328.99	328.99	0.00	0.00
35.70	322.86	52.203	1,003.45	327.69	327.69	0.00	0.00
35.80	321.60	52.163	1,003.45	326.40	326.40	0.00	0.00
35.90	320.34	52.123	1,003.44	325.11	325.11	0.00	0.00
36.00	0.00	52.084	1,003.44	323.91	323.91	0.00	0.00

Stage-Area-Storage for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
987.68	0.500	0.000	997.22	2.836	15.992
987.86	0.544	0.094	997.40	2.887	16.507
988.04	0.589	0.196	997.58	2.938	17.032
988.22	0.636	0.306	997.76	2.990	17.565
988.40	0.685	0.425	997.94	3.042	18.108
988.58	0.736	0.553	998.12	3.218	18.668
988.76	0.788	0.690	998.30	3.461	19.269
988.94	0.843	0.837	998.48	3.714	19.914
989.12	0.899	0.993	998.66	3.976	20.606
989.30	0.957	1.160	998.84	4.247	21.346
989.48	1.017	1.338	999.02	4.526	22.136
989.66	1.079	1.527	999.20	4.814	22.976
989.84	1.142	1.726	999.38	5.112	23.869
990.02	1.203	1.938	999.56	5.418	24.817
990.20	1.235	2.157	999.74	5.733	25.820
990.38	1.267	2.382	999.92	6.057	26.881
990.56	1.300	2.613	1,000.10	6.235	27.994
990.74	1.333	2.850	1,000.28	6.292	29.121
990.92	1.366	3.093	1,000.46	6.349	30.259
991.10	1.400	3.342	1,000.64	6.407	31.407
991.28	1.434	3.597	1,000.82	6.464	32.565
991.46	1.468	3.858	1,001.00	6.522	33.734
991.64	1.503	4.126	1,001.18	6.580	34.913
991.82	1.539	4.400	1,001.36	6.639	36.103
992.00	1.575	4.680	1,001.54	6.697	37.303
992.18	1.611	4.966	1,001.72	6.842	38.518
992.36	1.647	5.260	1,001.90	7.099	39.772
992.54	1.684	5.560	1,002.08	7.331	41.072
992.72	1.722	5.866	1,002.26	7.532	42.410
992.90	1.760	6.179	1,002.44	7.735	43.784
993.08	1.798	6.500	1,002.62	7.941	45.195
993.26	1.837	6.827	1,002.80	8.150	46.643
993.44	1.876	7.161	1,002.98	8.361	48.129
993.62	1.915	7.502	1,003.16	8.575	49.653
993.80	1.955	7.850	1,003.34	8.792	51.216
993.98	1.995	8.206	1,003.52	9.011	52.818
994.16	2.038	8.569	1,003.70	9.234	54.460
994.34	2.081	8.940	1,003.88	9.459	56.143
994.52	2.125	9.318	1,004.06	9.781	57.868
994.70	2.169	9.705	1,004.24	10.303	59.676
994.88	2.214	10.099	1,004.42	10.839	61.578
995.06	2.259	10.502	1,004.60	11.388	63.579
995.24	2.305	10.913	1,004.78	11.951	65.679
995.42	2.351	11.332	1,004.96	12.528	67.882
995.60	2.397	11.759	1,005.14	13.118	70.190
995.78	2.444	12.194	1,005.32	13.721	72.605
995.96	2.491	12.639	1,005.50	14.338	75.130
996.14	2.539	13.091	1,005.68	14.969	77.768
996.32	2.587	13.553	1,005.86	15.613	80.520
996.50	2.636	14.023	1,006.04	16.225	83.388
996.68	2.685	14.502	1,006.22	16.685	86.350
996.86	2.735	14.990	1,006.40	17.151	89.395
997.04	2.785	15.486	1,006.58	17.624	92.525

...age-Area-Storage for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (contir

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
1,006.76	18.103	95.740	1,016.30	74.735	512.065
1,006.94	18.588	99.042	1,016.48	75.220	525.561
1,007.12	19.080	102.432	1,016.66	75.707	539.145
1,007.30	19.578	105.911	1,016.84	76.196	552.816
1,007.48	20.083	109.481	1,017.02	76.686	566.575
1,007.66	20.594	113.142	1,017.20	77.178	580.423
1,007.84	21.112	116.895	1,017.38	77.671	594.360
1,008.02	21.652	120.742	1,017.56	78.166	608.385
1,008.20	22.329	124.701	1,017.74	78.663	622.499
1,008.38	23.016	128.781	1,017.92	79.161	636.704
1,008.56	23.714	132.987	1,018.10	79.661	650.998
1,008.74	24.423	137.319	1,018.28	80.162	665.382
1,008.92	25.142	141.780	1,018.46	80.665	679.856
1,009.10	25.871	146.371	1,018.64	81.169	694.421
1,009.28	26.611	151.094	1,018.82	81.675	709.077
1,009.46	27.361	155.951	1,019.00	82.183	723.824
1,009.64	28.122	160.945	1,019.18	82.692	738.663
1,009.82	28.893	166.076	1,019.36	83.202	753.593
1,010.00	29.674	171.347	1,019.54	83.715	768.616
1,010.18	30.504	176.762	1,019.72	84.228	783.730
1,010.36	31.345	182.329	1,019.90	84.744	798.938
1,010.54	32.198	188.047	1,020.08	85.261	814.238
1,010.72	33.063	193.921	1,020.26	85.779	829.632
1,010.90	33.938	199.951	1,020.44	86.299	845.119
1,011.08	34.826	206.139	1,020.62	86.821	860.700
1,011.26	35.724	212.489	1,020.80	87.344	876.375
1,011.44	36.634	219.001	1,020.98	87.869	892.144
1,011.62	37.556	225.678	1,021.16	88.396	908.008
1,011.80	38.489	232.522	1,021.34	88.924	923.966
1,011.98	39.433	239.534	1,021.52	89.453	940.020
1,012.16	41.575	246.813	1,021.70	89.984	956.170
1,012.34	43.927	254.507	1,021.88	90.517	972.415
1,012.52	46.344	262.630	1,022.06	91.051	988.756
1,012.70	48.826	271.195	1,022.24	91.587	1,005.193
1,012.88	51.372	280.211	1,022.42	92.124	1,021.727
1,013.06	53.983	289.692	1,022.60	92.663	1,038.358
1,013.24	56.658	299.649	1,022.78	93.204	1,055.086
1,013.42	59.399	310.093	1,022.96	93.746	1,071.912
1,013.60	62.204	321.037	1,023.14	94.290	1,088.835
1,013.78	65.074	332.491	1,023.32	94.835	1,105.856
1,013.96	68.008	344.467	1,023.50	95.382	1,122.976
1,014.14	69.031	356.839	1,023.68	95.930	1,140.194
1,014.32	69.498	369.307	1,023.86	96.480	1,157.511
1,014.50	69.966	381.859	1,024.04	97.032	1,174.927
1,014.68	70.436	394.495	1,024.22	97.585	1,192.442
1,014.86	70.907	407.216	1,024.40	98.140	1,210.057
1,015.04	71.380	420.021	1,024.58	98.696	1,227.772
1,015.22	71.854	432.912	1,024.76	99.254	1,245.588
1,015.40	72.331	445.889	1,024.94	**99.813**	**1,263.504**
1,015.58	72.808	458.952	1,025.12	**100.000**	**1,269.498**
1,015.76	73.287	472.100	1,025.30	100.000	1,269.498
1,015.94	73.768	485.335	1,025.48	100.000	1,269.498
1,016.12	74.251	498.657	1,025.66	100.000	1,269.498

age-Area-Storage for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (contir

Elevation (feet)	Surface (acres)	Storage (acre-feet)
1,025.84	100.000	1,269.498
1,026.02	100.000	1,269.498
1,026.20	100.000	1,269.498
1,026.38	100.000	1,269.498
1,026.56	100.000	1,269.498
1,026.74	100.000	1,269.498
1,026.92	100.000	1,269.498
1,027.10	100.000	1,269.498
1,027.28	100.000	1,269.498
1,027.46	100.000	1,269.498
1,027.64	100.000	1,269.498
1,027.82	100.000	1,269.498
1,028.00	100.000	1,269.498
1,028.18	100.000	1,269.498
1,028.36	100.000	1,269.498
1,028.54	100.000	1,269.498
1,028.72	100.000	1,269.498
1,028.90	100.000	1,269.498

Summary for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 18.62" for 6 hr PMF TR-60 event
Inflow = 25,909.92 cfs @ 6.18 hrs, Volume= 14,680.757 af
Outflow = 25,907.79 cfs @ 6.21 hrs, Volume= 14,679.355 af, Atten= 0%, Lag= 1.7 min
Primary = 2,930.52 cfs @ 3.41 hrs, Volume= 4,184.525 af
Secondary = 23,177.97 cfs @ 6.21 hrs, Volume= 10,494.830 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 1,013.93' @ 6.21 hrs Surf.Area= 17.508 ac Storage= 286.768 af
Flood Elev= 1,008.00' Surf.Area= 13.465 ac Storage= 197.028 af

Plug-Flow detention time= 13.5 min calculated for 14,675.278 af (100% of inflow)
Center-of-Mass det. time= 13.3 min (528.5 - 515.1)

Volume	Invert	Avail.Storage	Storage Description
#1	978.00'	371.368 af	**Stage Storage in Sippo Park (Irregular)** Listed below (Recalc)

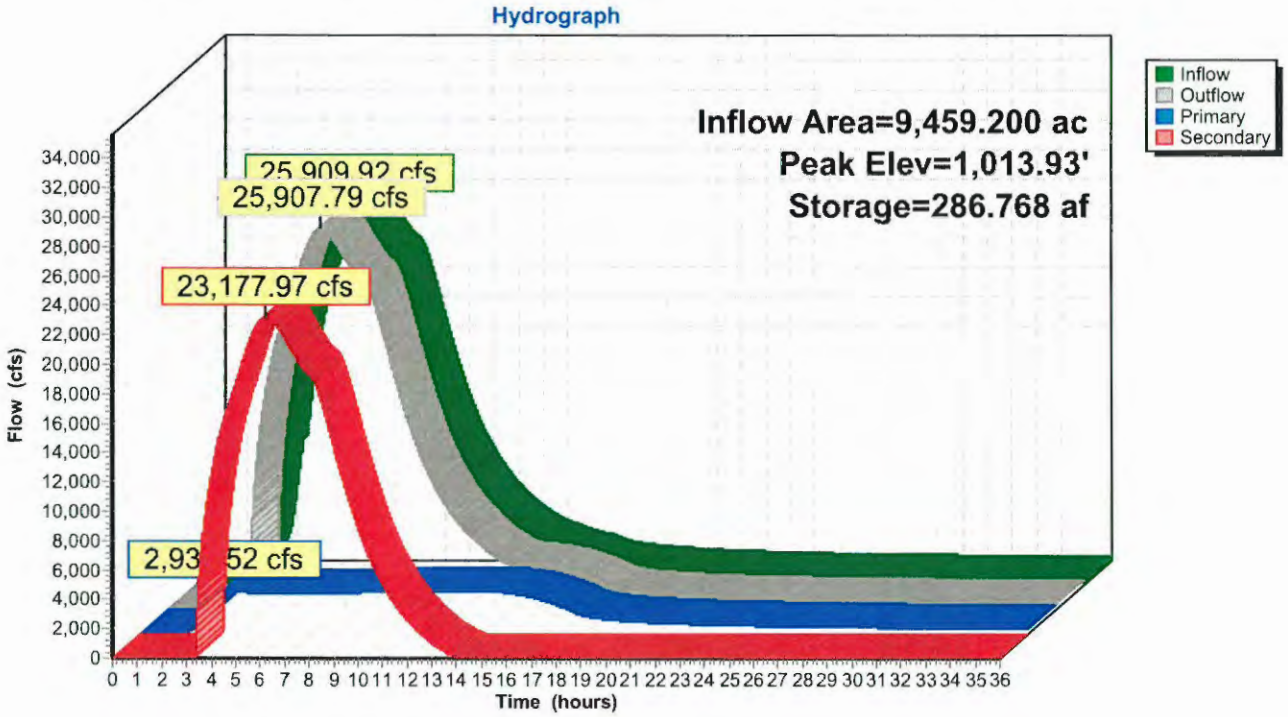
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
978.00	0.100	200.0	0.000	0.000	0.100
981.00	0.300	500.0	0.573	0.573	0.484
982.00	0.659	1,392.9	0.468	1.041	3.572
984.00	2.018	2,470.7	2.553	3.595	11.180
986.00	3.584	3,300.7	5.528	9.122	19.932
988.00	5.007	3,247.5	8.551	17.674	20.586
990.00	6.111	3,143.9	11.100	28.773	21.805
992.00	6.773	3,217.1	12.878	41.652	22.668
994.00	7.411	3,271.9	14.179	55.831	23.334
996.00	8.110	3,253.8	15.516	71.347	23.597
998.00	8.804	3,273.8	16.909	88.256	23.878
1,000.00	9.441	3,318.6	18.241	106.497	24.439
1,002.00	10.181	3,437.0	19.617	126.114	25.908
1,004.00	11.109	3,548.6	21.283	147.398	27.341
1,006.00	12.538	3,553.4	23.633	171.030	27.516
1,008.00	13.465	3,829.8	25.997	197.028	31.248
1,010.00	14.326	4,085.3	27.787	224.814	34.947
1,012.00	15.633	4,329.5	29.949	254.764	38.706
1,014.00	17.576	4,742.6	33.190	287.954	45.555
1,016.00	20.521	5,940.5	38.059	326.013	68.935
1,018.00	24.905	6,310.6	45.355	371.368	77.223

Device	Routing	Invert	Outlet Devices
#1	Primary	978.25'	**168.0" W x 98.0" H Box Box Culvert** L= 121.8' Ke= 0.400 Inlet / Outlet Invert= 978.25' / 978.13' S= 0.0010 '/' Cc= 0.900 n= 0.015 Brickwork
#2	Secondary	1,008.00'	**Linclon Way (172), Cv= 2.63 (C= 3.29)** Head (feet) 0.00 1.00 2.00 4.00 6.00 8.00 10.00 Width (feet) 233.00 373.00 475.00 630.00 790.00 940.00 1,090.00

Primary OutFlow Max=2,914.99 cfs @ 3.41 hrs HW=1,009.50' TW=984.94' (Dynamic Tailwater)
└─**1=Box Culvert** (Inlet Controls 2,914.99 cfs @ 25.50 fps)

Secondary OutFlow Max=23,177.89 cfs @ 6.21 hrs HW=1,013.93' TW=992.51' (Dynamic Tailwater)
└─**2=Linclon Way (172)** (Weir Controls 23,177.89 cfs @ 7.25 fps)

Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-



Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	978.00	0.00	0.00	0.00
0.10	0.00	0.000	978.00	0.00	0.00	0.00
0.20	0.00	0.000	978.00	0.00	0.00	0.00
0.30	0.00	0.000	978.00	0.00	0.00	0.00
0.40	0.00	0.000	978.00	0.00	0.00	0.00
0.50	0.00	0.000	978.00	0.00	0.00	0.00
0.60	0.00	0.000	978.00	0.00	0.00	0.00
0.70	0.00	0.000	978.00	0.00	0.00	0.00
0.80	0.00	0.000	978.00	0.00	0.00	0.00
0.90	0.00	0.000	978.00	0.00	0.00	0.00
1.00	0.04	0.000	978.00	0.00	0.00	0.00
1.10	0.20	0.001	978.01	0.00	0.00	0.00
1.20	0.79	0.004	978.04	0.00	0.00	0.00
1.30	2.53	0.016	978.15	0.00	0.00	0.00
1.40	6.69	0.048	978.43	1.69	1.69	0.00
1.50	15.70	0.091	978.76	10.08	10.08	0.00
1.60	33.64	0.148	979.13	25.21	25.21	0.00
1.70	63.51	0.233	979.61	50.99	50.99	0.00
1.80	108.06	0.358	980.19	89.20	89.20	0.00
1.90	170.20	0.539	980.88	143.73	143.73	0.00
2.00	259.30	0.826	981.63	211.17	211.17	0.00
2.10	376.99	1.354	982.41	290.43	290.43	0.00
2.20	536.32	2.307	983.24	383.80	383.80	0.00
2.30	734.52	3.881	984.13	492.29	492.29	0.00
2.40	912.28	6.105	985.04	612.37	612.37	0.00
2.50	1,141.88	8.911	985.94	738.12	738.12	0.00
2.60	1,477.49	12.846	986.95	889.73	889.73	0.00
2.70	1,844.62	18.394	988.14	1,079.51	1,079.51	0.00
2.80	2,431.93	25.719	989.49	1,284.72	1,284.72	0.00
2.90	3,537.04	37.884	991.43	1,630.56	1,630.56	0.00
3.00	4,811.00	57.322	994.20	1,897.06	1,897.06	0.00
3.10	6,156.66	85.320	997.66	2,179.96	2,179.96	0.00
3.20	7,570.89	122.340	1,001.63	2,465.35	2,465.35	0.00
3.30	8,606.30	167.773	1,005.74	2,730.91	2,730.91	0.00
3.40	8,687.92	215.887	1,009.37	4,558.97	**2,929.97**	1,629.00
3.50	9,381.81	234.551	1,010.67	8,178.56	**2,888.23**	5,290.33
3.60	10,988.97	242.537	1,011.20	10,231.67	2,865.63	7,366.03
3.70	12,373.37	248.028	1,011.56	11,797.78	2,850.22	8,947.57
3.80	13,553.40	252.267	1,011.84	13,089.12	2,838.07	10,251.06
3.90	14,593.74	255.742	1,012.06	14,203.64	2,827.85	11,375.79
4.00	15,532.78	258.740	1,012.25	15,196.52	2,819.06	12,377.46
4.10	16,407.12	261.382	1,012.42	16,104.66	2,811.14	13,293.52
4.20	17,193.33	263.746	1,012.56	16,926.87	2,804.02	14,122.85
4.30	17,905.11	265.830	1,012.69	17,673.10	2,797.60	14,875.50
4.40	18,519.93	267.601	1,012.80	18,322.60	2,791.93	15,530.67
4.50	19,076.31	269.171	1,012.90	18,897.09	2,787.05	16,110.04
4.60	19,589.73	270.590	1,012.98	19,425.41	2,782.62	16,642.79
4.70	20,088.53	271.923	1,013.06	19,930.19	2,778.50	17,151.69
4.80	20,590.74	273.230	1,013.14	20,432.56	2,774.45	17,658.10
4.90	21,100.81	274.538	1,013.22	20,940.08	2,770.36	18,169.71
5.00	21,623.77	275.881	1,013.30	21,460.15	2,766.26	18,693.88
5.10	22,152.89	277.229	1,013.38	21,989.69	2,762.05	19,227.64
5.20	22,683.36	278.570	1,013.46	22,523.87	2,757.79	19,766.08

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
5.30	23,206.69	279.874	1,013.53	23,051.30	2,753.59	20,297.71
5.40	23,712.16	281.128	1,013.61	23,563.93	2,749.46	20,814.47
5.50	24,198.46	282.346	1,013.68	24,057.94	2,745.53	21,312.41
5.60	24,635.97	283.451	1,013.74	24,511.68	2,741.84	21,769.85
5.70	25,012.82	284.406	1,013.80	24,907.85	2,738.57	22,169.28
5.80	25,328.00	285.204	1,013.84	25,241.61	2,735.80	22,505.81
5.90	25,581.49	285.849	1,013.88	25,513.24	2,733.52	22,779.72
6.00	25,772.67	286.347	1,013.91	25,724.03	2,731.71	22,992.32
6.10	**25,881.76**	286.660	1,013.93	25,857.08	2,730.45	23,126.63
6.20	**25,908.93**	**286.778**	**1,013.93**	**25,907.15**	2,729.85	**23,177.30**
6.30	25,862.49	**286.716**	**1,013.93**	**25,880.46**	2,729.87	**23,150.59**
6.40	25,757.94	286.507	1,013.92	25,791.63	2,730.41	23,061.22
6.50	25,603.94	286.177	1,013.90	25,651.11	2,731.37	22,919.74
6.60	25,411.12	285.747	1,013.87	25,468.85	2,732.68	22,736.16
6.70	25,189.55	285.239	1,013.84	25,254.89	2,734.27	22,520.62
6.80	24,945.19	284.672	1,013.81	25,017.21	2,736.06	22,281.15
6.90	24,683.66	284.058	1,013.78	24,761.18	2,738.01	22,023.17
7.00	24,406.75	283.399	1,013.74	24,488.40	2,740.10	21,748.30
7.10	24,123.89	282.716	1,013.70	24,207.57	2,742.27	21,465.29
7.20	23,836.92	282.018	1,013.66	23,922.22	2,744.49	21,177.73
7.30	23,550.42	281.312	1,013.62	23,635.94	2,746.74	20,889.20
7.40	23,275.60	280.624	1,013.58	23,355.69	2,748.97	20,606.72
7.50	23,013.36	279.975	1,013.54	23,090.09	2,751.10	20,338.99
7.60	22,765.09	279.354	1,013.50	22,838.04	2,753.12	20,084.92
7.70	22,534.61	278.769	1,013.47	22,602.06	2,755.04	19,847.03
7.80	22,333.98	278.245	1,013.44	22,391.63	2,756.79	19,634.84
7.90	22,196.46	277.842	1,013.41	22,231.14	2,758.26	19,472.88
8.00	22,083.31	277.569	1,013.40	22,122.30	2,759.13	19,363.17
8.10	21,884.71	277.144	1,013.37	21,953.66	2,760.21	19,193.45
8.20	21,574.19	276.444	1,013.33	21,677.98	2,762.08	18,915.90
8.30	21,159.93	275.464	1,013.27	21,295.17	2,764.83	18,530.34
8.40	20,665.89	274.250	1,013.20	20,826.77	2,768.34	18,058.43
8.50	20,112.87	272.866	1,013.12	20,288.90	2,772.46	17,516.44
8.60	19,524.75	271.362	1,013.03	19,713.37	2,776.98	16,936.39
8.70	18,913.39	269.764	1,012.93	19,113.14	2,781.73	16,331.42
8.80	18,293.50	268.094	1,012.83	18,497.96	2,786.68	15,711.29
8.90	17,678.20	266.411	1,012.73	17,880.75	2,791.69	15,089.06
9.00	17,062.47	264.717	1,012.62	17,267.94	2,796.68	14,471.26
9.10	16,463.28	263.022	1,012.52	16,667.81	2,801.64	13,866.17
9.20	15,865.66	261.315	1,012.41	16,076.64	2,806.48	13,270.17
9.30	15,273.66	259.590	1,012.31	15,480.93	2,811.41	12,669.52
9.40	14,695.96	257.882	1,012.20	14,902.79	2,816.25	12,086.54
9.50	14,126.25	256.167	1,012.09	14,336.13	2,820.96	11,515.17
9.60	13,581.96	254.458	1,011.98	13,783.02	2,825.64	10,957.37
9.70	13,031.02	252.757	1,011.87	13,237.34	2,830.22	10,407.12
9.80	12,519.48	251.090	1,011.76	12,716.10	2,834.74	9,881.36
9.90	12,016.92	249.474	1,011.66	12,223.34	2,838.88	9,384.46
10.00	11,534.72	247.815	1,011.55	11,726.60	2,843.19	8,883.42
10.10	11,087.41	246.264	1,011.45	11,270.45	2,847.18	8,423.27
10.20	10,631.72	244.704	1,011.35	10,823.19	2,850.93	7,972.26
10.30	10,213.73	243.166	1,011.25	10,394.17	2,854.73	7,539.44
10.40	9,824.90	241.710	1,011.15	9,995.25	2,858.23	7,137.02
10.50	9,418.57	240.226	1,011.05	9,596.19	2,861.59	6,734.60

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
10.60	9,054.04	238.796	1,010.95	9,222.18	2,864.90	6,357.28
10.70	8,712.99	237.432	1,010.86	8,874.88	2,867.95	6,006.93
10.80	8,364.56	236.049	1,010.77	8,530.50	2,870.81	5,659.69
10.90	8,046.33	234.714	1,010.68	8,203.58	2,873.70	5,329.88
11.00	7,747.63	233.436	1,010.59	7,899.34	2,876.34	5,023.00
11.10	7,453.99	232.173	1,010.51	7,606.87	2,878.80	4,728.07
11.20	7,179.63	230.930	1,010.42	7,327.35	2,881.25	4,446.09
11.30	6,920.83	229.733	1,010.34	7,062.51	2,883.62	4,178.89
11.40	6,671.84	228.575	1,010.26	6,812.16	2,885.80	3,926.36
11.50	6,427.76	227.407	1,010.18	6,567.21	2,887.78	3,679.43
11.60	6,199.39	226.268	1,010.10	6,335.38	2,889.57	3,445.81
11.70	5,977.39	225.140	1,010.02	6,112.58	2,891.15	3,221.43
11.80	5,768.26	224.042	1,009.95	5,900.39	2,892.54	3,007.85
11.90	5,565.91	222.953	1,009.87	5,695.72	2,893.73	2,801.99
12.00	5,376.34	221.893	1,009.79	5,503.03	2,894.75	2,608.28
12.10	5,194.87	220.852	1,009.72	5,320.07	2,895.58	2,424.48
12.20	5,020.32	219.821	1,009.65	5,144.85	2,896.24	2,248.61
12.30	4,843.07	218.767	1,009.58	4,971.38	2,896.70	2,074.68
12.40	4,676.28	217.714	1,009.50	4,803.08	2,897.06	1,906.02
12.50	4,516.00	216.669	1,009.43	4,642.30	2,897.24	1,745.06
12.60	4,361.55	215.624	1,009.35	4,488.08	2,897.25	1,590.83
12.70	4,207.74	214.572	1,009.28	4,339.20	2,897.07	1,442.13
12.80	4,059.95	213.481	1,009.20	4,191.61	2,896.71	1,294.90
12.90	3,921.13	212.402	1,009.12	4,051.23	2,896.18	1,155.05
13.00	3,788.28	211.326	1,009.04	3,918.45	2,895.47	1,022.99
13.10	3,662.06	210.250	1,008.97	3,792.33	2,894.55	897.78
13.20	3,534.64	209.153	1,008.89	3,670.94	2,893.38	777.56
13.30	3,417.69	208.025	1,008.81	3,554.30	2,892.06	662.25
13.40	3,308.25	206.897	1,008.72	3,444.87	2,890.49	554.38
13.50	3,204.83	205.763	1,008.64	3,343.08	2,888.66	454.41
13.60	3,107.35	204.611	1,008.56	3,248.32	2,886.56	361.75
13.70	3,008.52	203.405	1,008.47	3,158.57	2,884.06	274.50
13.80	2,920.97	202.149	1,008.38	3,075.30	2,881.16	194.14
13.90	2,839.92	200.854	1,008.28	3,000.50	2,877.78	122.72
14.00	2,764.51	199.490	1,008.18	2,935.74	2,873.80	61.94
14.10	2,693.30	198.016	1,008.07	2,884.30	2,868.94	15.35
14.20	2,629.48	196.293	1,007.95	2,862.14	2,862.14	0.00
14.30	2,581.97	194.225	1,007.79	2,853.00	2,853.00	0.00
14.40	2,533.69	191.846	1,007.61	2,842.46	2,842.46	0.00
14.50	2,480.48	189.151	1,007.41	2,830.31	2,830.31	0.00
14.60	2,414.90	186.066	1,007.17	2,816.30	2,816.30	0.00
14.70	2,347.05	182.559	1,006.90	2,800.09	2,800.09	0.00
14.80	2,285.75	178.651	1,006.60	2,781.76	2,781.76	0.00
14.90	2,224.53	174.397	1,006.27	2,761.45	2,761.45	0.00
15.00	2,168.60	169.829	1,005.90	2,739.18	2,739.18	0.00
15.10	2,116.98	165.008	1,005.51	2,715.02	2,715.02	0.00
15.20	2,066.83	159.980	1,005.09	2,688.96	2,688.96	0.00
15.30	2,016.02	154.747	1,004.65	2,660.85	2,660.85	0.00
15.40	1,971.79	149.359	1,004.17	2,630.79	2,630.79	0.00
15.50	1,933.77	143.883	1,003.68	2,599.06	2,599.06	0.00
15.60	1,907.65	138.389	1,003.17	2,566.10	2,566.10	0.00
15.70	1,883.72	132.995	1,002.67	2,532.54	2,532.54	0.00
15.80	1,844.05	127.624	1,002.15	2,497.96	2,497.96	0.00

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
15.90	1,784.87	122.148	1,001.61	2,461.45	2,461.45	0.00
16.00	1,709.22	116.413	1,001.03	2,421.70	2,421.70	0.00
16.10	1,643.36	110.433	1,000.41	2,378.71	2,378.71	0.00
16.20	1,583.63	104.299	999.77	2,332.63	2,332.63	0.00
16.30	1,516.20	98.027	999.09	2,283.51	2,283.51	0.00
16.40	1,460.67	91.666	998.38	2,231.40	2,231.40	0.00
16.50	1,413.57	85.318	997.66	2,176.76	2,176.76	0.00
16.60	1,372.15	79.065	996.93	2,119.99	2,119.99	0.00
16.70	1,335.08	72.960	996.20	2,061.37	2,061.37	0.00
16.80	1,302.33	67.055	995.46	2,001.27	2,001.27	0.00
16.90	1,272.74	61.394	994.74	1,940.02	1,940.02	0.00
17.00	1,245.82	56.008	994.02	1,877.94	1,877.94	0.00
17.10	1,222.88	50.930	993.33	1,815.51	1,815.51	0.00
17.20	1,200.63	46.180	992.66	1,753.33	1,753.33	0.00
17.30	1,179.12	41.761	992.02	1,691.77	1,691.77	0.00
17.40	1,158.36	37.676	991.40	1,625.53	1,625.53	0.00
17.50	1,137.83	34.082	990.85	1,534.81	1,534.81	0.00
17.60	1,116.95	31.039	990.37	1,451.24	1,451.24	0.00
17.70	1,097.29	28.490	989.95	1,375.44	1,375.44	0.00
17.80	1,078.61	26.380	989.60	1,307.57	1,307.57	0.00
17.90	1,060.72	24.653	989.30	1,246.93	1,246.93	0.00
18.00	1,043.51	23.161	989.04	1,230.14	1,230.14	0.00
18.10	1,026.94	21.726	988.78	1,185.80	1,185.80	0.00
18.20	1,010.97	20.502	988.55	1,147.01	1,147.01	0.00
18.30	995.56	19.447	988.35	1,113.57	1,113.57	0.00
18.40	980.99	18.529	988.17	1,083.88	1,083.88	0.00
18.50	967.38	17.726	988.01	1,058.11	1,058.11	0.00
18.60	954.03	17.017	987.86	1,034.40	1,034.40	0.00
18.70	940.99	16.384	987.73	1,013.32	1,013.32	0.00
18.80	927.36	15.808	987.62	994.27	994.27	0.00
18.90	914.03	15.274	987.50	975.75	975.75	0.00
19.00	901.30	14.782	987.39	958.58	958.58	0.00
19.10	889.10	14.322	987.29	942.68	942.68	0.00
19.20	877.37	13.891	987.20	927.80	927.80	0.00
19.30	866.08	13.488	987.10	913.05	913.05	0.00
19.40	855.19	13.111	987.01	899.32	899.32	0.00
19.50	844.67	12.755	986.93	886.44	886.44	0.00
19.60	834.48	12.417	986.85	874.27	874.27	0.00
19.70	824.59	12.095	986.77	862.44	862.44	0.00
19.80	814.99	11.790	986.70	850.79	850.79	0.00
19.90	805.66	11.501	986.62	839.77	839.77	0.00
20.00	796.59	11.224	986.55	829.29	829.29	0.00
20.10	787.76	10.959	986.49	819.27	819.27	0.00
20.20	779.18	10.702	986.42	809.63	809.63	0.00
20.30	770.82	10.455	986.36	799.95	799.95	0.00
20.40	762.41	10.219	986.30	790.50	790.50	0.00
20.50	753.56	9.989	986.23	781.33	781.33	0.00
20.60	744.78	9.760	986.17	772.25	772.25	0.00
20.70	736.52	9.535	986.11	763.36	763.36	0.00
20.80	728.66	9.316	986.05	754.73	754.73	0.00
20.90	721.14	9.104	985.99	746.33	746.33	0.00
21.00	713.90	8.901	985.94	737.68	737.68	0.00
21.10	706.91	8.709	985.88	729.53	729.53	0.00

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
21.20	700.14	8.526	985.83	721.78	721.78	0.00
21.30	693.57	8.350	985.77	714.37	714.37	0.00
21.40	687.17	8.181	985.72	707.26	707.26	0.00
21.50	680.94	8.017	985.68	700.40	700.40	0.00
21.60	674.86	7.859	985.63	693.77	693.77	0.00
21.70	668.92	7.704	985.58	687.10	687.10	0.00
21.80	663.11	7.558	985.53	680.34	680.34	0.00
21.90	657.44	7.418	985.49	673.93	673.93	0.00
22.00	651.88	7.284	985.45	667.79	667.79	0.00
22.10	646.44	7.155	985.40	661.87	661.87	0.00
22.20	641.11	7.029	985.36	656.13	656.13	0.00
22.30	635.89	6.906	985.32	650.56	650.56	0.00
22.40	630.76	6.786	985.28	645.12	645.12	0.00
22.50	625.73	6.668	985.24	639.81	639.81	0.00
22.60	620.80	6.553	985.21	634.62	634.62	0.00
22.70	615.95	6.441	985.17	629.11	629.11	0.00
22.80	611.18	6.334	985.13	623.78	623.78	0.00
22.90	606.50	6.232	985.09	618.67	618.67	0.00
23.00	601.92	6.133	985.05	613.73	613.73	0.00
23.10	597.43	6.036	985.02	608.94	608.94	0.00
23.20	593.04	5.942	984.99	604.28	604.28	0.00
23.30	588.75	5.850	984.95	599.74	599.74	0.00
23.40	584.45	5.760	984.92	595.31	595.31	0.00
23.50	580.05	5.670	984.89	590.90	590.90	0.00
23.60	575.84	5.581	984.85	586.53	586.53	0.00
23.70	571.77	5.494	984.82	582.25	582.25	0.00
23.80	567.85	5.408	984.79	577.92	577.92	0.00
23.90	564.04	5.327	984.76	573.50	573.50	0.00
24.00	560.33	5.251	984.73	569.33	569.33	0.00
24.10	556.77	5.178	984.70	565.36	565.36	0.00
24.20	553.29	5.108	984.67	561.57	561.57	0.00
24.30	549.89	5.041	984.64	557.91	557.91	0.00
24.40	546.54	4.975	984.61	554.37	554.37	0.00
24.50	543.26	4.911	984.59	550.91	550.91	0.00
24.60	540.04	4.849	984.56	547.54	547.54	0.00
24.70	536.88	4.787	984.54	544.23	544.23	0.00
24.80	533.77	4.727	984.51	541.00	541.00	0.00
24.90	530.72	4.668	984.49	537.82	537.82	0.00
25.00	527.72	4.609	984.46	534.71	534.71	0.00
25.10	524.76	4.552	984.44	531.65	531.65	0.00
25.20	521.85	4.495	984.42	528.64	528.64	0.00
25.30	518.99	4.440	984.39	525.56	525.56	0.00
25.40	516.17	4.387	984.37	522.38	522.38	0.00
25.50	513.39	4.336	984.34	519.36	519.36	0.00
25.60	510.64	4.288	984.32	516.45	516.45	0.00
25.70	507.94	4.240	984.30	513.61	513.61	0.00
25.80	505.16	4.194	984.28	510.82	510.82	0.00
25.90	502.45	4.147	984.26	508.05	508.05	0.00
26.00	499.80	4.101	984.23	505.32	505.32	0.00
26.10	497.19	4.056	984.21	502.63	502.63	0.00
26.20	494.61	4.011	984.19	499.98	499.98	0.00
26.30	492.06	3.967	984.17	497.37	497.37	0.00
26.40	489.55	3.923	984.15	494.80	494.80	0.00

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
26.50	487.06	3.880	984.13	492.25	492.25	0.00
26.60	484.61	3.837	984.11	489.74	489.74	0.00
26.70	482.18	3.795	984.09	487.26	487.26	0.00
26.80	479.78	3.753	984.07	484.81	484.81	0.00
26.90	477.41	3.712	984.05	482.39	482.39	0.00
27.00	475.06	3.671	984.04	480.00	480.00	0.00
27.10	472.74	3.630	984.02	477.63	477.63	0.00
27.20	470.45	3.590	984.00	475.25	475.25	0.00
27.30	468.17	3.552	983.98	472.65	472.65	0.00
27.40	465.92	3.516	983.96	470.20	470.20	0.00
27.50	463.68	3.481	983.94	467.84	467.84	0.00
27.60	461.47	3.447	983.92	465.55	465.55	0.00
27.70	459.28	3.413	983.90	463.30	463.30	0.00
27.80	457.10	3.380	983.88	461.08	461.08	0.00
27.90	454.95	3.347	983.87	458.88	458.88	0.00
28.00	452.81	3.315	983.85	456.71	456.71	0.00
28.10	450.69	3.283	983.83	454.56	454.56	0.00
28.20	448.58	3.251	983.81	452.43	452.43	0.00
28.30	446.50	3.219	983.80	450.32	450.32	0.00
28.40	444.43	3.188	983.78	448.22	448.22	0.00
28.50	442.37	3.157	983.76	446.15	446.15	0.00
28.60	440.34	3.125	983.75	444.08	444.08	0.00
28.70	438.31	3.095	983.73	442.04	442.04	0.00
28.80	436.29	3.064	983.71	440.01	440.01	0.00
28.90	434.23	3.033	983.70	437.97	437.97	0.00
29.00	432.20	3.002	983.68	435.93	435.93	0.00
29.10	430.20	2.971	983.66	433.90	433.90	0.00
29.20	428.22	2.941	983.65	431.90	431.90	0.00
29.30	426.26	2.911	983.63	429.91	429.91	0.00
29.40	424.33	2.880	983.61	427.94	427.94	0.00
29.50	422.41	2.851	983.60	425.94	425.94	0.00
29.60	420.51	2.823	983.58	423.74	423.74	0.00
29.70	418.63	2.797	983.56	421.69	421.69	0.00
29.80	416.77	2.772	983.55	419.73	419.73	0.00
29.90	414.93	2.748	983.53	417.83	417.83	0.00
30.00	413.11	2.724	983.51	415.97	415.97	0.00
30.10	411.31	2.700	983.50	414.13	414.13	0.00
30.20	409.53	2.677	983.48	412.32	412.32	0.00
30.30	407.77	2.654	983.47	410.53	410.53	0.00
30.40	406.03	2.631	983.45	408.76	408.76	0.00
30.50	404.30	2.609	983.44	407.01	407.01	0.00
30.60	402.59	2.587	983.43	405.28	405.28	0.00
30.70	400.90	2.564	983.41	403.56	403.56	0.00
30.80	399.22	2.543	983.40	401.86	401.86	0.00
30.90	397.55	2.521	983.38	400.18	400.18	0.00
31.00	395.90	2.499	983.37	398.51	398.51	0.00
31.10	394.26	2.478	983.35	396.85	396.85	0.00
31.20	392.64	2.456	983.34	395.21	395.21	0.00
31.30	391.03	2.435	983.33	393.58	393.58	0.00
31.40	389.42	2.414	983.31	391.96	391.96	0.00
31.50	387.83	2.393	983.30	390.36	390.36	0.00
31.60	386.23	2.372	983.29	388.76	388.76	0.00
31.70	384.65	2.351	983.27	387.17	387.17	0.00

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
31.80	383.08	2.331	983.26	385.58	385.58	0.00
31.90	381.52	2.310	983.24	384.01	384.01	0.00
32.00	379.96	2.289	983.23	382.44	382.44	0.00
32.10	378.42	2.269	983.22	380.89	380.89	0.00
32.20	376.89	2.249	983.20	379.34	379.34	0.00
32.30	375.36	2.229	983.19	377.62	377.62	0.00
32.40	373.85	2.211	983.18	375.95	375.95	0.00
32.50	372.34	2.194	983.16	374.36	374.36	0.00
32.60	370.84	2.177	983.15	372.83	372.83	0.00
32.70	369.36	2.161	983.14	371.31	371.31	0.00
32.80	367.88	2.145	983.12	369.82	369.82	0.00
32.90	366.41	2.129	983.11	368.34	368.34	0.00
33.00	364.95	2.113	983.10	366.87	366.87	0.00
33.10	363.50	2.097	983.08	365.41	365.41	0.00
33.20	362.05	2.081	983.07	363.95	363.95	0.00
33.30	360.62	2.066	983.06	362.51	362.51	0.00
33.40	359.19	2.050	983.05	361.08	361.08	0.00
33.50	357.78	2.035	983.03	359.65	359.65	0.00
33.60	356.37	2.019	983.02	358.23	358.23	0.00
33.70	354.97	2.004	983.01	356.82	356.82	0.00
33.80	353.57	1.988	983.00	355.42	355.42	0.00
33.90	352.18	1.973	982.99	354.03	354.03	0.00
34.00	350.79	1.958	982.97	352.64	352.64	0.00
34.10	349.40	1.943	982.96	351.25	351.25	0.00
34.20	348.02	1.927	982.95	349.86	349.86	0.00
34.30	346.63	1.912	982.94	348.48	348.48	0.00
34.40	345.24	1.897	982.92	347.09	347.09	0.00
34.50	343.86	1.882	982.91	345.71	345.71	0.00
34.60	342.48	1.866	982.90	344.32	344.32	0.00
34.70	341.10	1.851	982.89	342.94	342.94	0.00
34.80	339.72	1.836	982.87	341.57	341.57	0.00
34.90	338.36	1.821	982.86	340.20	340.20	0.00
35.00	337.00	1.805	982.85	338.83	338.83	0.00
35.10	335.64	1.790	982.84	337.47	337.47	0.00
35.20	334.29	1.775	982.83	336.12	336.12	0.00
35.30	332.96	1.760	982.81	334.77	334.77	0.00
35.40	331.63	1.745	982.80	333.43	333.43	0.00
35.50	330.30	1.731	982.79	331.90	331.90	0.00
35.60	328.99	1.718	982.78	330.47	330.47	0.00
35.70	327.69	1.706	982.76	329.12	329.12	0.00
35.80	326.40	1.695	982.75	327.80	327.80	0.00
35.90	325.11	1.683	982.74	326.51	326.51	0.00
36.00	0.00	1.672	982.73	325.24	325.24	0.00

Stage-Area-Storage for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
978.00	0.100	0.000	986.48	3.904	10.919
978.16	0.108	0.017	986.64	4.014	11.552
978.32	0.116	0.035	986.80	4.125	12.203
978.48	0.125	0.054	986.96	4.237	12.872
978.64	0.134	0.075	987.12	4.352	13.559
978.80	0.143	0.097	987.28	4.467	14.265
978.96	0.152	0.120	987.44	4.585	14.989
979.12	0.162	0.145	987.60	4.703	15.732
979.28	0.172	0.172	987.76	4.824	16.494
979.44	0.183	0.201	987.92	4.946	17.275
979.60	0.193	0.231	988.08	5.049	18.076
979.76	0.204	0.262	988.24	5.134	18.890
979.92	0.216	0.296	988.40	5.219	19.719
980.08	0.227	0.331	988.56	5.305	20.561
980.24	0.239	0.369	988.72	5.392	21.416
980.40	0.251	0.408	988.88	5.479	22.286
980.56	0.264	0.449	989.04	5.567	23.170
980.72	0.277	0.492	989.20	5.656	24.068
980.88	0.290	0.538	989.36	5.746	24.980
981.04	0.312	0.585	989.52	5.836	25.906
981.20	0.361	0.639	989.68	5.927	26.847
981.36	0.413	0.701	989.84	6.019	27.803
981.52	0.469	0.772	990.00	6.111	28.773
981.68	0.529	0.851	990.16	6.163	29.755
981.84	0.592	0.941	990.32	6.215	30.745
982.00	0.659	1.041	990.48	6.267	31.744
982.16	0.740	1.153	990.64	6.319	32.751
982.32	0.827	1.278	990.80	6.372	33.766
982.48	0.918	1.418	990.96	6.425	34.790
982.64	1.013	1.572	991.12	6.478	35.822
982.80	1.114	1.742	991.28	6.531	36.862
982.96	1.219	1.929	991.44	6.584	37.912
983.12	1.329	2.133	991.60	6.638	38.969
983.28	1.443	2.354	991.76	6.692	40.036
983.44	1.563	2.595	991.92	6.746	41.111
983.60	1.687	2.855	992.08	6.798	42.194
983.76	1.816	3.135	992.24	6.848	43.286
983.92	1.949	3.436	992.40	6.898	44.386
984.08	2.072	3.758	992.56	6.949	45.494
984.24	2.182	4.098	992.72	6.999	46.609
984.40	2.295	4.457	992.88	7.050	47.733
984.56	2.411	4.833	993.04	7.101	48.865
984.72	2.530	5.228	993.20	7.152	50.006
984.88	2.652	5.643	993.36	7.204	51.154
985.04	2.777	6.077	993.52	7.255	52.311
985.20	2.904	6.532	993.68	7.307	53.476
985.36	3.034	7.007	993.84	7.359	54.649
985.52	3.167	7.503	994.00	7.411	55.831
985.68	3.303	8.020	994.16	7.466	57.021
985.84	3.442	8.560	994.32	7.521	58.220
986.00	3.584	9.122	994.48	7.576	59.428
986.16	3.689	9.704	994.64	7.631	60.644
986.32	3.796	10.303	994.80	7.687	61.870

Stage-Area-Storage for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Elevation (feet)	Surface (acres)	Storage (acre-feet)
994.96	7.743	63.104
995.12	7.799	64.347
995.28	7.855	65.599
995.44	7.911	66.861
995.60	7.968	68.131
995.76	8.024	69.410
995.92	8.081	70.699
996.08	8.137	71.996
996.24	8.192	73.303
996.40	8.247	74.618
996.56	8.301	75.942
996.72	8.357	77.274
996.88	8.412	78.616
997.04	8.467	79.966
997.20	8.523	81.325
997.36	8.579	82.693
997.52	8.635	84.071
997.68	8.691	85.457
997.84	8.747	86.852
998.00	8.804	88.256
998.16	8.854	89.668
998.32	8.904	91.089
998.48	8.955	92.518
998.64	9.005	93.955
998.80	9.056	95.400
998.96	9.107	96.853
999.12	9.158	98.314
999.28	9.209	99.783
999.44	9.260	101.261
999.60	9.312	102.747
999.76	9.363	104.241
999.92	9.415	105.743
1,000.08	9.470	107.254
1,000.24	9.528	108.773
1,000.40	9.587	110.303
1,000.56	9.645	111.841
1,000.72	9.704	113.389
1,000.88	9.763	114.947
1,001.04	9.822	116.513
1,001.20	9.882	118.090
1,001.36	9.941	119.675
1,001.52	10.001	121.271
1,001.68	10.061	122.876
1,001.84	10.121	124.490
1,002.00	10.181	126.114
1,002.16	10.254	127.749
1,002.32	10.327	129.396
1,002.48	10.400	131.054
1,002.64	10.474	132.724
1,002.80	10.547	134.405
1,002.96	10.621	136.099
1,003.12	10.696	137.804
1,003.28	10.770	139.521
1,003.44	10.845	141.251
1,003.60	10.920	142.992
1,003.76	10.996	144.745
1,003.92	11.071	146.510
1,004.08	11.165	148.289
1,004.24	11.276	150.084
1,004.40	11.388	151.897
1,004.56	11.500	153.728
1,004.72	11.613	155.577
1,004.88	11.727	157.444
1,005.04	11.841	159.330
1,005.20	11.956	161.234
1,005.36	12.071	163.156
1,005.52	12.187	165.096
1,005.68	12.304	167.056
1,005.84	12.420	169.034
1,006.00	12.538	171.030
1,006.16	12.611	173.042
1,006.32	12.684	175.066
1,006.48	12.757	177.101
1,006.64	12.831	179.148
1,006.80	12.905	181.207
1,006.96	12.979	183.278
1,007.12	13.053	185.360
1,007.28	13.127	187.455
1,007.44	13.202	189.561
1,007.60	13.277	191.679
1,007.76	13.352	193.810
1,007.92	13.427	195.952
1,008.08	13.499	198.106
1,008.24	13.567	200.272
1,008.40	13.635	202.448
1,008.56	13.703	204.635
1,008.72	13.772	206.833
1,008.88	13.841	209.042
1,009.04	13.909	211.262
1,009.20	13.978	213.493
1,009.36	14.048	215.735
1,009.52	14.117	217.988
1,009.68	14.186	220.252
1,009.84	14.256	222.528
1,010.00	14.326	224.814
1,010.16	14.428	227.115
1,010.32	14.531	229.431
1,010.48	14.634	231.765
1,010.64	14.738	234.114
1,010.80	14.842	236.481
1,010.96	14.946	238.864
1,011.12	15.051	241.264
1,011.28	15.156	243.680
1,011.44	15.261	246.114
1,011.60	15.367	248.564
1,011.76	15.473	251.031

Stage-Area-Storage for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Elevation (feet)	Surface (acres)	Storage (acre-feet)
1,011.92	15.580	253.515
1,012.08	15.709	256.017
1,012.24	15.860	258.543
1,012.40	16.012	261.093
1,012.56	16.166	263.667
1,012.72	16.319	266.266
1,012.88	16.474	268.889
1,013.04	16.629	271.537
1,013.20	16.785	274.211
1,013.36	16.942	276.909
1,013.52	17.099	279.632
1,013.68	17.257	282.381
1,013.84	17.416	285.154
1,014.00	17.576	287.954
1,014.16	17.803	290.784
1,014.32	18.032	293.651
1,014.48	18.262	296.554
1,014.64	18.494	299.495
1,014.80	18.727	302.472
1,014.96	18.961	305.487
1,015.12	19.197	308.540
1,015.28	19.435	311.631
1,015.44	19.673	314.759
1,015.60	19.914	317.926
1,015.76	20.156	321.132
1,015.92	20.399	324.376
1,016.08	20.688	327.661
1,016.24	21.025	330.998
1,016.40	21.364	334.389
1,016.56	21.706	337.835
1,016.72	22.050	341.335
1,016.88	22.398	344.891
1,017.04	22.748	348.503
1,017.20	23.101	352.170
1,017.36	23.456	355.895
1,017.52	23.814	359.677
1,017.68	24.175	363.516
1,017.84	24.539	367.413
1,018.00	**24.905**	**371.368**

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Pond 1P: Sippo Creek Peak Elev=1,012.35' Storage=255.039 af Inflow=10,832.10 cfs 7,067.115 af
3,273.970 af Secondary=6,559.97 cfs 3,260.854 af Tertiary=1,239.05 cfs 518.899 af Outflow=10,794.63 cfs 7,053.722 af

Pond 16P: Lincoln Way Box Peak Elev=1,011.04' Storage=240.048 af Inflow=9,555.68 cfs 6,534.567 af
Primary=2,909.56 cfs 3,826.918 af Secondary=6,690.19 cfs 2,706.358 af Outflow=9,553.90 cfs 6,533.276 af

Summary for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 8.97" for 6-HR 0.5PMF event
Inflow = 10,832.10 cfs @ 6.51 hrs, Volume= 7,067.115 af
Outflow = 10,794.63 cfs @ 6.66 hrs, Volume= 7,053.722 af, Atten= 0%, Lag= 8.8 min
Primary = 3,530.89 cfs @ 3.82 hrs, Volume= 3,273.970 af
Secondary = 6,559.97 cfs @ 6.66 hrs, Volume= 3,260.854 af
Tertiary = 1,239.05 cfs @ 6.68 hrs, Volume= 518.899 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,001.64' Surf.Area= 6.730 ac Storage= 37.975 af
Peak Elev= 1,012.35' @ 6.68 hrs Surf.Area= 44.088 ac Storage= 255.039 af (217.064 af above start)
Flood Elev= 1,005.00' Surf.Area= 12.657 ac Storage= 68.385 af (30.411 af above start)

Plug-Flow detention time= 29.0 min calculated for 7,015.748 af (99% of inflow)
Center-of-Mass det. time= 15.6 min (595.4 - 579.8)

Volume	Invert	Avail.Storage	Storage Description
#1	987.68'	1,269.498 af	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
987.68	0.500	500.0	0.000	0.000	0.500
990.00	1.200	1,000.0	1.914	1.914	1.871
994.00	2.000	2,500.0	6.332	8.246	11.463
998.00	3.060	2,611.0	10.045	18.291	12.526
1,000.00	6.204	3,251.0	9.081	27.372	19.381
1,001.64	6.730	4,770.0	10.603	37.975	41.639
1,002.00	7.243	5,147.0	2.515	40.489	48.470
1,004.00	9.610	10,274.0	16.797	57.287	192.907
1,006.00	16.124	11,202.9	25.455	82.741	229.356
1,008.00	21.577	15,736.9	37.569	120.310	452.497
1,010.00	29.674	20,301.4	51.036	171.347	753.009
1,012.00	39.539	22,845.5	68.977	240.324	953.544
1,014.00	68.669	34,370.5	106.876	347.201	2,158.194
1,025.00	100.000	50,000.0	922.298	1,269.498	4,567.224

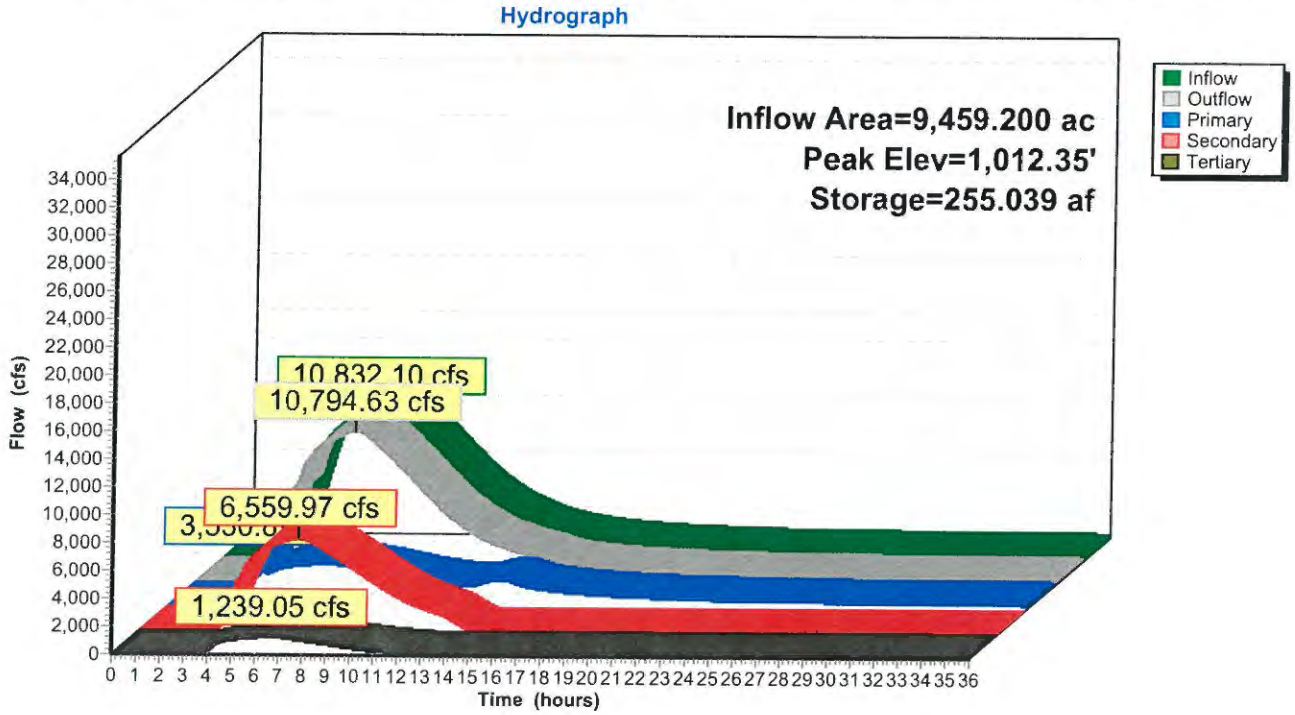
Device	Routing	Invert	Outlet Devices
#1	Primary	1,001.64'	**50.0' long x 2.9' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.45 2.58 2.66 2.66 2.65 2.64 2.65 2.69 2.69 2.73 2.83 2.95 3.01 3.12 3.32
#2	Secondary	1,007.00'	**Right Embankment Weir - Building side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 3.00 4.00 22.00 Width (feet) 78.00 78.00 78.00 78.00
#3	Secondary	1,007.00'	**Left Embankment Weir - Playground side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 3.00 13.00 15.00 Width (feet) 115.00 130.00 180.00 205.00 225.00
#4	Tertiary	1,008.00'	**Weir Flow around Bldg. X 0.50, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 2.00 4.00 6.00 8.00 10.00 12.00 Width (feet) 50.00 90.00 122.00 166.00 240.00 334.00 420.00

Primary OutFlow Max=3,512.11 cfs @ 3.82 hrs HW=1,009.33' TW=1,002.26' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 3,512.11 cfs @ 9.13 fps)

Secondary OutFlow Max=6,559.44 cfs @ 6.66 hrs HW=1,012.35' TW=1,011.04' (Dynamic Tailwater)
├─**2=Right Embankment Weir - Building side** (Weir Controls 2,157.93 cfs @ 5.17 fps)
└─**3=Left Embankment Weir - Playground side** (Weir Controls 4,401.50 cfs @ 5.10 fps)

Tertiary OutFlow Max=1,239.05 cfs @ 6.68 hrs HW=1,012.35' (Free Discharge)
└─**4=Weir Flow around Bldg.** (Weir Controls 1,239.05 cfs @ 3.13 fps)

Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007



Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
0.00	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.10	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.20	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.30	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.40	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.50	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.60	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.70	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.80	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.90	0.02	37.975	1,001.64	0.00	0.00	0.00	0.00
1.00	0.05	37.975	1,001.64	0.00	0.00	0.00	0.00
1.10	0.29	37.976	1,001.64	0.00	0.00	0.00	0.00
1.20	1.00	37.981	1,001.64	0.00	0.00	0.00	0.00
1.30	2.74	37.995	1,001.64	0.02	0.02	0.00	0.00
1.40	6.22	38.029	1,001.65	0.09	0.09	0.00	0.00
1.50	12.73	38.101	1,001.66	0.31	0.31	0.00	0.00
1.60	23.30	38.237	1,001.68	0.93	0.93	0.00	0.00
1.70	39.23	38.472	1,001.71	2.42	2.42	0.00	0.00
1.80	61.86	38.844	1,001.77	5.51	5.51	0.00	0.00
1.90	92.52	39.397	1,001.85	11.39	11.39	0.00	0.00
2.00	133.24	40.177	1,001.96	22.39	22.39	0.00	0.00
2.10	187.15	41.223	1,002.10	40.64	40.64	0.00	0.00
2.20	259.03	42.591	1,002.28	68.29	68.29	0.00	0.00
2.30	354.34	44.361	1,002.51	108.34	108.34	0.00	0.00
2.40	481.58	46.641	1,002.80	164.38	164.38	0.00	0.00
2.50	651.92	49.571	1,003.15	247.25	247.25	0.00	0.00
2.60	877.39	53.306	1,003.57	364.44	364.44	0.00	0.00
2.70	1,169.86	57.998	1,004.07	534.00	534.00	0.00	0.00
2.80	1,327.53	63.798	1,004.62	757.17	757.17	0.00	0.00
2.90	1,717.03	69.231	1,005.06	950.98	950.98	0.00	0.00
3.00	2,179.08	76.307	1,005.58	1,213.15	1,213.15	0.00	0.00
3.10	2,703.97	84.906	1,006.13	1,578.44	1,578.44	0.00	0.00
3.20	3,281.07	95.146	1,006.73	1,904.21	1,904.21	0.00	0.00
3.30	3,884.87	107.186	1,007.36	2,411.32	2,272.11	139.21	0.00
3.40	4,503.90	118.780	1,007.93	3,199.98	2,617.91	582.07	0.00
3.50	5,106.84	128.826	1,008.38	3,996.12	2,905.11	1,070.61	20.40
3.60	5,692.50	137.429	1,008.74	4,743.34	3,143.28	1,541.24	58.82
3.70	6,239.17	144.831	1,009.04	5,409.44	3,339.78	1,968.80	100.86
3.80	6,734.56	151.269	1,009.28	6,012.64	**3,508.14**	2,360.93	143.57
3.90	7,178.22	157.431	1,009.51	6,351.19	**3,412.12**	2,750.00	189.07
4.00	7,557.07	164.985	1,009.78	6,529.23	3,043.28	3,236.39	249.56
4.10	7,888.77	175.037	1,010.12	6,245.08	2,436.54	3,469.95	338.59
4.20	8,168.05	190.190	1,010.60	6,379.89	2,236.79	3,656.76	486.34
4.30	8,415.99	203.057	1,010.99	7,126.11	2,346.05	4,156.50	623.57
4.40	8,637.48	212.253	1,011.25	7,714.15	2,444.44	4,543.99	725.72
4.50	8,838.87	218.940	1,011.44	8,156.79	2,521.13	4,834.25	801.41
4.60	9,029.88	223.930	1,011.57	8,509.34	2,583.89	5,065.10	860.34
4.70	9,207.02	227.815	1,011.68	8,786.50	2,633.18	5,246.39	906.93
4.80	9,377.84	231.050	1,011.76	9,019.48	2,675.41	5,398.86	945.21
4.90	9,533.56	233.817	1,011.83	9,223.20	2,712.44	5,532.18	978.58
5.00	9,676.43	236.238	1,011.89	9,404.66	2,745.46	5,650.94	1,008.26
5.10	9,806.03	238.360	1,011.95	9,565.55	2,774.68	5,756.23	1,034.65
5.20	9,916.22	240.229	1,012.00	9,708.34	2,800.52	5,849.64	1,058.18

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continued

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
5.30	10,013.85	241.862	1,012.04	9,829.79	2,822.40	5,929.08	1,078.31
5.40	10,095.02	243.291	1,012.07	9,932.07	2,840.64	5,995.91	1,095.52
5.50	10,169.55	244.580	1,012.10	10,022.95	2,857.08	6,055.37	1,110.50
5.60	10,238.65	245.734	1,012.13	10,104.73	2,871.85	6,108.86	1,124.02
5.70	10,308.94	246.812	1,012.16	10,182.23	2,885.92	6,159.59	1,136.72
5.80	10,384.29	247.852	1,012.18	10,257.98	2,899.74	6,209.20	1,149.04
5.90	10,461.28	248.899	1,012.20	10,334.81	2,913.77	6,259.52	1,161.51
6.00	10,543.54	249.960	1,012.23	10,413.35	2,928.13	6,310.98	1,174.24
6.10	10,623.70	251.038	1,012.25	10,493.13	2,942.66	6,363.23	1,187.24
6.20	10,699.65	252.111	1,012.28	10,572.59	2,957.08	6,415.26	1,200.26
6.30	10,763.83	253.126	1,012.30	10,647.12	2,970.47	6,464.00	1,212.65
6.40	10,808.60	254.025	1,012.32	10,712.22	2,982.02	6,506.52	1,223.68
6.50	**10,830.94**	254.724	1,012.34	10,761.44	2,990.55	6,538.59	1,232.29
6.60	**10,821.22**	**255.160**	**1,012.35**	**10,789.84**	2,995.19	**6,556.98**	**1,237.68**
6.70	10,781.01	**255.264**	**1,012.35**	**10,792.64**	2,995.11	**6,558.57**	**1,238.96**
6.80	10,706.97	254.988	1,012.35	10,766.04	2,989.61	6,540.88	1,235.55
6.90	10,606.60	254.332	1,012.33	10,711.22	2,979.03	6,504.73	1,227.46
7.00	10,483.82	253.309	1,012.31	10,629.26	2,963.54	6,450.84	1,214.88
7.10	10,344.19	251.972	1,012.28	10,525.07	2,944.07	6,382.43	1,198.57
7.20	10,192.90	250.368	1,012.24	10,402.24	2,921.24	6,301.85	1,179.15
7.30	10,034.88	248.555	1,012.20	10,265.58	2,895.91	6,212.26	1,157.41
7.40	9,874.48	246.591	1,012.15	10,119.64	2,868.91	6,116.63	1,134.10
7.50	9,713.81	244.526	1,012.10	9,968.09	2,840.88	6,017.34	1,109.87
7.60	9,553.57	242.400	1,012.05	9,811.45	2,811.76	5,914.71	1,084.98
7.70	9,394.10	240.289	1,012.00	9,647.71	2,781.33	5,807.44	1,058.94
7.80	9,234.61	238.215	1,011.95	9,483.93	2,750.90	5,700.20	1,032.83
7.90	9,074.65	236.160	1,011.89	9,323.33	2,720.98	5,595.05	1,007.30
8.00	8,912.82	234.100	1,011.84	9,163.23	2,691.01	5,490.20	982.02
8.10	8,750.25	232.022	1,011.78	9,003.16	2,660.92	5,385.38	956.86
8.20	8,585.62	229.918	1,011.73	8,842.40	2,630.58	5,280.10	931.72
8.30	8,419.16	227.779	1,011.68	8,680.40	2,599.87	5,174.01	906.51
8.40	8,251.60	225.613	1,011.62	8,512.28	2,567.71	5,063.89	880.69
8.50	8,080.88	223.453	1,011.56	8,343.72	2,535.57	4,953.53	854.62
8.60	7,908.85	221.270	1,011.50	8,174.93	2,503.24	4,843.02	828.67
8.70	7,734.81	219.055	1,011.44	8,005.46	2,470.63	4,732.07	802.76
8.80	7,559.21	216.798	1,011.38	7,835.12	2,437.78	4,620.57	776.77
8.90	7,383.17	214.502	1,011.31	7,663.43	2,404.48	4,508.19	750.76
9.00	7,205.18	212.165	1,011.25	7,490.72	2,370.83	4,395.14	724.75
9.10	7,027.77	209.808	1,011.18	7,311.74	2,335.63	4,277.99	698.12
9.20	6,849.75	207.456	1,011.12	7,135.25	2,301.04	4,162.49	671.72
9.30	6,673.08	205.091	1,011.05	6,960.13	2,266.56	4,047.90	645.67
9.40	6,496.48	202.712	1,010.98	6,783.95	2,231.58	3,932.61	619.77
9.50	6,321.57	200.340	1,010.91	6,608.35	2,196.73	3,817.71	593.92
9.60	6,148.11	197.967	1,010.84	6,436.12	2,162.52	3,705.00	568.60
9.70	5,976.74	195.601	1,010.77	6,259.99	2,127.09	3,589.75	543.15
9.80	5,807.32	193.269	1,010.70	6,088.98	2,092.87	3,477.83	518.29
9.90	5,640.33	190.943	1,010.63	5,921.23	2,059.14	3,368.03	494.06
10.00	5,476.40	188.625	1,010.55	5,756.95	2,026.00	3,260.48	470.47
10.10	5,315.05	186.306	1,010.48	5,595.54	1,993.32	3,154.79	447.42
10.20	5,157.06	183.989	1,010.41	5,437.45	1,961.24	3,051.26	424.96
10.30	5,002.03	181.709	1,010.34	5,274.38	1,927.74	2,944.49	402.16
10.40	4,851.16	179.473	1,010.27	5,119.79	1,896.37	2,843.14	380.28
10.50	4,703.02	177.261	1,010.19	4,969.60	1,865.74	2,744.65	359.20

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
10.60	4,559.29	175.065	1,010.12	4,823.84	1,835.97	2,649.02	338.85
10.70	4,418.37	172.881	1,010.05	4,682.05	1,806.93	2,555.94	319.17
10.80	4,282.19	170.710	1,009.98	4,540.44	1,777.52	2,463.04	299.87
10.90	4,149.25	168.602	1,009.90	4,401.82	1,749.02	2,371.97	280.83
11.00	4,020.58	166.526	1,009.83	4,270.20	1,722.19	2,285.33	262.67
11.10	3,895.78	164.473	1,009.76	4,143.14	1,696.23	2,201.63	245.28
11.20	3,774.82	162.435	1,009.69	4,020.43	1,671.17	2,120.68	228.58
11.30	3,658.21	160.412	1,009.62	3,902.51	1,647.29	2,042.68	212.55
11.40	3,544.48	158.402	1,009.55	3,783.17	1,622.63	1,963.79	196.76
11.50	3,435.09	156.447	1,009.48	3,669.75	1,600.08	1,888.25	181.42
11.60	3,329.13	154.515	1,009.40	3,562.35	1,579.25	1,816.28	166.83
11.70	3,226.89	152.592	1,009.33	3,459.07	1,559.55	1,746.67	152.85
11.80	3,128.79	150.676	1,009.26	3,360.20	1,541.19	1,679.51	139.49
11.90	3,033.61	148.762	1,009.19	3,265.46	1,524.22	1,614.55	126.70
12.00	2,942.49	146.862	1,009.12	3,168.81	1,506.79	1,547.99	114.03
12.10	2,855.13	144.999	1,009.04	3,080.20	1,492.89	1,485.39	101.91
12.20	2,770.58	143.133	1,008.97	2,997.24	1,481.47	1,425.38	90.39
12.30	2,689.16	141.252	1,008.90	2,918.29	1,472.10	1,366.81	79.38
12.40	2,610.46	139.344	1,008.82	2,843.98	1,465.49	1,309.65	68.83
12.50	2,533.90	137.389	1,008.74	2,772.85	1,461.78	1,252.47	58.61
12.60	2,460.49	135.404	1,008.66	2,706.06	1,463.62	1,194.07	48.38
12.70	2,390.17	133.306	1,008.57	2,654.19	1,477.80	1,137.94	38.45
12.80	2,321.75	131.060	1,008.48	2,602.36	1,498.07	1,075.44	28.85
12.90	2,255.73	128.692	1,008.37	2,548.82	1,524.67	1,004.21	19.93
13.00	2,192.30	126.262	1,008.27	2,484.26	1,554.97	917.45	11.84
13.10	2,131.10	123.866	1,008.16	2,418.14	1,595.50	817.26	5.38
13.20	2,072.23	121.523	1,008.05	2,353.13	1,645.09	706.99	1.05
13.30	2,016.13	119.196	1,007.95	2,297.84	1,697.12	600.71	0.00
13.40	1,962.53	116.876	1,007.84	2,242.26	1,745.56	496.71	0.00
13.50	1,910.47	114.563	1,007.73	2,191.34	1,791.75	399.59	0.00
13.60	1,860.36	112.235	1,007.61	2,143.30	1,833.67	309.63	0.00
13.70	1,812.48	109.889	1,007.50	2,096.56	1,869.67	226.89	0.00
13.80	1,766.79	107.558	1,007.38	2,047.45	1,897.05	150.40	0.00
13.90	1,722.98	105.240	1,007.26	2,004.23	1,918.44	85.79	0.00
14.00	1,680.93	102.904	1,007.14	1,965.71	1,931.18	34.53	0.00
14.10	1,640.94	100.529	1,007.02	1,932.96	1,931.25	1.71	0.00
14.20	1,602.61	98.037	1,006.88	1,913.50	1,913.50	0.00	0.00
14.30	1,565.75	95.445	1,006.74	1,879.99	1,879.99	0.00	0.00
14.40	1,530.15	92.887	1,006.60	1,829.68	1,829.68	0.00	0.00
14.50	1,495.83	90.545	1,006.46	1,758.53	1,758.53	0.00	0.00
14.60	1,463.05	88.496	1,006.35	1,694.38	1,694.38	0.00	0.00
14.70	1,431.74	86.681	1,006.24	1,637.29	1,637.29	0.00	0.00
14.80	1,401.84	85.068	1,006.14	1,585.28	1,585.28	0.00	0.00
14.90	1,373.28	83.675	1,006.06	1,525.37	1,525.37	0.00	0.00
15.00	1,345.75	82.506	1,005.99	1,475.50	1,475.50	0.00	0.00
15.10	1,319.27	81.500	1,005.92	1,432.12	1,432.12	0.00	0.00
15.20	1,293.73	80.615	1,005.87	1,394.53	1,394.53	0.00	0.00
15.30	1,269.07	79.823	1,005.81	1,359.40	1,359.40	0.00	0.00
15.40	1,245.29	79.106	1,005.76	1,327.89	1,327.89	0.00	0.00
15.50	1,222.45	78.447	1,005.72	1,299.22	1,299.22	0.00	0.00
15.60	1,200.51	77.830	1,005.68	1,272.75	1,272.75	0.00	0.00
15.70	1,179.19	77.246	1,005.64	1,247.99	1,247.99	0.00	0.00
15.80	1,158.51	76.679	1,005.60	1,226.88	1,226.88	0.00	0.00

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continuec

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
15.90	1,138.62	76.117	1,005.56	1,206.15	1,206.15	0.00	0.00
16.00	1,119.48	75.563	1,005.53	1,185.88	1,185.88	0.00	0.00
16.10	1,101.08	75.019	1,005.49	1,166.16	1,166.16	0.00	0.00
16.20	1,083.38	74.486	1,005.45	1,147.00	1,147.00	0.00	0.00
16.30	1,066.34	73.970	1,005.42	1,127.05	1,127.05	0.00	0.00
16.40	1,049.92	73.479	1,005.38	1,107.85	1,107.85	0.00	0.00
16.50	1,033.94	73.009	1,005.35	1,089.63	1,089.63	0.00	0.00
16.60	1,018.22	72.556	1,005.31	1,072.19	1,072.19	0.00	0.00
16.70	1,002.84	72.115	1,005.28	1,055.38	1,055.38	0.00	0.00
16.80	987.94	71.686	1,005.25	1,039.14	1,039.14	0.00	0.00
16.90	973.49	71.268	1,005.22	1,023.42	1,023.42	0.00	0.00
17.00	959.51	70.860	1,005.19	1,008.20	1,008.20	0.00	0.00
17.10	945.97	70.462	1,005.16	993.47	993.47	0.00	0.00
17.20	932.86	70.073	1,005.13	979.60	979.60	0.00	0.00
17.30	920.18	69.688	1,005.10	966.47	966.47	0.00	0.00
17.40	907.90	69.308	1,005.07	953.57	953.57	0.00	0.00
17.50	896.01	68.933	1,005.04	940.93	940.93	0.00	0.00
17.60	884.49	68.567	1,005.01	927.71	927.71	0.00	0.00
17.70	873.29	68.217	1,004.98	914.74	914.74	0.00	0.00
17.80	862.32	67.880	1,004.96	902.33	902.33	0.00	0.00
17.90	851.69	67.554	1,004.93	890.41	890.41	0.00	0.00
18.00	841.40	67.238	1,004.90	878.92	878.92	0.00	0.00
18.10	831.42	66.932	1,004.88	867.85	867.85	0.00	0.00
18.20	821.73	66.635	1,004.85	857.15	857.15	0.00	0.00
18.30	812.31	66.346	1,004.83	846.79	846.79	0.00	0.00
18.40	803.10	66.064	1,004.81	836.75	836.75	0.00	0.00
18.50	794.12	65.789	1,004.78	827.00	827.00	0.00	0.00
18.60	785.37	65.520	1,004.76	817.51	817.51	0.00	0.00
18.70	776.84	65.257	1,004.74	808.28	808.28	0.00	0.00
18.80	768.52	65.000	1,004.72	799.29	799.29	0.00	0.00
18.90	760.42	64.748	1,004.70	790.53	790.53	0.00	0.00
19.00	752.51	64.501	1,004.68	782.00	782.00	0.00	0.00
19.10	744.80	64.260	1,004.66	773.69	773.69	0.00	0.00
19.20	737.28	64.023	1,004.64	765.51	765.51	0.00	0.00
19.30	729.84	63.794	1,004.62	756.98	756.98	0.00	0.00
19.40	722.58	63.576	1,004.60	748.09	748.09	0.00	0.00
19.50	715.49	63.370	1,004.58	739.73	739.73	0.00	0.00
19.60	708.58	63.174	1,004.56	731.81	731.81	0.00	0.00
19.70	701.84	62.985	1,004.54	724.23	724.23	0.00	0.00
19.80	695.26	62.802	1,004.53	716.95	716.95	0.00	0.00
19.90	688.83	62.625	1,004.51	709.91	709.91	0.00	0.00
20.00	682.55	62.453	1,004.49	703.10	703.10	0.00	0.00
20.10	676.42	62.285	1,004.48	696.49	696.49	0.00	0.00
20.20	670.42	62.121	1,004.46	690.05	690.05	0.00	0.00
20.30	664.55	61.960	1,004.45	683.78	683.78	0.00	0.00
20.40	658.80	61.803	1,004.43	677.66	677.66	0.00	0.00
20.50	653.18	61.648	1,004.42	671.68	671.68	0.00	0.00
20.60	647.66	61.497	1,004.41	665.84	665.84	0.00	0.00
20.70	642.26	61.348	1,004.39	660.12	660.12	0.00	0.00
20.80	636.95	61.201	1,004.38	654.52	654.52	0.00	0.00
20.90	631.75	61.057	1,004.37	649.04	649.04	0.00	0.00
21.00	626.65	60.915	1,004.35	643.66	643.66	0.00	0.00
21.10	621.64	60.776	1,004.34	638.39	638.39	0.00	0.00

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
21.20	616.71	60.638	1,004.33	633.22	633.22	0.00	0.00
21.30	611.87	60.503	1,004.31	628.14	628.14	0.00	0.00
21.40	607.12	60.369	1,004.30	623.15	623.15	0.00	0.00
21.50	602.39	60.237	1,004.29	618.25	618.25	0.00	0.00
21.60	597.76	60.107	1,004.28	613.42	613.42	0.00	0.00
21.70	593.25	59.978	1,004.27	608.68	608.68	0.00	0.00
21.80	588.83	59.852	1,004.25	604.02	604.02	0.00	0.00
21.90	584.53	59.727	1,004.24	599.46	599.46	0.00	0.00
22.00	580.32	59.605	1,004.23	594.99	594.99	0.00	0.00
22.10	576.22	59.484	1,004.22	590.62	590.62	0.00	0.00
22.20	572.21	59.366	1,004.21	586.34	586.34	0.00	0.00
22.30	568.30	59.252	1,004.20	581.87	581.87	0.00	0.00
22.40	564.48	59.141	1,004.19	577.54	577.54	0.00	0.00
22.50	560.74	59.035	1,004.18	573.37	573.37	0.00	0.00
22.60	557.09	58.932	1,004.17	569.35	569.35	0.00	0.00
22.70	553.52	58.832	1,004.16	565.46	565.46	0.00	0.00
22.80	550.03	58.734	1,004.15	561.67	561.67	0.00	0.00
22.90	546.61	58.639	1,004.14	558.01	558.01	0.00	0.00
23.00	543.26	58.546	1,004.13	554.48	554.48	0.00	0.00
23.10	539.98	58.453	1,004.12	551.01	551.01	0.00	0.00
23.20	536.76	58.363	1,004.11	547.61	547.61	0.00	0.00
23.30	533.61	58.274	1,004.10	544.28	544.28	0.00	0.00
23.40	530.51	58.186	1,004.09	541.01	541.01	0.00	0.00
23.50	527.47	58.100	1,004.08	537.80	537.80	0.00	0.00
23.60	524.48	58.015	1,004.07	534.65	534.65	0.00	0.00
23.70	521.54	57.932	1,004.07	531.56	531.56	0.00	0.00
23.80	518.64	57.850	1,004.06	528.52	528.52	0.00	0.00
23.90	515.79	57.768	1,004.05	525.53	525.53	0.00	0.00
24.00	512.98	57.688	1,004.04	522.59	522.59	0.00	0.00
24.10	510.21	57.610	1,004.03	519.70	519.70	0.00	0.00
24.20	507.49	57.532	1,004.02	516.85	516.85	0.00	0.00
24.30	504.79	57.455	1,004.02	514.04	514.04	0.00	0.00
24.40	502.14	57.379	1,004.01	511.27	511.27	0.00	0.00
24.50	499.52	57.304	1,004.00	508.55	508.55	0.00	0.00
24.60	496.93	57.230	1,003.99	505.77	505.77	0.00	0.00
24.70	494.37	57.157	1,003.99	503.04	503.04	0.00	0.00
24.80	491.84	57.086	1,003.98	500.36	500.36	0.00	0.00
24.90	489.34	57.016	1,003.97	497.74	497.74	0.00	0.00
25.00	486.83	56.947	1,003.96	495.15	495.15	0.00	0.00
25.10	484.36	56.879	1,003.96	492.59	492.59	0.00	0.00
25.20	481.92	56.811	1,003.95	490.06	490.06	0.00	0.00
25.30	479.50	56.744	1,003.94	487.57	487.57	0.00	0.00
25.40	477.12	56.678	1,003.94	485.10	485.10	0.00	0.00
25.50	474.76	56.612	1,003.93	482.67	482.67	0.00	0.00
25.60	472.43	56.547	1,003.92	480.26	480.26	0.00	0.00
25.70	470.13	56.482	1,003.92	477.88	477.88	0.00	0.00
25.80	467.84	56.419	1,003.91	475.53	475.53	0.00	0.00
25.90	465.59	56.355	1,003.90	473.21	473.21	0.00	0.00
26.00	463.35	56.293	1,003.90	470.91	470.91	0.00	0.00
26.10	461.13	56.230	1,003.89	468.63	468.63	0.00	0.00
26.20	458.93	56.168	1,003.88	466.38	466.38	0.00	0.00
26.30	456.75	56.107	1,003.88	464.14	464.14	0.00	0.00
26.40	454.58	56.046	1,003.87	461.93	461.93	0.00	0.00

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
26.50	452.44	55.986	1,003.86	459.73	459.73	0.00	0.00
26.60	450.31	55.926	1,003.86	457.56	457.56	0.00	0.00
26.70	448.20	55.866	1,003.85	455.40	455.40	0.00	0.00
26.80	446.11	55.807	1,003.84	453.27	453.27	0.00	0.00
26.90	444.04	55.748	1,003.84	451.15	451.15	0.00	0.00
27.00	441.98	55.689	1,003.83	449.05	449.05	0.00	0.00
27.10	439.94	55.631	1,003.83	446.96	446.96	0.00	0.00
27.20	437.91	55.573	1,003.82	444.89	444.89	0.00	0.00
27.30	435.90	55.515	1,003.81	442.84	442.84	0.00	0.00
27.40	433.90	55.458	1,003.81	440.81	440.81	0.00	0.00
27.50	431.92	55.401	1,003.80	438.78	438.78	0.00	0.00
27.60	429.95	55.345	1,003.80	436.78	436.78	0.00	0.00
27.70	428.00	55.289	1,003.79	434.72	434.72	0.00	0.00
27.80	426.06	55.233	1,003.78	432.69	432.69	0.00	0.00
27.90	424.13	55.179	1,003.78	430.69	430.69	0.00	0.00
28.00	422.22	55.125	1,003.77	428.71	428.71	0.00	0.00
28.10	420.32	55.072	1,003.77	426.76	426.76	0.00	0.00
28.20	418.43	55.019	1,003.76	424.82	424.82	0.00	0.00
28.30	416.56	54.966	1,003.75	422.91	422.91	0.00	0.00
28.40	414.71	54.914	1,003.75	421.01	421.01	0.00	0.00
28.50	412.89	54.862	1,003.74	419.13	419.13	0.00	0.00
28.60	411.08	54.810	1,003.74	417.27	417.27	0.00	0.00
28.70	409.30	54.760	1,003.73	415.43	415.43	0.00	0.00
28.80	407.54	54.709	1,003.73	413.61	413.61	0.00	0.00
28.90	405.80	54.659	1,003.72	411.81	411.81	0.00	0.00
29.00	404.07	54.610	1,003.71	410.04	410.04	0.00	0.00
29.10	402.36	54.561	1,003.71	408.28	408.28	0.00	0.00
29.20	400.67	54.512	1,003.70	406.53	406.53	0.00	0.00
29.30	398.99	54.464	1,003.70	404.81	404.81	0.00	0.00
29.40	397.33	54.416	1,003.69	403.10	403.10	0.00	0.00
29.50	395.68	54.368	1,003.69	401.41	401.41	0.00	0.00
29.60	394.04	54.321	1,003.68	399.73	399.73	0.00	0.00
29.70	392.41	54.274	1,003.68	398.07	398.07	0.00	0.00
29.80	390.80	54.227	1,003.67	396.42	396.42	0.00	0.00
29.90	389.20	54.181	1,003.67	394.78	394.78	0.00	0.00
30.00	387.61	54.135	1,003.66	393.16	393.16	0.00	0.00
30.10	386.03	54.089	1,003.66	391.55	391.55	0.00	0.00
30.20	384.45	54.044	1,003.65	389.95	389.95	0.00	0.00
30.30	382.86	53.998	1,003.65	388.36	388.36	0.00	0.00
30.40	381.29	53.953	1,003.64	386.77	386.77	0.00	0.00
30.50	379.73	53.908	1,003.64	385.19	385.19	0.00	0.00
30.60	378.19	53.863	1,003.63	383.62	383.62	0.00	0.00
30.70	376.65	53.818	1,003.63	382.06	382.06	0.00	0.00
30.80	375.12	53.773	1,003.62	380.51	380.51	0.00	0.00
30.90	373.61	53.729	1,003.62	378.97	378.97	0.00	0.00
31.00	372.10	53.685	1,003.61	377.44	377.44	0.00	0.00
31.10	370.60	53.641	1,003.61	375.91	375.91	0.00	0.00
31.20	369.11	53.597	1,003.60	374.40	374.40	0.00	0.00
31.30	367.63	53.553	1,003.60	372.90	372.90	0.00	0.00
31.40	366.16	53.510	1,003.59	371.40	371.40	0.00	0.00
31.50	364.69	53.466	1,003.59	369.92	369.92	0.00	0.00
31.60	363.24	53.423	1,003.58	368.44	368.44	0.00	0.00
31.70	361.79	53.380	1,003.58	366.97	366.97	0.00	0.00

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continuec

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
31.80	360.36	53.338	1,003.57	365.51	365.51	0.00	0.00
31.90	358.93	53.295	1,003.57	364.06	364.06	0.00	0.00
32.00	357.51	53.253	1,003.57	362.62	362.62	0.00	0.00
32.10	356.10	53.211	1,003.56	361.19	361.19	0.00	0.00
32.20	354.70	53.169	1,003.56	359.77	359.77	0.00	0.00
32.30	353.31	53.127	1,003.55	358.35	358.35	0.00	0.00
32.40	351.92	53.085	1,003.55	356.94	356.94	0.00	0.00
32.50	350.55	53.044	1,003.54	355.55	355.55	0.00	0.00
32.60	349.17	53.002	1,003.54	354.16	354.16	0.00	0.00
32.70	347.78	52.961	1,003.53	352.77	352.77	0.00	0.00
32.80	346.39	52.920	1,003.53	351.39	351.39	0.00	0.00
32.90	345.00	52.879	1,003.52	350.00	350.00	0.00	0.00
33.00	343.61	52.837	1,003.52	348.62	348.62	0.00	0.00
33.10	342.22	52.796	1,003.51	347.23	347.23	0.00	0.00
33.20	340.83	52.754	1,003.51	345.85	345.85	0.00	0.00
33.30	339.45	52.713	1,003.51	344.47	344.47	0.00	0.00
33.40	338.08	52.671	1,003.50	343.09	343.09	0.00	0.00
33.50	336.71	52.630	1,003.50	341.72	341.72	0.00	0.00
33.60	335.35	52.589	1,003.49	340.35	340.35	0.00	0.00
33.70	333.99	52.547	1,003.49	338.98	338.98	0.00	0.00
33.80	332.65	52.506	1,003.48	337.62	337.62	0.00	0.00
33.90	331.31	52.465	1,003.48	336.27	336.27	0.00	0.00
34.00	329.98	52.424	1,003.47	334.93	334.93	0.00	0.00
34.10	328.67	52.383	1,003.47	333.59	333.59	0.00	0.00
34.20	327.36	52.343	1,003.47	332.26	332.26	0.00	0.00
34.30	326.06	52.302	1,003.46	330.94	330.94	0.00	0.00
34.40	324.78	52.262	1,003.46	329.63	329.63	0.00	0.00
34.50	323.50	52.222	1,003.45	328.32	328.32	0.00	0.00
34.60	322.24	52.182	1,003.45	327.03	327.03	0.00	0.00
34.70	320.98	52.143	1,003.44	325.75	325.75	0.00	0.00
34.80	319.74	52.104	1,003.44	324.50	324.50	0.00	0.00
34.90	318.50	52.064	1,003.43	323.32	323.32	0.00	0.00
35.00	317.28	52.024	1,003.43	322.14	322.14	0.00	0.00
35.10	316.06	51.984	1,003.43	320.94	320.94	0.00	0.00
35.20	314.86	51.943	1,003.42	319.75	319.75	0.00	0.00
35.30	313.67	51.903	1,003.42	318.55	318.55	0.00	0.00
35.40	312.48	51.863	1,003.41	317.36	317.36	0.00	0.00
35.50	311.31	51.822	1,003.41	316.17	316.17	0.00	0.00
35.60	310.14	51.782	1,003.40	314.99	314.99	0.00	0.00
35.70	308.99	51.742	1,003.40	313.81	313.81	0.00	0.00
35.80	307.84	51.703	1,003.39	312.64	312.64	0.00	0.00
35.90	306.70	51.663	1,003.39	311.48	311.48	0.00	0.00
36.00	0.00	51.624	1,003.39	310.32	310.32	0.00	0.00

Stage-Area-Storage for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007

Elevation (feet)	Surface (acres)	Storage (acre-feet)
987.68	0.500	0.000
987.86	0.544	0.094
988.04	0.589	0.196
988.22	0.636	0.306
988.40	0.685	0.425
988.58	0.736	0.553
988.76	0.788	0.690
988.94	0.843	0.837
989.12	0.899	0.993
989.30	0.957	1.160
989.48	1.017	1.338
989.66	1.079	1.527
989.84	1.142	1.726
990.02	1.203	1.938
990.20	1.235	2.157
990.38	1.267	2.382
990.56	1.300	2.613
990.74	1.333	2.850
990.92	1.366	3.093
991.10	1.400	3.342
991.28	1.434	3.597
991.46	1.468	3.858
991.64	1.503	4.126
991.82	1.539	4.400
992.00	1.575	4.680
992.18	1.611	4.966
992.36	1.647	5.260
992.54	1.684	5.560
992.72	1.722	5.866
992.90	1.760	6.179
993.08	1.798	6.500
993.26	1.837	6.827
993.44	1.876	7.161
993.62	1.915	7.502
993.80	1.955	7.850
993.98	1.995	8.206
994.16	2.038	8.569
994.34	2.081	8.940
994.52	2.125	9.318
994.70	2.169	9.705
994.88	2.214	10.099
995.06	2.259	10.502
995.24	2.305	10.913
995.42	2.351	11.332
995.60	2.397	11.759
995.78	2.444	12.194
995.96	2.491	12.639
996.14	2.539	13.091
996.32	2.587	13.553
996.50	2.636	14.023
996.68	2.685	14.502
996.86	2.735	14.990
997.04	2.785	15.486
997.22	2.836	15.992
997.40	2.887	16.507
997.58	2.938	17.032
997.76	2.990	17.565
997.94	3.042	18.108
998.12	3.218	18.668
998.30	3.461	19.269
998.48	3.714	19.914
998.66	3.976	20.606
998.84	4.247	21.346
999.02	4.526	22.136
999.20	4.814	22.976
999.38	5.112	23.869
999.56	5.418	24.817
999.74	5.733	25.820
999.92	6.057	26.881
1,000.10	6.235	27.994
1,000.28	6.292	29.121
1,000.46	6.349	30.259
1,000.64	6.407	31.407
1,000.82	6.464	32.565
1,001.00	6.522	33.734
1,001.18	6.580	34.913
1,001.36	6.639	36.103
1,001.54	6.697	37.303
1,001.72	6.842	38.518
1,001.90	7.099	39.772
1,002.08	7.331	41.072
1,002.26	7.532	42.410
1,002.44	7.735	43.784
1,002.62	7.941	45.195
1,002.80	8.150	46.643
1,002.98	8.361	48.129
1,003.16	8.575	49.653
1,003.34	8.792	51.216
1,003.52	9.011	52.818
1,003.70	9.234	54.460
1,003.88	9.459	56.143
1,004.06	9.781	57.868
1,004.24	10.303	59.676
1,004.42	10.839	61.578
1,004.60	11.388	63.579
1,004.78	11.951	65.679
1,004.96	12.528	67.882
1,005.14	13.118	70.190
1,005.32	13.721	72.605
1,005.50	14.338	75.130
1,005.68	14.969	77.768
1,005.86	15.613	80.520
1,006.04	16.225	83.388
1,006.22	16.685	86.350
1,006.40	17.151	89.395
1,006.58	17.624	92.525

age-Area-Storage for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (contir

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
1,006.76	18.103	95.740	1,016.30	74.735	512.065
1,006.94	18.588	99.042	1,016.48	75.220	525.561
1,007.12	19.080	102.432	1,016.66	75.707	539.145
1,007.30	19.578	105.911	1,016.84	76.196	552.816
1,007.48	20.083	109.481	1,017.02	76.686	566.575
1,007.66	20.594	113.142	1,017.20	77.178	580.423
1,007.84	21.112	116.895	1,017.38	77.671	594.360
1,008.02	21.652	120.742	1,017.56	78.166	608.385
1,008.20	22.329	124.701	1,017.74	78.663	622.499
1,008.38	23.016	128.781	1,017.92	79.161	636.704
1,008.56	23.714	132.987	1,018.10	79.661	650.998
1,008.74	24.423	137.319	1,018.28	80.162	665.382
1,008.92	25.142	141.780	1,018.46	80.665	679.856
1,009.10	25.871	146.371	1,018.64	81.169	694.421
1,009.28	26.611	151.094	1,018.82	81.675	709.077
1,009.46	27.361	155.951	1,019.00	82.183	723.824
1,009.64	28.122	160.945	1,019.18	82.692	738.663
1,009.82	28.893	166.076	1,019.36	83.202	753.593
1,010.00	29.674	171.347	1,019.54	83.715	768.616
1,010.18	30.504	176.762	1,019.72	84.228	783.730
1,010.36	31.345	182.329	1,019.90	84.744	798.938
1,010.54	32.198	188.047	1,020.08	85.261	814.238
1,010.72	33.063	193.921	1,020.26	85.779	829.632
1,010.90	33.938	199.951	1,020.44	86.299	845.119
1,011.08	34.826	206.139	1,020.62	86.821	860.700
1,011.26	35.724	212.489	1,020.80	87.344	876.375
1,011.44	36.634	219.001	1,020.98	87.869	892.144
1,011.62	37.556	225.678	1,021.16	88.396	908.008
1,011.80	38.489	232.522	1,021.34	88.924	923.966
1,011.98	39.433	239.534	1,021.52	89.453	940.020
1,012.16	41.575	246.813	1,021.70	89.984	956.170
1,012.34	43.927	254.507	1,021.88	90.517	972.415
1,012.52	46.344	262.630	1,022.06	91.051	988.756
1,012.70	48.826	271.195	1,022.24	91.587	1,005.193
1,012.88	51.372	280.211	1,022.42	92.124	1,021.727
1,013.06	53.983	289.692	1,022.60	92.663	1,038.358
1,013.24	56.658	299.649	1,022.78	93.204	1,055.086
1,013.42	59.399	310.093	1,022.96	93.746	1,071.912
1,013.60	62.204	321.037	1,023.14	94.290	1,088.835
1,013.78	65.074	332.491	1,023.32	94.835	1,105.856
1,013.96	68.008	344.467	1,023.50	95.382	1,122.976
1,014.14	69.031	356.839	1,023.68	95.930	1,140.194
1,014.32	69.498	369.307	1,023.86	96.480	1,157.511
1,014.50	69.966	381.859	1,024.04	97.032	1,174.927
1,014.68	70.436	394.495	1,024.22	97.585	1,192.442
1,014.86	70.907	407.216	1,024.40	98.140	1,210.057
1,015.04	71.380	420.021	1,024.58	98.696	1,227.772
1,015.22	71.854	432.912	1,024.76	99.254	1,245.588
1,015.40	72.331	445.889	1,024.94	**99.813**	**1,263.504**
1,015.58	72.808	458.952	1,025.12	**100.000**	**1,269.498**
1,015.76	73.287	472.100	1,025.30	100.000	1,269.498
1,015.94	73.768	485.335	1,025.48	100.000	1,269.498
1,016.12	74.251	498.657	1,025.66	100.000	1,269.498

...age-Area-Storage for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (contir

Elevation (feet)	Surface (acres)	Storage (acre-feet)
1,025.84	100.000	1,269.498
1,026.02	100.000	1,269.498
1,026.20	100.000	1,269.498
1,026.38	100.000	1,269.498
1,026.56	100.000	1,269.498
1,026.74	100.000	1,269.498
1,026.92	100.000	1,269.498
1,027.10	100.000	1,269.498
1,027.28	100.000	1,269.498
1,027.46	100.000	1,269.498
1,027.64	100.000	1,269.498
1,027.82	100.000	1,269.498
1,028.00	100.000	1,269.498
1,028.18	100.000	1,269.498
1,028.36	100.000	1,269.498
1,028.54	100.000	1,269.498
1,028.72	100.000	1,269.498
1,028.90	100.000	1,269.498

Summary for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 8.29" for 6-HR 0.5PMF event
Inflow = 9,555.68 cfs @ 6.66 hrs, Volume= 6,534.567 af
Outflow = 9,553.90 cfs @ 6.70 hrs, Volume= 6,533.276 af, Atten= 0%, Lag= 2.7 min
Primary = 2,909.56 cfs @ 4.13 hrs, Volume= 3,826.918 af
Secondary = 6,690.19 cfs @ 6.70 hrs, Volume= 2,706.358 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 1,011.04' @ 6.70 hrs Surf.Area= 14.998 ac Storage= 240.048 af
Flood Elev= 1,008.00' Surf.Area= 13.465 ac Storage= 197.028 af

Plug-Flow detention time= 23.5 min calculated for 6,533.276 af (100% of inflow)
Center-of-Mass det. time= 23.2 min (631.4 - 608.2)

Volume	Invert	Avail.Storage	Storage Description
#1	978.00'	371.368 af	**Stage Storage in Sippo Park (Irregular)** Listed below (Recalc)

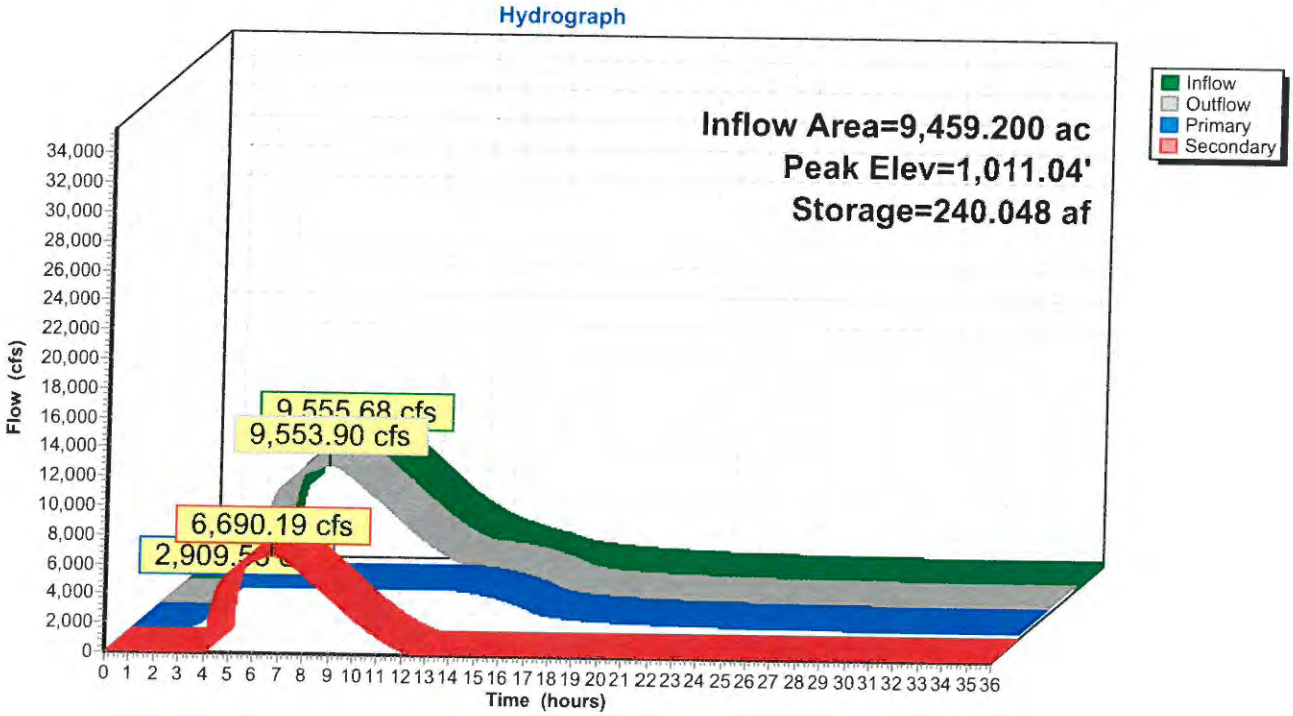
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
978.00	0.100	200.0	0.000	0.000	0.100
981.00	0.300	500.0	0.573	0.573	0.484
982.00	0.659	1,392.9	0.468	1.041	3.572
984.00	2.018	2,470.7	2.553	3.595	11.180
986.00	3.584	3,300.7	5.528	9.122	19.932
988.00	5.007	3,247.5	8.551	17.674	20.586
990.00	6.111	3,143.9	11.100	28.773	21.805
992.00	6.773	3,217.1	12.878	41.652	22.668
994.00	7.411	3,271.9	14.179	55.831	23.334
996.00	8.110	3,253.8	15.516	71.347	23.597
998.00	8.804	3,273.8	16.909	88.256	23.878
1,000.00	9.441	3,318.6	18.241	106.497	24.439
1,002.00	10.181	3,437.0	19.617	126.114	25.908
1,004.00	11.109	3,548.6	21.283	147.398	27.341
1,006.00	12.538	3,553.4	23.633	171.030	27.516
1,008.00	13.465	3,829.8	25.997	197.028	31.248
1,010.00	14.326	4,085.3	27.787	224.814	34.947
1,012.00	15.633	4,329.5	29.949	254.764	38.706
1,014.00	17.576	4,742.6	33.190	287.954	45.555
1,016.00	20.521	5,940.5	38.059	326.013	68.935
1,018.00	24.905	6,310.6	45.355	371.368	77.223

Device	Routing	Invert	Outlet Devices
#1	Primary	978.25'	**168.0" W x 98.0" H Box Box Culvert** L= 121.8' Ke= 0.400 Inlet / Outlet Invert= 978.25' / 978.13' S= 0.0010 '/' Cc= 0.900 n= 0.015 Brickwork
#2	Secondary	1,008.00'	**Linclon Way (172), Cv= 2.63 (C= 3.29)** Head (feet) 0.00 1.00 2.00 4.00 6.00 8.00 10.00 Width (feet) 233.00 373.00 475.00 630.00 790.00 940.00 1,090.00

Primary OutFlow Max=2,903.54 cfs @ 4.13 hrs HW=1,009.16' TW=984.75' (Dynamic Tailwater)
└─**1=Box Culvert** (Inlet Controls 2,903.54 cfs @ 25.40 fps)

Secondary OutFlow Max=6,690.17 cfs @ 6.70 hrs HW=1,011.04' TW=987.47' (Dynamic Tailwater)
└─**2=Linclon Way (172)** (Weir Controls 6,690.17 cfs @ 5.30 fps)

Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-



Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	978.00	0.00	0.00	0.00
0.10	0.00	0.000	978.00	0.00	0.00	0.00
0.20	0.00	0.000	978.00	0.00	0.00	0.00
0.30	0.00	0.000	978.00	0.00	0.00	0.00
0.40	0.00	0.000	978.00	0.00	0.00	0.00
0.50	0.00	0.000	978.00	0.00	0.00	0.00
0.60	0.00	0.000	978.00	0.00	0.00	0.00
0.70	0.00	0.000	978.00	0.00	0.00	0.00
0.80	0.00	0.000	978.00	0.00	0.00	0.00
0.90	0.00	0.000	978.00	0.00	0.00	0.00
1.00	0.00	0.000	978.00	0.00	0.00	0.00
1.10	0.00	0.000	978.00	0.00	0.00	0.00
1.20	0.00	0.000	978.00	0.00	0.00	0.00
1.30	0.02	0.000	978.00	0.00	0.00	0.00
1.40	0.09	0.000	978.00	0.00	0.00	0.00
1.50	0.31	0.002	978.02	0.00	0.00	0.00
1.60	0.93	0.006	978.06	0.00	0.00	0.00
1.70	2.42	0.019	978.18	0.00	0.00	0.00
1.80	5.51	0.047	978.42	1.52	1.52	0.00
1.90	11.39	0.080	978.67	7.31	7.31	0.00
2.00	22.39	0.118	978.94	16.66	16.66	0.00
2.10	40.64	0.173	979.28	32.49	32.49	0.00
2.20	68.29	0.252	979.71	56.69	56.69	0.00
2.30	108.34	0.365	980.22	91.46	91.46	0.00
2.40	164.38	0.528	980.84	140.55	140.55	0.00
2.50	247.25	0.787	981.55	203.37	203.37	0.00
2.60	364.44	1.282	982.32	280.64	280.64	0.00
2.70	534.00	2.229	983.19	377.59	377.59	0.00
2.80	757.17	3.893	984.14	493.04	493.04	0.00
2.90	950.98	6.278	985.11	620.96	620.96	0.00
3.00	1,213.15	9.429	986.08	759.17	759.17	0.00
3.10	1,578.44	13.885	987.19	927.58	927.58	0.00
3.20	1,904.21	19.726	988.40	1,122.66	1,122.66	0.00
3.30	2,411.32	27.046	989.71	1,329.38	1,329.38	0.00
3.40	3,199.98	37.769	991.42	1,627.79	1,627.79	0.00
3.50	3,975.72	52.865	993.60	1,842.92	1,842.92	0.00
3.60	4,684.52	72.349	996.12	2,058.04	2,058.04	0.00
3.70	5,308.58	95.623	998.82	2,266.40	2,266.40	0.00
3.80	5,869.07	122.178	1,001.61	2,463.52	2,463.52	0.00
3.90	6,162.12	150.966	1,004.32	2,641.39	2,641.39	0.00
4.00	6,279.67	180.005	1,006.71	2,789.26	2,789.26	0.00
4.10	5,906.49	207.219	1,008.75	3,488.16	**2,903.88**	584.28
4.20	5,893.55	219.472	1,009.62	5,095.06	**2,904.48**	2,190.59
4.30	6,502.54	224.687	1,009.99	6,030.38	2,897.45	3,132.93
4.40	6,988.42	227.925	1,010.22	6,679.38	2,891.38	3,788.00
4.50	7,355.38	230.076	1,010.36	7,141.44	2,886.57	4,254.87
4.60	7,649.00	231.632	1,010.47	7,487.23	2,882.97	4,604.27
4.70	7,879.57	232.820	1,010.55	7,758.22	2,880.24	4,877.99
4.80	8,074.27	233.740	1,010.61	7,973.28	2,878.20	5,095.08
4.90	8,244.61	234.516	1,010.67	8,158.32	2,876.48	5,281.84
5.00	8,396.40	235.188	1,010.71	8,321.02	2,874.99	5,446.02
5.10	8,530.91	235.774	1,010.75	8,464.78	2,873.68	5,591.10
5.20	8,650.16	236.290	1,010.79	8,592.67	2,872.51	5,720.16

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
5.30	8,751.48	236.729	1,010.82	8,701.79	2,871.48	5,830.30
5.40	8,836.55	237.109	1,010.84	8,796.04	2,870.59	5,925.45
5.50	8,912.45	237.429	1,010.86	8,876.02	2,869.87	6,006.15
5.60	8,980.71	237.714	1,010.88	8,947.94	2,869.21	6,078.73
5.70	9,045.51	237.978	1,010.90	9,014.63	2,868.62	6,146.01
5.80	9,108.93	238.229	1,010.92	9,078.60	2,868.07	6,210.53
5.90	9,173.30	238.481	1,010.93	9,142.88	2,867.52	6,275.36
6.00	9,239.11	238.734	1,010.95	9,208.01	2,866.96	6,341.05
6.10	9,305.89	238.992	1,010.97	9,274.66	2,866.40	6,408.26
6.20	9,372.34	239.250	1,010.98	9,341.56	2,865.82	6,475.74
6.30	9,434.47	239.496	1,011.00	9,405.94	2,865.25	6,540.69
6.40	9,488.54	239.719	1,011.02	9,464.25	2,864.71	6,599.54
6.50	9,529.15	239.897	1,011.03	9,511.11	2,864.25	6,646.86
6.60	**9,552.16**	240.017	1,011.04	9,542.60	2,863.90	6,678.70
6.70	**9,553.68**	**240.060**	**1,011.04**	**9,553.89**	2,863.71	**6,690.18**
6.80	9,530.49	240.016	1,011.04	9,542.07	2,863.70	6,678.37
6.90	9,483.76	239.880	1,011.03	9,506.15	2,863.90	6,642.25
7.00	9,414.38	239.655	1,011.01	9,446.98	2,864.31	6,582.67
7.10	9,326.50	239.353	1,010.99	9,367.80	2,864.90	6,502.89
7.20	9,223.09	238.983	1,010.97	9,271.65	2,865.66	6,406.00
7.30	9,108.17	238.560	1,010.94	9,162.42	2,866.54	6,295.89
7.40	8,985.54	238.096	1,010.91	9,043.79	2,867.51	6,176.28
7.50	8,858.22	237.604	1,010.88	8,919.15	2,868.55	6,050.59
7.60	8,726.47	237.093	1,010.84	8,791.15	2,869.63	5,921.52
7.70	8,588.77	236.546	1,010.80	8,655.25	2,870.75	5,784.50
7.80	8,451.10	235.993	1,010.77	8,517.54	2,871.92	5,645.62
7.90	8,316.03	235.445	1,010.73	8,382.34	2,873.07	5,509.26
8.00	8,181.21	234.895	1,010.69	8,248.18	2,874.21	5,373.97
8.10	8,046.30	234.338	1,010.65	8,114.12	2,875.34	5,238.77
8.20	7,910.68	233.774	1,010.62	7,979.69	2,876.47	5,103.22
8.30	7,773.89	233.198	1,010.58	7,844.34	2,877.60	4,966.74
8.40	7,631.59	232.603	1,010.54	7,706.28	2,878.73	4,827.55
8.50	7,489.10	231.984	1,010.49	7,564.53	2,879.91	4,684.61
8.60	7,346.26	231.356	1,010.45	7,422.92	2,881.12	4,541.80
8.70	7,202.70	230.717	1,010.41	7,280.91	2,882.36	4,398.56
8.80	7,058.36	230.070	1,010.36	7,137.13	2,883.60	4,253.53
8.90	6,912.67	229.413	1,010.32	6,993.06	2,884.84	4,108.22
9.00	6,765.97	228.741	1,010.27	6,848.25	2,886.06	3,962.20
9.10	6,613.62	228.042	1,010.22	6,700.09	2,887.23	3,812.86
9.20	6,463.53	227.325	1,010.17	6,550.80	2,888.41	3,662.39
9.30	6,314.46	226.600	1,010.12	6,402.71	2,889.52	3,513.18
9.40	6,164.18	225.865	1,010.07	6,255.39	2,890.57	3,364.82
9.50	6,014.43	225.107	1,010.02	6,106.53	2,891.58	3,214.95
9.60	5,867.52	224.347	1,009.97	5,959.19	2,892.53	3,066.66
9.70	5,716.84	223.575	1,009.91	5,811.96	2,893.39	2,918.57
9.80	5,570.70	222.789	1,009.86	5,665.78	2,894.20	2,771.57
9.90	5,427.17	222.002	1,009.80	5,522.72	2,894.93	2,627.80
10.00	5,286.48	221.210	1,009.75	5,382.55	2,895.56	2,486.99
10.10	5,148.11	220.413	1,009.69	5,244.98	2,896.11	2,348.87
10.20	5,012.49	219.610	1,009.63	5,110.04	2,896.57	2,213.47
10.30	4,872.22	218.778	1,009.58	4,973.35	2,896.91	2,076.44
10.40	4,739.51	217.946	1,009.52	4,839.78	2,897.20	1,942.58
10.50	4,610.40	217.117	1,009.46	4,710.73	2,897.38	1,813.35

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
10.60	4,484.99	216.288	1,009.40	4,585.50	2,897.45	1,688.05
10.70	4,362.87	215.455	1,009.34	4,463.92	2,897.41	1,566.51
10.80	4,240.56	214.616	1,009.28	4,345.39	2,897.26	1,448.13
10.90	4,120.99	213.743	1,009.22	4,226.54	2,896.98	1,329.56
11.00	4,007.53	212.875	1,009.16	4,112.02	2,896.60	1,215.41
11.10	3,897.86	212.011	1,009.09	4,002.39	2,896.11	1,106.28
11.20	3,791.85	211.145	1,009.03	3,896.96	2,895.48	1,001.48
11.30	3,689.96	210.275	1,008.97	3,795.37	2,894.72	900.64
11.40	3,586.41	209.393	1,008.91	3,696.98	2,893.80	803.18
11.50	3,488.33	208.474	1,008.84	3,599.86	2,892.75	707.12
11.60	3,395.53	207.550	1,008.77	3,507.36	2,891.55	615.81
11.70	3,306.22	206.621	1,008.70	3,419.43	2,890.18	529.25
11.80	3,220.71	205.679	1,008.64	3,335.93	2,888.63	447.30
11.90	3,138.76	204.717	1,008.57	3,256.74	2,886.87	369.87
12.00	3,054.78	203.714	1,008.49	3,180.72	2,884.82	295.90
12.10	2,978.28	202.659	1,008.42	3,108.03	2,882.47	225.56
12.20	2,906.85	201.573	1,008.34	3,040.60	2,879.78	160.82
12.30	2,838.91	200.444	1,008.25	2,979.54	2,876.70	102.85
12.40	2,775.14	199.247	1,008.16	2,925.86	2,873.10	52.77
12.50	2,714.24	197.948	1,008.07	2,882.51	2,868.74	13.77
12.60	2,657.69	196.429	1,007.96	2,862.74	2,862.74	0.00
12.70	2,615.74	194.605	1,007.82	2,854.69	2,854.69	0.00
12.80	2,573.52	192.509	1,007.66	2,845.41	2,845.41	0.00
12.90	2,528.89	190.136	1,007.48	2,834.76	2,834.76	0.00
13.00	2,472.43	187.453	1,007.28	2,822.62	2,822.62	0.00
13.10	2,412.77	184.389	1,007.04	2,808.57	2,808.57	0.00
13.20	2,352.08	180.944	1,006.78	2,792.59	2,792.59	0.00
13.30	2,297.84	177.170	1,006.48	2,774.75	2,774.75	0.00
13.40	2,242.26	173.091	1,006.16	2,755.14	2,755.14	0.00
13.50	2,191.34	168.738	1,005.81	2,733.76	2,733.76	0.00
13.60	2,143.30	164.158	1,005.44	2,710.67	2,710.67	0.00
13.70	2,096.56	159.388	1,005.04	2,685.83	2,685.83	0.00
13.80	2,047.45	154.428	1,004.62	2,659.12	2,659.12	0.00
13.90	2,004.23	149.313	1,004.17	2,630.54	2,630.54	0.00
14.00	1,965.71	144.101	1,003.70	2,600.35	2,600.35	0.00
14.10	1,932.96	138.844	1,003.22	2,568.89	2,568.89	0.00
14.20	1,913.50	133.643	1,002.73	2,536.66	2,536.66	0.00
14.30	1,879.99	128.499	1,002.23	2,503.69	2,503.69	0.00
14.40	1,829.68	123.299	1,001.72	2,469.22	2,469.22	0.00
14.50	1,758.53	117.888	1,001.18	2,432.11	2,432.11	0.00
14.60	1,694.38	112.225	1,000.60	2,391.75	2,391.75	0.00
14.70	1,637.29	106.405	999.99	2,348.72	2,348.72	0.00
14.80	1,585.28	100.495	999.36	2,303.12	2,303.12	0.00
14.90	1,525.37	94.509	998.70	2,255.00	2,255.00	0.00
15.00	1,475.50	88.476	998.02	2,204.32	2,204.32	0.00
15.10	1,432.12	82.482	997.33	2,151.41	2,151.41	0.00
15.20	1,394.53	76.597	996.64	2,096.72	2,096.72	0.00
15.30	1,359.40	70.868	995.94	2,040.56	2,040.56	0.00
15.40	1,327.89	65.333	995.25	1,983.10	1,983.10	0.00
15.50	1,299.22	60.026	994.56	1,924.62	1,924.62	0.00
15.60	1,272.75	54.977	993.88	1,865.58	1,865.58	0.00
15.70	1,247.99	50.205	993.23	1,806.36	1,806.36	0.00
15.80	1,226.88	45.732	992.59	1,747.28	1,747.28	0.00

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
15.90	1,206.15	41.571	991.99	1,689.06	1,689.06	0.00
16.00	1,185.88	37.720	991.41	1,626.60	1,626.60	0.00
16.10	1,166.16	34.326	990.89	1,541.19	1,541.19	0.00
16.20	1,147.00	31.451	990.43	1,462.98	1,462.98	0.00
16.30	1,127.05	29.035	990.04	1,392.20	1,392.20	0.00
16.40	1,107.85	27.014	989.71	1,328.34	1,328.34	0.00
16.50	1,089.63	25.339	989.42	1,271.38	1,271.38	0.00
16.60	1,072.19	23.961	989.18	1,221.65	1,221.65	0.00
16.70	1,055.38	22.600	988.94	1,212.79	1,212.79	0.00
16.80	1,039.14	21.382	988.71	1,174.84	1,174.84	0.00
16.90	1,023.42	20.328	988.51	1,141.55	1,141.55	0.00
17.00	1,008.20	19.406	988.34	1,112.24	1,112.24	0.00
17.10	993.47	18.591	988.18	1,085.87	1,085.87	0.00
17.20	979.60	17.864	988.04	1,062.50	1,062.50	0.00
17.30	966.47	17.211	987.90	1,040.88	1,040.88	0.00
17.40	953.57	16.622	987.78	1,021.24	1,021.24	0.00
17.50	940.93	16.083	987.67	1,003.36	1,003.36	0.00
17.60	927.71	15.581	987.57	986.48	986.48	0.00
17.70	914.74	15.109	987.46	969.98	969.98	0.00
17.80	902.33	14.664	987.37	954.51	954.51	0.00
17.90	890.41	14.243	987.27	939.95	939.95	0.00
18.00	878.92	13.842	987.18	926.01	926.01	0.00
18.10	867.85	13.464	987.10	912.17	912.17	0.00
18.20	857.15	13.107	987.01	899.17	899.17	0.00
18.30	846.79	12.767	986.93	886.86	886.86	0.00
18.40	836.75	12.442	986.86	875.15	875.15	0.00
18.50	827.00	12.130	986.78	863.78	863.78	0.00
18.60	817.51	11.833	986.71	852.43	852.43	0.00
18.70	808.28	11.551	986.64	841.66	841.66	0.00
18.80	799.29	11.280	986.57	831.39	831.39	0.00
18.90	790.53	11.019	986.50	821.53	821.53	0.00
19.00	782.00	10.766	986.44	812.03	812.03	0.00
19.10	773.69	10.522	986.38	802.62	802.62	0.00
19.20	765.51	10.287	986.31	793.24	793.24	0.00
19.30	756.98	10.060	986.25	784.19	784.19	0.00
19.40	748.09	9.835	986.19	775.24	775.24	0.00
19.50	739.73	9.613	986.13	766.42	766.42	0.00
19.60	731.81	9.394	986.07	757.81	757.81	0.00
19.70	724.23	9.182	986.02	749.48	749.48	0.00
19.80	716.95	8.978	985.96	740.96	740.96	0.00
19.90	709.91	8.784	985.90	732.71	732.71	0.00
20.00	703.10	8.599	985.85	724.89	724.89	0.00
20.10	696.49	8.423	985.79	717.42	717.42	0.00
20.20	690.05	8.252	985.74	710.26	710.26	0.00
20.30	683.78	8.088	985.70	703.35	703.35	0.00
20.40	677.66	7.928	985.65	696.67	696.67	0.00
20.50	671.68	7.773	985.60	690.20	690.20	0.00
20.60	665.84	7.623	985.56	683.37	683.37	0.00
20.70	660.12	7.482	985.51	676.84	676.84	0.00
20.80	654.52	7.346	985.47	670.61	670.61	0.00
20.90	649.04	7.215	985.42	664.62	664.62	0.00
21.00	643.66	7.088	985.38	658.82	658.82	0.00
21.10	638.39	6.964	985.34	653.19	653.19	0.00

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
21.20	633.22	6.843	985.30	647.70	647.70	0.00
21.30	628.14	6.724	985.26	642.34	642.34	0.00
21.40	623.15	6.608	985.22	637.09	637.09	0.00
21.50	618.25	6.494	985.19	631.76	631.76	0.00
21.60	613.42	6.384	985.15	626.29	626.29	0.00
21.70	608.68	6.280	985.11	621.07	621.07	0.00
21.80	604.02	6.179	985.07	616.04	616.04	0.00
21.90	599.46	6.081	985.04	611.16	611.16	0.00
22.00	594.99	5.985	985.00	606.42	606.42	0.00
22.10	590.62	5.892	984.97	601.80	601.80	0.00
22.20	586.34	5.800	984.93	597.28	597.28	0.00
22.30	581.87	5.710	984.90	592.84	592.84	0.00
22.40	577.54	5.619	984.87	588.40	588.40	0.00
22.50	573.37	5.530	984.84	584.04	584.04	0.00
22.60	569.35	5.443	984.80	579.78	579.78	0.00
22.70	565.46	5.359	984.77	575.24	575.24	0.00
22.80	561.67	5.280	984.74	570.94	570.94	0.00
22.90	558.01	5.205	984.71	566.85	566.85	0.00
23.00	554.48	5.134	984.68	562.96	562.96	0.00
23.10	551.01	5.065	984.65	559.21	559.21	0.00
23.20	547.61	4.998	984.62	555.59	555.59	0.00
23.30	544.28	4.933	984.59	552.07	552.07	0.00
23.40	541.01	4.869	984.57	548.63	548.63	0.00
23.50	537.80	4.806	984.54	545.27	545.27	0.00
23.60	534.65	4.745	984.52	541.99	541.99	0.00
23.70	531.56	4.685	984.49	538.76	538.76	0.00
23.80	528.52	4.626	984.47	535.60	535.60	0.00
23.90	525.53	4.568	984.45	532.50	532.50	0.00
24.00	522.59	4.511	984.42	529.45	529.45	0.00
24.10	519.70	4.454	984.40	526.44	526.44	0.00
24.20	516.85	4.400	984.37	523.19	523.19	0.00
24.30	514.04	4.349	984.35	520.11	520.11	0.00
24.40	511.27	4.300	984.33	517.15	517.15	0.00
24.50	508.55	4.252	984.30	514.28	514.28	0.00
24.60	505.77	4.204	984.28	511.46	511.46	0.00
24.70	503.04	4.158	984.26	508.67	508.67	0.00
24.80	500.36	4.111	984.24	505.92	505.92	0.00
24.90	497.74	4.066	984.22	503.21	503.21	0.00
25.00	495.15	4.021	984.20	500.55	500.55	0.00
25.10	492.59	3.976	984.18	497.92	497.92	0.00
25.20	490.06	3.932	984.16	495.33	495.33	0.00
25.30	487.57	3.889	984.14	492.78	492.78	0.00
25.40	485.10	3.846	984.12	490.26	490.26	0.00
25.50	482.67	3.804	984.10	487.77	487.77	0.00
25.60	480.26	3.762	984.08	485.31	485.31	0.00
25.70	477.88	3.720	984.06	482.88	482.88	0.00
25.80	475.53	3.679	984.04	480.48	480.48	0.00
25.90	473.21	3.639	984.02	478.10	478.10	0.00
26.00	470.91	3.598	984.00	475.76	475.76	0.00
26.10	468.63	3.559	983.98	473.16	473.16	0.00
26.20	466.38	3.523	983.96	470.69	470.69	0.00
26.30	464.14	3.488	983.94	468.32	468.32	0.00
26.40	461.93	3.454	983.92	466.02	466.02	0.00

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
26.50	459.73	3.420	983.91	463.76	463.76	0.00
26.60	457.56	3.387	983.89	461.54	461.54	0.00
26.70	455.40	3.354	983.87	459.34	459.34	0.00
26.80	453.27	3.322	983.85	457.17	457.17	0.00
26.90	451.15	3.290	983.84	455.02	455.02	0.00
27.00	449.05	3.258	983.82	452.89	452.89	0.00
27.10	446.96	3.226	983.80	450.78	450.78	0.00
27.20	444.89	3.195	983.78	448.68	448.68	0.00
27.30	442.84	3.164	983.77	446.61	446.61	0.00
27.40	440.81	3.132	983.75	444.55	444.55	0.00
27.50	438.78	3.102	983.73	442.50	442.50	0.00
27.60	436.78	3.071	983.72	440.48	440.48	0.00
27.70	434.72	3.040	983.70	438.45	438.45	0.00
27.80	432.69	3.009	983.68	436.41	436.41	0.00
27.90	430.69	2.979	983.67	434.39	434.39	0.00
28.00	428.71	2.948	983.65	432.38	432.38	0.00
28.10	426.76	2.918	983.63	430.40	430.40	0.00
28.20	424.82	2.888	983.62	428.43	428.43	0.00
28.30	422.91	2.858	983.60	426.49	426.49	0.00
28.40	421.01	2.830	983.58	424.29	424.29	0.00
28.50	419.13	2.803	983.57	422.22	422.22	0.00
28.60	417.27	2.778	983.55	420.25	420.25	0.00
28.70	415.43	2.754	983.53	418.34	418.34	0.00
28.80	413.61	2.730	983.52	416.47	416.47	0.00
28.90	411.81	2.707	983.50	414.63	414.63	0.00
29.00	410.04	2.684	983.49	412.82	412.82	0.00
29.10	408.28	2.661	983.47	411.03	411.03	0.00
29.20	406.53	2.638	983.46	409.27	409.27	0.00
29.30	404.81	2.615	983.44	407.52	407.52	0.00
29.40	403.10	2.593	983.43	405.79	405.79	0.00
29.50	401.41	2.571	983.42	404.07	404.07	0.00
29.60	399.73	2.549	983.40	402.37	402.37	0.00
29.70	398.07	2.527	983.39	400.69	400.69	0.00
29.80	396.42	2.506	983.37	399.02	399.02	0.00
29.90	394.78	2.484	983.36	397.37	397.37	0.00
30.00	393.16	2.463	983.34	395.73	395.73	0.00
30.10	391.55	2.442	983.33	394.10	394.10	0.00
30.20	389.95	2.421	983.32	392.49	392.49	0.00
30.30	388.36	2.400	983.30	390.88	390.88	0.00
30.40	386.77	2.379	983.29	389.29	389.29	0.00
30.50	385.19	2.358	983.28	387.70	387.70	0.00
30.60	383.62	2.338	983.26	386.12	386.12	0.00
30.70	382.06	2.317	983.25	384.55	384.55	0.00
30.80	380.51	2.297	983.24	382.98	382.98	0.00
30.90	378.97	2.276	983.22	381.43	381.43	0.00
31.00	377.44	2.256	983.21	379.89	379.89	0.00
31.10	375.91	2.236	983.20	378.26	378.26	0.00
31.20	374.40	2.217	983.18	376.54	376.54	0.00
31.30	372.90	2.200	983.17	374.93	374.93	0.00
31.40	371.40	2.183	983.15	373.39	373.39	0.00
31.50	369.92	2.167	983.14	371.88	371.88	0.00
31.60	368.44	2.151	983.13	370.38	370.38	0.00
31.70	366.97	2.135	983.11	368.90	368.90	0.00

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
31.80	365.51	2.119	983.10	367.43	367.43	0.00
31.90	364.06	2.103	983.09	365.97	365.97	0.00
32.00	362.62	2.087	983.08	364.52	364.52	0.00
32.10	361.19	2.072	983.06	363.08	363.08	0.00
32.20	359.77	2.056	983.05	361.65	361.65	0.00
32.30	358.35	2.041	983.04	360.22	360.22	0.00
32.40	356.94	2.025	983.03	358.81	358.81	0.00
32.50	355.55	2.010	983.01	357.40	357.40	0.00
32.60	354.16	1.995	983.00	356.00	356.00	0.00
32.70	352.77	1.979	982.99	354.61	354.61	0.00
32.80	351.39	1.964	982.98	353.22	353.22	0.00
32.90	350.00	1.949	982.97	351.84	351.84	0.00
33.00	348.62	1.934	982.95	350.46	350.46	0.00
33.10	347.23	1.919	982.94	349.07	349.07	0.00
33.20	345.85	1.903	982.93	347.69	347.69	0.00
33.30	344.47	1.888	982.92	346.31	346.31	0.00
33.40	343.09	1.873	982.90	344.94	344.94	0.00
33.50	341.72	1.858	982.89	343.56	343.56	0.00
33.60	340.35	1.843	982.88	342.19	342.19	0.00
33.70	338.98	1.827	982.87	340.82	340.82	0.00
33.80	337.62	1.812	982.86	339.45	339.45	0.00
33.90	336.27	1.797	982.84	338.10	338.10	0.00
34.00	334.93	1.782	982.83	336.74	336.74	0.00
34.10	333.59	1.767	982.82	335.40	335.40	0.00
34.20	332.26	1.752	982.81	334.06	334.06	0.00
34.30	330.94	1.737	982.80	332.63	332.63	0.00
34.40	329.63	1.724	982.78	331.14	331.14	0.00
34.50	328.32	1.712	982.77	329.77	329.77	0.00
34.60	327.03	1.700	982.76	328.44	328.44	0.00
34.70	325.75	1.689	982.75	327.14	327.14	0.00
34.80	324.50	1.677	982.73	325.86	325.86	0.00
34.90	323.32	1.666	982.72	324.63	324.63	0.00
35.00	322.14	1.655	982.71	323.43	323.43	0.00
35.10	320.94	1.645	982.70	322.24	322.24	0.00
35.20	319.75	1.634	982.69	321.04	321.04	0.00
35.30	318.55	1.623	982.68	319.85	319.85	0.00
35.40	317.36	1.613	982.67	318.66	318.66	0.00
35.50	316.17	1.602	982.66	317.47	317.47	0.00
35.60	314.99	1.591	982.65	316.28	316.28	0.00
35.70	313.81	1.580	982.64	315.10	315.10	0.00
35.80	312.64	1.570	982.63	313.93	313.93	0.00
35.90	311.48	1.559	982.62	312.76	312.76	0.00
36.00	0.00	1.549	982.60	311.60	311.60	0.00

Stage-Area-Storage for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
978.00	0.100	0.000	986.48	3.904	10.919
978.16	0.108	0.017	986.64	4.014	11.552
978.32	0.116	0.035	986.80	4.125	12.203
978.48	0.125	0.054	986.96	4.237	12.872
978.64	0.134	0.075	987.12	4.352	13.559
978.80	0.143	0.097	987.28	4.467	14.265
978.96	0.152	0.120	987.44	4.585	14.989
979.12	0.162	0.145	987.60	4.703	15.732
979.28	0.172	0.172	987.76	4.824	16.494
979.44	0.183	0.201	987.92	4.946	17.275
979.60	0.193	0.231	988.08	5.049	18.076
979.76	0.204	0.262	988.24	5.134	18.890
979.92	0.216	0.296	988.40	5.219	19.719
980.08	0.227	0.331	988.56	5.305	20.561
980.24	0.239	0.369	988.72	5.392	21.416
980.40	0.251	0.408	988.88	5.479	22.286
980.56	0.264	0.449	989.04	5.567	23.170
980.72	0.277	0.492	989.20	5.656	24.068
980.88	0.290	0.538	989.36	5.746	24.980
981.04	0.312	0.585	989.52	5.836	25.906
981.20	0.361	0.639	989.68	5.927	26.847
981.36	0.413	0.701	989.84	6.019	27.803
981.52	0.469	0.772	990.00	6.111	28.773
981.68	0.529	0.851	990.16	6.163	29.755
981.84	0.592	0.941	990.32	6.215	30.745
982.00	0.659	1.041	990.48	6.267	31.744
982.16	0.740	1.153	990.64	6.319	32.751
982.32	0.827	1.278	990.80	6.372	33.766
982.48	0.918	1.418	990.96	6.425	34.790
982.64	1.013	1.572	991.12	6.478	35.822
982.80	1.114	1.742	991.28	6.531	36.862
982.96	1.219	1.929	991.44	6.584	37.912
983.12	1.329	2.133	991.60	6.638	38.969
983.28	1.443	2.354	991.76	6.692	40.036
983.44	1.563	2.595	991.92	6.746	41.111
983.60	1.687	2.855	992.08	6.798	42.194
983.76	1.816	3.135	992.24	6.848	43.286
983.92	1.949	3.436	992.40	6.898	44.386
984.08	2.072	3.758	992.56	6.949	45.494
984.24	2.182	4.098	992.72	6.999	46.609
984.40	2.295	4.457	992.88	7.050	47.733
984.56	2.411	4.833	993.04	7.101	48.865
984.72	2.530	5.228	993.20	7.152	50.006
984.88	2.652	5.643	993.36	7.204	51.154
985.04	2.777	6.077	993.52	7.255	52.311
985.20	2.904	6.532	993.68	7.307	53.476
985.36	3.034	7.007	993.84	7.359	54.649
985.52	3.167	7.503	994.00	7.411	55.831
985.68	3.303	8.020	994.16	7.466	57.021
985.84	3.442	8.560	994.32	7.521	58.220
986.00	3.584	9.122	994.48	7.576	59.428
986.16	3.689	9.704	994.64	7.631	60.644
986.32	3.796	10.303	994.80	7.687	61.870

Stage-Area-Storage for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
994.96	7.743	63.104	1,003.44	10.845	141.251
995.12	7.799	64.347	1,003.60	10.920	142.992
995.28	7.855	65.599	1,003.76	10.996	144.745
995.44	7.911	66.861	1,003.92	11.071	146.510
995.60	7.968	68.131	1,004.08	11.165	148.289
995.76	8.024	69.410	1,004.24	11.276	150.084
995.92	8.081	70.699	1,004.40	11.388	151.897
996.08	8.137	71.996	1,004.56	11.500	153.728
996.24	8.192	73.303	1,004.72	11.613	155.577
996.40	8.247	74.618	1,004.88	11.727	157.444
996.56	8.301	75.942	1,005.04	11.841	159.330
996.72	8.357	77.274	1,005.20	11.956	161.234
996.88	8.412	78.616	1,005.36	12.071	163.156
997.04	8.467	79.966	1,005.52	12.187	165.096
997.20	8.523	81.325	1,005.68	12.304	167.056
997.36	8.579	82.693	1,005.84	12.420	169.034
997.52	8.635	84.071	1,006.00	12.538	171.030
997.68	8.691	85.457	1,006.16	12.611	173.042
997.84	8.747	86.852	1,006.32	12.684	175.066
998.00	8.804	88.256	1,006.48	12.757	177.101
998.16	8.854	89.668	1,006.64	12.831	179.148
998.32	8.904	91.089	1,006.80	12.905	181.207
998.48	8.955	92.518	1,006.96	12.979	183.278
998.64	9.005	93.955	1,007.12	13.053	185.360
998.80	9.056	95.400	1,007.28	13.127	187.455
998.96	9.107	96.853	1,007.44	13.202	189.561
999.12	9.158	98.314	1,007.60	13.277	191.679
999.28	9.209	99.783	1,007.76	13.352	193.810
999.44	9.260	101.261	1,007.92	13.427	195.952
999.60	9.312	102.747	1,008.08	13.499	198.106
999.76	9.363	104.241	1,008.24	13.567	200.272
999.92	9.415	105.743	1,008.40	13.635	202.448
1,000.08	9.470	107.254	1,008.56	13.703	204.635
1,000.24	9.528	108.773	1,008.72	13.772	206.833
1,000.40	9.587	110.303	1,008.88	13.841	209.042
1,000.56	9.645	111.841	1,009.04	13.909	211.262
1,000.72	9.704	113.389	1,009.20	13.978	213.493
1,000.88	9.763	114.947	1,009.36	14.048	215.735
1,001.04	9.822	116.513	1,009.52	14.117	217.988
1,001.20	9.882	118.090	1,009.68	14.186	220.252
1,001.36	9.941	119.675	1,009.84	14.256	222.528
1,001.52	10.001	121.271	1,010.00	14.326	224.814
1,001.68	10.061	122.876	1,010.16	14.428	227.115
1,001.84	10.121	124.490	1,010.32	14.531	229.431
1,002.00	10.181	126.114	1,010.48	14.634	231.765
1,002.16	10.254	127.749	1,010.64	14.738	234.114
1,002.32	10.327	129.396	1,010.80	14.842	236.481
1,002.48	10.400	131.054	1,010.96	14.946	238.864
1,002.64	10.474	132.724	1,011.12	15.051	241.264
1,002.80	10.547	134.405	1,011.28	15.156	243.680
1,002.96	10.621	136.099	1,011.44	15.261	246.114
1,003.12	10.696	137.804	1,011.60	15.367	248.564
1,003.28	10.770	139.521	1,011.76	15.473	251.031

Stage-Area-Storage for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Elevation (feet)	Surface (acres)	Storage (acre-feet)
1,011.92	15.580	253.515
1,012.08	15.709	256.017
1,012.24	15.860	258.543
1,012.40	16.012	261.093
1,012.56	16.166	263.667
1,012.72	16.319	266.266
1,012.88	16.474	268.889
1,013.04	16.629	271.537
1,013.20	16.785	274.211
1,013.36	16.942	276.909
1,013.52	17.099	279.632
1,013.68	17.257	282.381
1,013.84	17.416	285.154
1,014.00	17.576	287.954
1,014.16	17.803	290.784
1,014.32	18.032	293.651
1,014.48	18.262	296.554
1,014.64	18.494	299.495
1,014.80	18.727	302.472
1,014.96	18.961	305.487
1,015.12	19.197	308.540
1,015.28	19.435	311.631
1,015.44	19.673	314.759
1,015.60	19.914	317.926
1,015.76	20.156	321.132
1,015.92	20.399	324.376
1,016.08	20.688	327.661
1,016.24	21.025	330.998
1,016.40	21.364	334.389
1,016.56	21.706	337.835
1,016.72	22.050	341.335
1,016.88	22.398	344.891
1,017.04	22.748	348.503
1,017.20	23.101	352.170
1,017.36	23.456	355.895
1,017.52	23.814	359.677
1,017.68	24.175	363.516
1,017.84	24.539	367.413
1,018.00	**24.905**	**371.368**

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Pond 1P: Sippo Creek Reservoir - Peak Elev=1,006.83' Storage=97.069 af Inflow=1,980.05 cfs 1,734.015 af
=1,964.43 cfs 1,721.482 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=1,964.43 cfs 1,721.482 af

Pond 16P: Lincoln Way Box Peak Elev=994.20' Storage=57.327 af Inflow=1,964.43 cfs 1,721.248 af
Primary=1,894.21 cfs 1,720.175 af Secondary=0.00 cfs 0.000 af Outflow=1,894.21 cfs 1,720.175 af

Summary for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 2.20" for 100 year-FEMA event
Inflow = 1,980.05 cfs @ 14.66 hrs, Volume= 1,734.015 af
Outflow = 1,964.43 cfs @ 14.98 hrs, Volume= 1,721.482 af, Atten= 1%, Lag= 19.3 min
Primary = 1,964.43 cfs @ 14.98 hrs, Volume= 1,721.482 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,001.64' Surf.Area= 6.730 ac Storage= 37.975 af
Peak Elev= 1,006.83' @ 14.98 hrs Surf.Area= 18.299 ac Storage= 97.069 af (59.094 af above start)
Flood Elev= 1,005.00' Surf.Area= 12.657 ac Storage= 68.385 af (30.411 af above start)

Plug-Flow detention time= 65.6 min calculated for 1,683.508 af (97% of inflow)
Center-of-Mass det. time= 18.1 min (1,164.4 - 1,146.4)

Volume	Invert	Avail.Storage	Storage Description
#1	987.68'	1,269.498 af	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
987.68	0.500	500.0	0.000	0.000	0.500
990.00	1.200	1,000.0	1.914	1.914	1.871
994.00	2.000	2,500.0	6.332	8.246	11.463
998.00	3.060	2,611.0	10.045	18.291	12.526
1,000.00	6.204	3,251.0	9.081	27.372	19.381
1,001.64	6.730	4,770.0	10.603	37.975	41.639
1,002.00	7.243	5,147.0	2.515	40.489	48.470
1,004.00	9.610	10,274.0	16.797	57.287	192.907
1,006.00	16.124	11,202.9	25.455	82.741	229.356
1,008.00	21.577	15,736.9	37.569	120.310	452.497
1,010.00	29.674	20,301.4	51.036	171.347	753.009
1,012.00	39.539	22,845.5	68.977	240.324	953.544
1,014.00	68.669	34,370.5	106.876	347.201	2,158.194
1,025.00	100.000	50,000.0	922.298	1,269.498	4,567.224

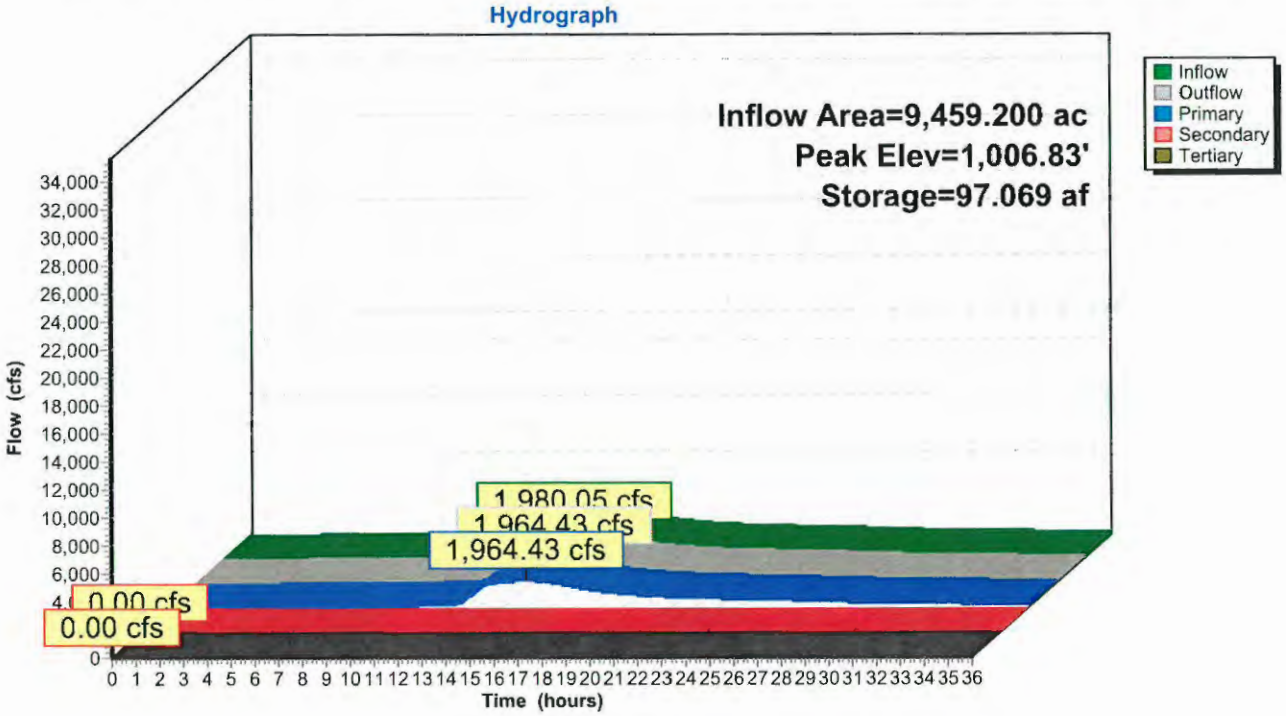
Device	Routing	Invert	Outlet Devices
#1	Primary	1,001.64'	**50.0' long x 2.9' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.45 2.58 2.66 2.66 2.65 2.64 2.65 2.69 2.69 2.73 2.83 2.95 3.01 3.12 3.32
#2	Secondary	1,007.00'	**Right Embankment Weir - Building side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 3.00 4.00 22.00 Width (feet) 78.00 78.00 78.00 78.00
#3	Secondary	1,007.00'	**Left Embankment Weir - Playground side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 3.00 13.00 15.00 Width (feet) 115.00 130.00 180.00 205.00 225.00
#4	Tertiary	1,008.00'	**Weir Flow around Bldg. X 0.50, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 2.00 4.00 6.00 8.00 10.00 12.00 Width (feet) 50.00 90.00 122.00 166.00 240.00 334.00 420.00

Primary OutFlow Max=1,964.43 cfs @ 14.98 hrs HW=1,006.83' TW=993.69' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 1,964.43 cfs @ 7.57 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,001.64' TW=978.00' (Dynamic Tailwater)
├─**2=Right Embankment Weir - Building side** (Controls 0.00 cfs)
└─**3=Left Embankment Weir - Playground side** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,001.64' (Free Discharge)
└─**4=Weir Flow around Bldg.** (Controls 0.00 cfs)

Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007



Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
0.00	0.00	37.975	1,001.64	0.00	0.00	**0.00**	**0.00**
0.10	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.20	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.30	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.40	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.50	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.60	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.70	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.80	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.90	0.02	37.975	1,001.64	0.00	0.00	0.00	0.00
1.00	0.05	37.975	1,001.64	0.00	0.00	0.00	0.00
1.10	0.13	37.976	1,001.64	0.00	0.00	0.00	0.00
1.20	0.31	37.977	1,001.64	0.00	0.00	0.00	0.00
1.30	0.65	37.981	1,001.64	0.00	0.00	0.00	0.00
1.40	1.25	37.989	1,001.64	0.01	0.01	0.00	0.00
1.50	2.09	38.002	1,001.64	0.03	0.03	0.00	0.00
1.60	3.30	38.023	1,001.65	0.07	0.07	0.00	0.00
1.70	4.98	38.055	1,001.65	0.16	0.16	0.00	0.00
1.80	7.02	38.102	1,001.66	0.31	0.31	0.00	0.00
1.90	9.68	38.166	1,001.67	0.58	0.58	0.00	0.00
2.00	12.67	38.250	1,001.68	1.00	1.00	0.00	0.00
2.10	16.30	38.358	1,001.70	1.64	1.64	0.00	0.00
2.20	20.24	38.490	1,001.72	2.56	2.56	0.00	0.00
2.30	24.77	38.648	1,001.74	3.80	3.80	0.00	0.00
2.40	29.54	38.833	1,001.77	5.41	5.41	0.00	0.00
2.50	34.80	39.045	1,001.80	7.48	7.48	0.00	0.00
2.60	40.22	39.281	1,001.83	10.03	10.03	0.00	0.00
2.70	45.95	39.541	1,001.87	13.20	13.20	0.00	0.00
2.80	51.40	39.818	1,001.90	16.97	16.97	0.00	0.00
2.90	56.99	40.107	1,001.95	21.30	21.30	0.00	0.00
3.00	62.42	40.405	1,001.99	26.14	26.14	0.00	0.00
3.10	67.83	40.706	1,002.03	31.29	31.29	0.00	0.00
3.20	73.33	41.009	1,002.07	36.67	36.67	0.00	0.00
3.30	78.56	41.310	1,002.11	42.32	42.32	0.00	0.00
3.40	83.80	41.608	1,002.15	48.13	48.13	0.00	0.00
3.50	89.06	41.900	1,002.19	53.95	53.95	0.00	0.00
3.60	94.06	42.188	1,002.23	59.91	59.91	0.00	0.00
3.70	98.83	42.466	1,002.26	65.68	65.68	0.00	0.00
3.80	103.47	42.736	1,002.30	71.34	71.34	0.00	0.00
3.90	107.98	42.998	1,002.33	76.96	76.96	0.00	0.00
4.00	112.22	43.249	1,002.37	82.51	82.51	0.00	0.00
4.10	116.18	43.490	1,002.40	87.92	87.92	0.00	0.00
4.20	120.00	43.718	1,002.43	93.17	93.17	0.00	0.00
4.30	123.67	43.934	1,002.46	98.21	98.21	0.00	0.00
4.40	127.19	44.140	1,002.48	103.05	103.05	0.00	0.00
4.50	130.54	44.334	1,002.51	107.71	107.71	0.00	0.00
4.60	133.62	44.518	1,002.53	112.16	112.16	0.00	0.00
4.70	136.48	44.690	1,002.56	116.37	116.37	0.00	0.00
4.80	139.21	44.853	1,002.58	120.16	120.16	0.00	0.00
4.90	141.78	45.006	1,002.60	123.78	123.78	0.00	0.00
5.00	144.21	45.151	1,002.61	127.23	127.23	0.00	0.00
5.10	146.50	45.288	1,002.63	130.51	130.51	0.00	0.00
5.20	148.64	45.416	1,002.65	133.62	133.62	0.00	0.00

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continued

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
5.30	150.65	45.537	1,002.66	136.56	136.56	0.00	0.00
5.40	152.51	45.650	1,002.67	139.33	139.33	0.00	0.00
5.50	154.25	45.756	1,002.69	141.94	141.94	0.00	0.00
5.60	155.83	45.854	1,002.70	144.38	144.38	0.00	0.00
5.70	157.23	45.945	1,002.71	146.66	146.66	0.00	0.00
5.80	158.53	46.030	1,002.72	148.77	148.77	0.00	0.00
5.90	159.72	46.107	1,002.73	150.73	150.73	0.00	0.00
6.00	160.80	46.179	1,002.74	152.54	152.54	0.00	0.00
6.10	161.79	46.245	1,002.75	154.20	154.20	0.00	0.00
6.20	162.68	46.305	1,002.76	155.74	155.74	0.00	0.00
6.30	163.49	46.360	1,002.76	157.14	157.14	0.00	0.00
6.40	164.20	46.410	1,002.77	158.43	158.43	0.00	0.00
6.50	164.84	46.456	1,002.77	159.60	159.60	0.00	0.00
6.60	165.39	46.498	1,002.78	160.66	160.66	0.00	0.00
6.70	165.88	46.535	1,002.78	161.62	161.62	0.00	0.00
6.80	166.29	46.568	1,002.79	162.49	162.49	0.00	0.00
6.90	166.64	46.598	1,002.79	163.26	163.26	0.00	0.00
7.00	166.94	46.625	1,002.79	163.94	163.94	0.00	0.00
7.10	167.19	46.648	1,002.80	164.55	164.55	0.00	0.00
7.20	167.41	46.669	1,002.80	165.08	165.08	0.00	0.00
7.30	167.61	46.687	1,002.80	165.56	165.56	0.00	0.00
7.40	167.81	46.703	1,002.80	165.97	165.97	0.00	0.00
7.50	168.01	46.717	1,002.81	166.35	166.35	0.00	0.00
7.60	168.23	46.730	1,002.81	166.69	166.69	0.00	0.00
7.70	168.46	46.743	1,002.81	167.01	167.01	0.00	0.00
7.80	168.70	46.754	1,002.81	167.32	167.32	0.00	0.00
7.90	168.97	46.766	1,002.81	167.61	167.61	0.00	0.00
8.00	169.26	46.777	1,002.81	167.91	167.91	0.00	0.00
8.10	169.56	46.788	1,002.81	168.20	168.20	0.00	0.00
8.20	169.86	46.799	1,002.82	168.49	168.49	0.00	0.00
8.30	170.17	46.811	1,002.82	168.79	168.79	0.00	0.00
8.40	170.50	46.822	1,002.82	169.09	169.09	0.00	0.00
8.50	170.83	46.834	1,002.82	169.40	169.40	0.00	0.00
8.60	171.19	46.846	1,002.82	169.71	169.71	0.00	0.00
8.70	171.58	46.859	1,002.82	170.04	170.04	0.00	0.00
8.80	172.03	46.872	1,002.83	170.38	170.38	0.00	0.00
8.90	172.53	46.886	1,002.83	170.75	170.75	0.00	0.00
9.00	173.11	46.901	1,002.83	171.15	171.15	0.00	0.00
9.10	173.80	46.918	1,002.83	171.60	171.60	0.00	0.00
9.20	174.58	46.937	1,002.83	172.10	172.10	0.00	0.00
9.30	175.50	46.959	1,002.84	172.68	172.68	0.00	0.00
9.40	176.53	46.984	1,002.84	173.33	173.33	0.00	0.00
9.50	177.70	47.012	1,002.84	174.08	174.08	0.00	0.00
9.60	178.99	47.043	1,002.85	174.94	174.94	0.00	0.00
9.70	180.37	47.078	1,002.85	175.89	175.89	0.00	0.00
9.80	181.89	47.117	1,002.86	176.95	176.95	0.00	0.00
9.90	183.48	47.159	1,002.86	178.11	178.11	0.00	0.00
10.00	185.23	47.206	1,002.87	179.38	179.38	0.00	0.00
10.10	187.08	47.256	1,002.87	180.76	180.76	0.00	0.00
10.20	189.11	47.310	1,002.88	182.25	182.25	0.00	0.00
10.30	191.37	47.369	1,002.89	183.88	183.88	0.00	0.00
10.40	193.85	47.433	1,002.89	185.67	185.67	0.00	0.00
10.50	196.68	47.504	1,002.90	187.65	187.65	0.00	0.00

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continued

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
10.60	199.82	47.582	1,002.91	189.83	189.83	0.00	0.00
10.70	203.41	47.669	1,002.92	192.27	192.27	0.00	0.00
10.80	207.43	47.765	1,002.94	195.00	195.00	0.00	0.00
10.90	211.96	47.874	1,002.95	198.07	198.07	0.00	0.00
11.00	217.11	47.994	1,002.96	201.52	201.52	0.00	0.00
11.10	222.82	48.130	1,002.98	205.26	205.26	0.00	0.00
11.20	229.43	48.284	1,003.00	209.47	209.47	0.00	0.00
11.30	236.82	48.459	1,003.02	214.26	214.26	0.00	0.00
11.40	245.20	48.656	1,003.04	219.74	219.74	0.00	0.00
11.50	254.79	48.877	1,003.07	226.26	226.26	0.00	0.00
11.60	265.85	49.126	1,003.10	233.69	233.69	0.00	0.00
11.70	279.51	49.409	1,003.13	242.28	242.28	0.00	0.00
11.80	296.84	49.742	1,003.17	252.52	252.52	0.00	0.00
11.90	325.34	50.161	1,003.22	265.67	265.67	0.00	0.00
12.00	371.85	50.741	1,003.28	283.43	283.43	0.00	0.00
12.10	454.34	51.649	1,003.39	311.06	311.06	0.00	0.00
12.20	577.02	53.104	1,003.55	357.57	357.57	0.00	0.00
12.30	742.62	55.241	1,003.78	432.98	432.98	0.00	0.00
12.40	950.88	58.173	1,004.09	540.53	540.53	0.00	0.00
12.50	983.80	61.944	1,004.45	683.12	683.12	0.00	0.00
12.60	1,189.78	64.810	1,004.70	792.69	792.69	0.00	0.00
12.70	1,374.43	68.345	1,004.99	919.50	919.50	0.00	0.00
12.80	1,531.01	72.219	1,005.29	1,059.32	1,059.32	0.00	0.00
12.90	1,662.19	76.069	1,005.56	1,204.39	1,204.39	0.00	0.00
13.00	1,757.62	79.693	1,005.80	1,353.65	1,353.65	0.00	0.00
13.10	1,826.14	82.783	1,006.00	1,487.51	1,487.51	0.00	0.00
13.20	1,864.57	85.319	1,006.16	1,593.34	1,593.34	0.00	0.00
13.30	1,878.71	87.375	1,006.28	1,659.63	1,659.63	0.00	0.00
13.40	1,878.54	88.987	1,006.37	1,709.69	1,709.69	0.00	0.00
13.50	1,882.53	90.237	1,006.45	1,748.84	1,748.84	0.00	0.00
13.60	1,891.34	91.249	1,006.50	1,780.76	1,780.76	0.00	0.00
13.70	1,901.41	92.098	1,006.55	1,807.66	1,807.66	0.00	0.00
13.80	1,915.50	92.837	1,006.60	1,831.20	1,831.20	0.00	0.00
13.90	1,928.50	93.503	1,006.63	1,852.51	1,852.51	0.00	0.00
14.00	1,938.66	94.096	1,006.67	1,871.56	1,871.56	0.00	0.00
14.10	1,949.00	94.623	1,006.70	1,888.20	1,888.20	0.00	0.00
14.20	1,958.14	95.106	1,006.72	1,902.96	1,902.96	0.00	0.00
14.30	1,966.35	95.542	1,006.75	1,916.33	1,916.33	0.00	0.00
14.40	1,972.31	95.934	1,006.77	1,928.37	1,928.37	0.00	0.00
14.50	1,977.45	96.278	1,006.79	1,938.99	1,938.99	0.00	0.00
14.60	**1,979.47**	96.569	1,006.80	1,947.97	1,947.97	0.00	0.00
14.70	**1,979.73**	96.805	1,006.82	1,955.24	1,955.24	0.00	0.00
14.80	1,976.87	96.976	1,006.83	1,960.55	1,960.55	0.00	0.00
14.90	1,970.66	**97.078**	**1,006.83**	**1,963.68**	**1,963.68**	0.00	0.00
15.00	1,961.79	**97.100**	**1,006.83**	**1,964.37**	**1,964.37**	0.00	0.00
15.10	1,949.26	97.039	1,006.83	1,962.49	1,962.49	0.00	0.00
15.20	1,934.48	96.893	1,006.82	1,957.96	1,957.96	0.00	0.00
15.30	1,916.49	96.658	1,006.81	1,950.70	1,950.70	0.00	0.00
15.40	1,896.09	96.336	1,006.79	1,940.78	1,940.78	0.00	0.00
15.50	1,873.24	95.928	1,006.77	1,928.21	1,928.21	0.00	0.00
15.60	1,848.14	95.437	1,006.74	1,913.11	1,913.11	0.00	0.00
15.70	1,821.33	94.865	1,006.71	1,895.59	1,895.59	0.00	0.00
15.80	1,792.63	94.218	1,006.68	1,875.46	1,875.46	0.00	0.00

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continuec

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
15.90	1,762.86	93.507	1,006.63	1,852.64	1,852.64	0.00	0.00
16.00	1,731.98	92.740	1,006.59	1,828.13	1,828.13	0.00	0.00
16.10	1,700.44	91.925	1,006.54	1,802.17	1,802.17	0.00	0.00
16.20	1,668.70	91.066	1,006.49	1,774.97	1,774.97	0.00	0.00
16.30	1,636.43	90.173	1,006.44	1,746.82	1,746.82	0.00	0.00
16.40	1,604.24	89.248	1,006.39	1,717.85	1,717.85	0.00	0.00
16.50	1,571.73	88.298	1,006.33	1,688.23	1,688.23	0.00	0.00
16.60	1,539.58	87.327	1,006.28	1,658.17	1,658.17	0.00	0.00
16.70	1,507.70	86.346	1,006.22	1,626.43	1,626.43	0.00	0.00
16.80	1,476.33	85.365	1,006.16	1,594.83	1,594.83	0.00	0.00
16.90	1,445.75	84.405	1,006.10	1,556.73	1,556.73	0.00	0.00
17.00	1,415.31	83.518	1,006.05	1,518.67	1,518.67	0.00	0.00
17.10	1,386.03	82.687	1,006.00	1,483.41	1,483.41	0.00	0.00
17.20	1,357.50	81.904	1,005.95	1,449.42	1,449.42	0.00	0.00
17.30	1,329.77	81.160	1,005.90	1,417.60	1,417.60	0.00	0.00
17.40	1,302.74	80.446	1,005.86	1,387.18	1,387.18	0.00	0.00
17.50	1,276.41	79.764	1,005.81	1,356.82	1,356.82	0.00	0.00
17.60	1,250.89	79.112	1,005.77	1,328.14	1,328.14	0.00	0.00
17.70	1,225.85	78.482	1,005.72	1,300.77	1,300.77	0.00	0.00
17.80	1,201.93	77.872	1,005.68	1,274.56	1,274.56	0.00	0.00
17.90	1,178.80	77.279	1,005.64	1,249.38	1,249.38	0.00	0.00
18.00	1,156.60	76.695	1,005.60	1,227.48	1,227.48	0.00	0.00
18.10	1,135.32	76.110	1,005.56	1,205.89	1,205.89	0.00	0.00
18.20	1,114.79	75.529	1,005.52	1,184.66	1,184.66	0.00	0.00
18.30	1,095.30	74.956	1,005.49	1,163.90	1,163.90	0.00	0.00
18.40	1,076.18	74.393	1,005.45	1,143.67	1,143.67	0.00	0.00
18.50	1,057.98	73.848	1,005.41	1,122.24	1,122.24	0.00	0.00
18.60	1,040.44	73.327	1,005.37	1,101.93	1,101.93	0.00	0.00
18.70	1,023.64	72.828	1,005.33	1,082.66	1,082.66	0.00	0.00
18.80	1,007.60	72.349	1,005.30	1,064.29	1,064.29	0.00	0.00
18.90	992.09	71.888	1,005.26	1,046.78	1,046.78	0.00	0.00
19.00	977.39	71.444	1,005.23	1,030.03	1,030.03	0.00	0.00
19.10	963.13	71.016	1,005.20	1,014.00	1,014.00	0.00	0.00
19.20	949.54	70.602	1,005.17	998.65	998.65	0.00	0.00
19.30	936.45	70.202	1,005.14	984.02	984.02	0.00	0.00
19.40	923.68	69.811	1,005.11	970.66	970.66	0.00	0.00
19.50	911.49	69.426	1,005.08	957.57	957.57	0.00	0.00
19.60	899.63	69.048	1,005.05	944.82	944.82	0.00	0.00
19.70	888.38	68.680	1,005.02	931.91	931.91	0.00	0.00
19.80	877.44	68.328	1,004.99	918.85	918.85	0.00	0.00
19.90	866.95	67.993	1,004.97	906.50	906.50	0.00	0.00
20.00	856.85	67.672	1,004.94	894.74	894.74	0.00	0.00
20.10	847.03	67.365	1,004.91	883.52	883.52	0.00	0.00
20.20	837.65	67.068	1,004.89	872.76	872.76	0.00	0.00
20.30	828.44	66.782	1,004.87	862.44	862.44	0.00	0.00
20.40	819.65	66.506	1,004.84	852.51	852.51	0.00	0.00
20.50	811.08	66.238	1,004.82	842.93	842.93	0.00	0.00
20.60	802.83	65.978	1,004.80	833.71	833.71	0.00	0.00
20.70	794.90	65.727	1,004.78	824.80	824.80	0.00	0.00
20.80	787.20	65.483	1,004.76	816.21	816.21	0.00	0.00
20.90	779.88	65.247	1,004.74	807.93	807.93	0.00	0.00
21.00	772.69	65.018	1,004.72	799.93	799.93	0.00	0.00
21.10	765.89	64.796	1,004.70	792.22	792.22	0.00	0.00

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
21.20	759.36	64.582	1,004.68	784.79	784.79	0.00	0.00
21.30	753.12	64.375	1,004.67	777.66	777.66	0.00	0.00
21.40	747.21	64.176	1,004.65	770.80	770.80	0.00	0.00
21.50	741.49	63.984	1,004.63	764.08	764.08	0.00	0.00
21.60	736.15	63.803	1,004.62	757.34	757.34	0.00	0.00
21.70	730.95	63.634	1,004.60	750.45	750.45	0.00	0.00
21.80	726.04	63.478	1,004.59	744.13	744.13	0.00	0.00
21.90	721.33	63.333	1,004.58	738.25	738.25	0.00	0.00
22.00	716.80	63.197	1,004.56	732.76	732.76	0.00	0.00
22.10	712.53	63.069	1,004.55	727.59	727.59	0.00	0.00
22.20	708.35	62.947	1,004.54	722.71	722.71	0.00	0.00
22.30	704.45	62.831	1,004.53	718.08	718.08	0.00	0.00
22.40	700.63	62.720	1,004.52	713.68	713.68	0.00	0.00
22.50	697.01	62.615	1,004.51	709.49	709.49	0.00	0.00
22.60	693.53	62.514	1,004.50	705.48	705.48	0.00	0.00
22.70	690.16	62.417	1,004.49	701.65	701.65	0.00	0.00
22.80	687.00	62.323	1,004.48	697.98	697.98	0.00	0.00
22.90	683.85	62.234	1,004.47	694.47	694.47	0.00	0.00
23.00	680.92	62.148	1,004.47	691.10	691.10	0.00	0.00
23.10	678.04	62.065	1,004.46	687.86	687.86	0.00	0.00
23.20	675.28	61.985	1,004.45	684.75	684.75	0.00	0.00
23.30	672.64	61.908	1,004.44	681.75	681.75	0.00	0.00
23.40	670.03	61.834	1,004.44	678.87	678.87	0.00	0.00
23.50	667.61	61.762	1,004.43	676.09	676.09	0.00	0.00
23.60	665.16	61.693	1,004.42	673.41	673.41	0.00	0.00
23.70	662.87	61.626	1,004.42	670.82	670.82	0.00	0.00
23.80	660.60	61.561	1,004.41	668.32	668.32	0.00	0.00
23.90	658.41	61.498	1,004.41	665.90	665.90	0.00	0.00
24.00	656.32	61.437	1,004.40	663.55	663.55	0.00	0.00
24.10	654.20	61.378	1,004.40	661.28	661.28	0.00	0.00
24.20	652.13	61.320	1,004.39	659.07	659.07	0.00	0.00
24.30	649.81	61.263	1,004.38	656.86	656.86	0.00	0.00
24.40	647.20	61.203	1,004.38	654.60	654.60	0.00	0.00
24.50	644.05	61.140	1,004.37	652.18	652.18	0.00	0.00
24.60	640.15	61.069	1,004.37	649.48	649.48	0.00	0.00
24.70	635.49	60.986	1,004.36	646.34	646.34	0.00	0.00
24.80	629.89	60.889	1,004.35	642.68	642.68	0.00	0.00
24.90	623.78	60.777	1,004.34	638.43	638.43	0.00	0.00
25.00	617.12	60.649	1,004.33	633.61	633.61	0.00	0.00
25.10	610.22	60.506	1,004.32	628.28	628.28	0.00	0.00
25.20	603.16	60.352	1,004.30	622.52	622.52	0.00	0.00
25.30	596.07	60.188	1,004.29	616.43	616.43	0.00	0.00
25.40	589.10	60.017	1,004.27	610.12	610.12	0.00	0.00
25.50	582.33	59.842	1,004.25	603.68	603.68	0.00	0.00
25.60	575.79	59.665	1,004.24	597.21	597.21	0.00	0.00
25.70	569.41	59.488	1,004.22	590.77	590.77	0.00	0.00
25.80	563.17	59.313	1,004.20	584.28	584.28	0.00	0.00
25.90	557.02	59.140	1,004.19	577.51	577.51	0.00	0.00
26.00	550.95	58.973	1,004.17	570.95	570.95	0.00	0.00
26.10	544.98	58.809	1,004.15	564.58	564.58	0.00	0.00
26.20	539.06	58.649	1,004.14	558.37	558.37	0.00	0.00
26.30	533.23	58.490	1,004.12	552.37	552.37	0.00	0.00
26.40	527.46	58.332	1,004.11	546.45	546.45	0.00	0.00

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continuec

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
26.50	521.73	58.175	1,004.09	540.60	540.60	0.00	0.00
26.60	516.07	58.020	1,004.07	534.82	534.82	0.00	0.00
26.70	510.45	57.865	1,004.06	529.10	529.10	0.00	0.00
26.80	504.89	57.712	1,004.04	523.44	523.44	0.00	0.00
26.90	499.37	57.559	1,004.03	517.83	517.83	0.00	0.00
27.00	493.90	57.406	1,004.01	512.28	512.28	0.00	0.00
27.10	488.45	57.255	1,004.00	506.73	506.73	0.00	0.00
27.20	483.00	57.105	1,003.98	501.06	501.06	0.00	0.00
27.30	477.63	56.956	1,003.97	495.48	495.48	0.00	0.00
27.40	472.33	56.809	1,003.95	490.00	490.00	0.00	0.00
27.50	467.10	56.664	1,003.93	484.59	484.59	0.00	0.00
27.60	461.97	56.520	1,003.92	479.27	479.27	0.00	0.00
27.70	456.91	56.378	1,003.90	474.03	474.03	0.00	0.00
27.80	451.95	56.237	1,003.89	468.88	468.88	0.00	0.00
27.90	447.08	56.098	1,003.87	463.80	463.80	0.00	0.00
28.00	442.32	55.960	1,003.86	458.82	458.82	0.00	0.00
28.10	437.68	55.825	1,003.85	453.93	453.93	0.00	0.00
28.20	433.17	55.692	1,003.83	449.14	449.14	0.00	0.00
28.30	428.77	55.561	1,003.82	444.46	444.46	0.00	0.00
28.40	424.48	55.432	1,003.80	439.88	439.88	0.00	0.00
28.50	420.30	55.306	1,003.79	435.36	435.36	0.00	0.00
28.60	416.22	55.183	1,003.78	430.84	430.84	0.00	0.00
28.70	412.25	55.064	1,003.76	426.48	426.48	0.00	0.00
28.80	408.37	54.948	1,003.75	422.24	422.24	0.00	0.00
28.90	404.59	54.834	1,003.74	418.13	418.13	0.00	0.00
29.00	400.91	54.724	1,003.73	414.13	414.13	0.00	0.00
29.10	397.31	54.615	1,003.72	410.24	410.24	0.00	0.00
29.20	393.81	54.510	1,003.70	406.45	406.45	0.00	0.00
29.30	390.39	54.406	1,003.69	402.76	402.76	0.00	0.00
29.40	387.05	54.305	1,003.68	399.16	399.16	0.00	0.00
29.50	383.78	54.206	1,003.67	395.65	395.65	0.00	0.00
29.60	380.56	54.108	1,003.66	392.22	392.22	0.00	0.00
29.70	377.43	54.013	1,003.65	388.87	388.87	0.00	0.00
29.80	374.38	53.919	1,003.64	385.59	385.59	0.00	0.00
29.90	371.41	53.827	1,003.63	382.39	382.39	0.00	0.00
30.00	368.53	53.738	1,003.62	379.27	379.27	0.00	0.00
30.10	365.73	53.650	1,003.61	376.23	376.23	0.00	0.00
30.20	362.99	53.564	1,003.60	373.27	373.27	0.00	0.00
30.30	360.31	53.480	1,003.59	370.38	370.38	0.00	0.00
30.40	357.69	53.397	1,003.58	367.55	367.55	0.00	0.00
30.50	355.13	53.316	1,003.57	364.79	364.79	0.00	0.00
30.60	352.62	53.237	1,003.56	362.10	362.10	0.00	0.00
30.70	350.19	53.160	1,003.55	359.47	359.47	0.00	0.00
30.80	347.81	53.084	1,003.55	356.90	356.90	0.00	0.00
30.90	345.50	53.009	1,003.54	354.39	354.39	0.00	0.00
31.00	343.25	52.937	1,003.53	351.95	351.95	0.00	0.00
31.10	341.06	52.866	1,003.52	349.56	349.56	0.00	0.00
31.20	338.94	52.796	1,003.51	347.24	347.24	0.00	0.00
31.30	336.87	52.728	1,003.51	344.98	344.98	0.00	0.00
31.40	334.86	52.662	1,003.50	342.78	342.78	0.00	0.00
31.50	332.91	52.597	1,003.49	340.63	340.63	0.00	0.00
31.60	331.01	52.534	1,003.49	338.55	338.55	0.00	0.00
31.70	329.17	52.472	1,003.48	336.52	336.52	0.00	0.00

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continued

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
31.80	327.38	52.412	1,003.47	334.54	334.54	0.00	0.00
31.90	325.64	52.354	1,003.47	332.62	332.62	0.00	0.00
32.00	323.94	52.297	1,003.46	330.76	330.76	0.00	0.00
32.10	322.30	52.241	1,003.45	328.94	328.94	0.00	0.00
32.20	320.70	52.187	1,003.45	327.17	327.17	0.00	0.00
32.30	319.14	52.134	1,003.44	325.45	325.45	0.00	0.00
32.40	317.62	52.082	1,003.44	323.86	323.86	0.00	0.00
32.50	316.15	52.031	1,003.43	322.34	322.34	0.00	0.00
32.60	314.71	51.980	1,003.43	320.83	320.83	0.00	0.00
32.70	313.31	51.930	1,003.42	319.34	319.34	0.00	0.00
32.80	311.95	51.880	1,003.41	317.88	317.88	0.00	0.00
32.90	310.62	51.832	1,003.41	316.44	316.44	0.00	0.00
33.00	309.32	51.784	1,003.40	315.03	315.03	0.00	0.00
33.10	308.05	51.737	1,003.40	313.66	313.66	0.00	0.00
33.20	306.81	51.691	1,003.39	312.31	312.31	0.00	0.00
33.30	305.60	51.646	1,003.39	310.99	310.99	0.00	0.00
33.40	304.42	51.602	1,003.38	309.69	309.69	0.00	0.00
33.50	303.27	51.559	1,003.38	308.39	308.39	0.00	0.00
33.60	302.14	51.517	1,003.37	307.10	307.10	0.00	0.00
33.70	301.03	51.477	1,003.37	305.85	305.85	0.00	0.00
33.80	299.95	51.437	1,003.36	304.64	304.64	0.00	0.00
33.90	298.89	51.399	1,003.36	303.46	303.46	0.00	0.00
34.00	297.85	51.362	1,003.36	302.31	302.31	0.00	0.00
34.10	296.83	51.325	1,003.35	301.19	301.19	0.00	0.00
34.20	295.83	51.290	1,003.35	300.09	300.09	0.00	0.00
34.30	294.85	51.255	1,003.34	299.02	299.02	0.00	0.00
34.40	293.89	51.221	1,003.34	297.98	297.98	0.00	0.00
34.50	292.94	51.187	1,003.34	296.95	296.95	0.00	0.00
34.60	291.99	51.154	1,003.33	295.95	295.95	0.00	0.00
34.70	291.07	51.122	1,003.33	294.96	294.96	0.00	0.00
34.80	290.15	51.090	1,003.32	293.98	293.98	0.00	0.00
34.90	289.26	51.058	1,003.32	293.03	293.03	0.00	0.00
35.00	288.38	51.027	1,003.32	292.09	292.09	0.00	0.00
35.10	287.51	50.997	1,003.31	291.16	291.16	0.00	0.00
35.20	286.65	50.967	1,003.31	290.25	290.25	0.00	0.00
35.30	285.81	50.937	1,003.31	289.35	289.35	0.00	0.00
35.40	284.98	50.908	1,003.30	288.47	288.47	0.00	0.00
35.50	284.16	50.880	1,003.30	287.61	287.61	0.00	0.00
35.60	283.35	50.851	1,003.30	286.75	286.75	0.00	0.00
35.70	282.56	50.823	1,003.29	285.91	285.91	0.00	0.00
35.80	281.77	50.796	1,003.29	285.08	285.08	0.00	0.00
35.90	280.99	50.769	1,003.29	284.26	284.26	0.00	0.00
36.00	0.00	50.742	1,003.28	283.45	283.45	0.00	0.00

Stage-Area-Storage for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
987.68	0.500	0.000	997.22	2.836	15.992
987.86	0.544	0.094	997.40	2.887	16.507
988.04	0.589	0.196	997.58	2.938	17.032
988.22	0.636	0.306	997.76	2.990	17.565
988.40	0.685	0.425	997.94	3.042	18.108
988.58	0.736	0.553	998.12	3.218	18.668
988.76	0.788	0.690	998.30	3.461	19.269
988.94	0.843	0.837	998.48	3.714	19.914
989.12	0.899	0.993	998.66	3.976	20.606
989.30	0.957	1.160	998.84	4.247	21.346
989.48	1.017	1.338	999.02	4.526	22.136
989.66	1.079	1.527	999.20	4.814	22.976
989.84	1.142	1.726	999.38	5.112	23.869
990.02	1.203	1.938	999.56	5.418	24.817
990.20	1.235	2.157	999.74	5.733	25.820
990.38	1.267	2.382	999.92	6.057	26.881
990.56	1.300	2.613	1,000.10	6.235	27.994
990.74	1.333	2.850	1,000.28	6.292	29.121
990.92	1.366	3.093	1,000.46	6.349	30.259
991.10	1.400	3.342	1,000.64	6.407	31.407
991.28	1.434	3.597	1,000.82	6.464	32.565
991.46	1.468	3.858	1,001.00	6.522	33.734
991.64	1.503	4.126	1,001.18	6.580	34.913
991.82	1.539	4.400	1,001.36	6.639	36.103
992.00	1.575	4.680	1,001.54	6.697	37.303
992.18	1.611	4.966	1,001.72	6.842	38.518
992.36	1.647	5.260	1,001.90	7.099	39.772
992.54	1.684	5.560	1,002.08	7.331	41.072
992.72	1.722	5.866	1,002.26	7.532	42.410
992.90	1.760	6.179	1,002.44	7.735	43.784
993.08	1.798	6.500	1,002.62	7.941	45.195
993.26	1.837	6.827	1,002.80	8.150	46.643
993.44	1.876	7.161	1,002.98	8.361	48.129
993.62	1.915	7.502	1,003.16	8.575	49.653
993.80	1.955	7.850	1,003.34	8.792	51.216
993.98	1.995	8.206	1,003.52	9.011	52.818
994.16	2.038	8.569	1,003.70	9.234	54.460
994.34	2.081	8.940	1,003.88	9.459	56.143
994.52	2.125	9.318	1,004.06	9.781	57.868
994.70	2.169	9.705	1,004.24	10.303	59.676
994.88	2.214	10.099	1,004.42	10.839	61.578
995.06	2.259	10.502	1,004.60	11.388	63.579
995.24	2.305	10.913	1,004.78	11.951	65.679
995.42	2.351	11.332	1,004.96	12.528	67.882
995.60	2.397	11.759	1,005.14	13.118	70.190
995.78	2.444	12.194	1,005.32	13.721	72.605
995.96	2.491	12.639	1,005.50	14.338	75.130
996.14	2.539	13.091	1,005.68	14.969	77.768
996.32	2.587	13.553	1,005.86	15.613	80.520
996.50	2.636	14.023	1,006.04	16.225	83.388
996.68	2.685	14.502	1,006.22	16.685	86.350
996.86	2.735	14.990	1,006.40	17.151	89.395
997.04	2.785	15.486	1,006.58	17.624	92.525

...age-Area-Storage for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (conti...

Elevation (feet)	Surface (acres)	Storage (acre-feet)
1,006.76	18.103	95.740
1,006.94	18.588	99.042
1,007.12	19.080	102.432
1,007.30	19.578	105.911
1,007.48	20.083	109.481
1,007.66	20.594	113.142
1,007.84	21.112	116.895
1,008.02	21.652	120.742
1,008.20	22.329	124.701
1,008.38	23.016	128.781
1,008.56	23.714	132.987
1,008.74	24.423	137.319
1,008.92	25.142	141.780
1,009.10	25.871	146.371
1,009.28	26.611	151.094
1,009.46	27.361	155.951
1,009.64	28.122	160.945
1,009.82	28.893	166.076
1,010.00	29.674	171.347
1,010.18	30.504	176.762
1,010.36	31.345	182.329
1,010.54	32.198	188.047
1,010.72	33.063	193.921
1,010.90	33.938	199.951
1,011.08	34.826	206.139
1,011.26	35.724	212.489
1,011.44	36.634	219.001
1,011.62	37.556	225.678
1,011.80	38.489	232.522
1,011.98	39.433	239.534
1,012.16	41.575	246.813
1,012.34	43.927	254.507
1,012.52	46.344	262.630
1,012.70	48.826	271.195
1,012.88	51.372	280.211
1,013.06	53.983	289.692
1,013.24	56.658	299.649
1,013.42	59.399	310.093
1,013.60	62.204	321.037
1,013.78	65.074	332.491
1,013.96	68.008	344.467
1,014.14	69.031	356.839
1,014.32	69.498	369.307
1,014.50	69.966	381.859
1,014.68	70.436	394.495
1,014.86	70.907	407.216
1,015.04	71.380	420.021
1,015.22	71.854	432.912
1,015.40	72.331	445.889
1,015.58	72.808	458.952
1,015.76	73.287	472.100
1,015.94	73.768	485.335
1,016.12	74.251	498.657
1,016.30	74.735	512.065
1,016.48	75.220	525.561
1,016.66	75.707	539.145
1,016.84	76.196	552.816
1,017.02	76.686	566.575
1,017.20	77.178	580.423
1,017.38	77.671	594.360
1,017.56	78.166	608.385
1,017.74	78.663	622.499
1,017.92	79.161	636.704
1,018.10	79.661	650.998
1,018.28	80.162	665.382
1,018.46	80.665	679.856
1,018.64	81.169	694.421
1,018.82	81.675	709.077
1,019.00	82.183	723.824
1,019.18	82.692	738.663
1,019.36	83.202	753.593
1,019.54	83.715	768.616
1,019.72	84.228	783.730
1,019.90	84.744	798.938
1,020.08	85.261	814.238
1,020.26	85.779	829.632
1,020.44	86.299	845.119
1,020.62	86.821	860.700
1,020.80	87.344	876.375
1,020.98	87.869	892.144
1,021.16	88.396	908.008
1,021.34	88.924	923.966
1,021.52	89.453	940.020
1,021.70	89.984	956.170
1,021.88	90.517	972.415
1,022.06	91.051	988.756
1,022.24	91.587	1,005.193
1,022.42	92.124	1,021.727
1,022.60	92.663	1,038.358
1,022.78	93.204	1,055.086
1,022.96	93.746	1,071.912
1,023.14	94.290	1,088.835
1,023.32	94.835	1,105.856
1,023.50	95.382	1,122.976
1,023.68	95.930	1,140.194
1,023.86	96.480	1,157.511
1,024.04	97.032	1,174.927
1,024.22	97.585	1,192.442
1,024.40	98.140	1,210.057
1,024.58	98.696	1,227.772
1,024.76	99.254	1,245.588
1,024.94	**99.813**	**1,263.504**
1,025.12	**100.000**	**1,269.498**
1,025.30	100.000	1,269.498
1,025.48	100.000	1,269.498
1,025.66	100.000	1,269.498

ıge-Area-Storage for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (contir

Elevation (feet)	Surface (acres)	Storage (acre-feet)
1,025.84	100.000	1,269.498
1,026.02	100.000	1,269.498
1,026.20	100.000	1,269.498
1,026.38	100.000	1,269.498
1,026.56	100.000	1,269.498
1,026.74	100.000	1,269.498
1,026.92	100.000	1,269.498
1,027.10	100.000	1,269.498
1,027.28	100.000	1,269.498
1,027.46	100.000	1,269.498
1,027.64	100.000	1,269.498
1,027.82	100.000	1,269.498
1,028.00	100.000	1,269.498
1,028.18	100.000	1,269.498
1,028.36	100.000	1,269.498
1,028.54	100.000	1,269.498
1,028.72	100.000	1,269.498
1,028.90	100.000	1,269.498

Summary for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 2.18" for 100 year-FEMA event
Inflow = 1,964.43 cfs @ 14.98 hrs, Volume= 1,721.248 af
Outflow = 1,894.21 cfs @ 15.71 hrs, Volume= 1,720.175 af, Atten= 4%, Lag= 43.9 min
Primary = 1,894.21 cfs @ 15.71 hrs, Volume= 1,720.175 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 994.20' @ 15.71 hrs Surf.Area= 7.480 ac Storage= 57.327 af
Flood Elev= 1,008.00' Surf.Area= 13.465 ac Storage= 197.028 af

Plug-Flow detention time= 12.2 min calculated for 1,720.175 af (100% of inflow)
Center-of-Mass det. time= 11.6 min (1,175.9 - 1,164.3)

Volume	Invert	Avail.Storage	Storage Description
#1	978.00'	371.368 af	**Stage Storage in Sippo Park (Irregular)** Listed below (Recalc)

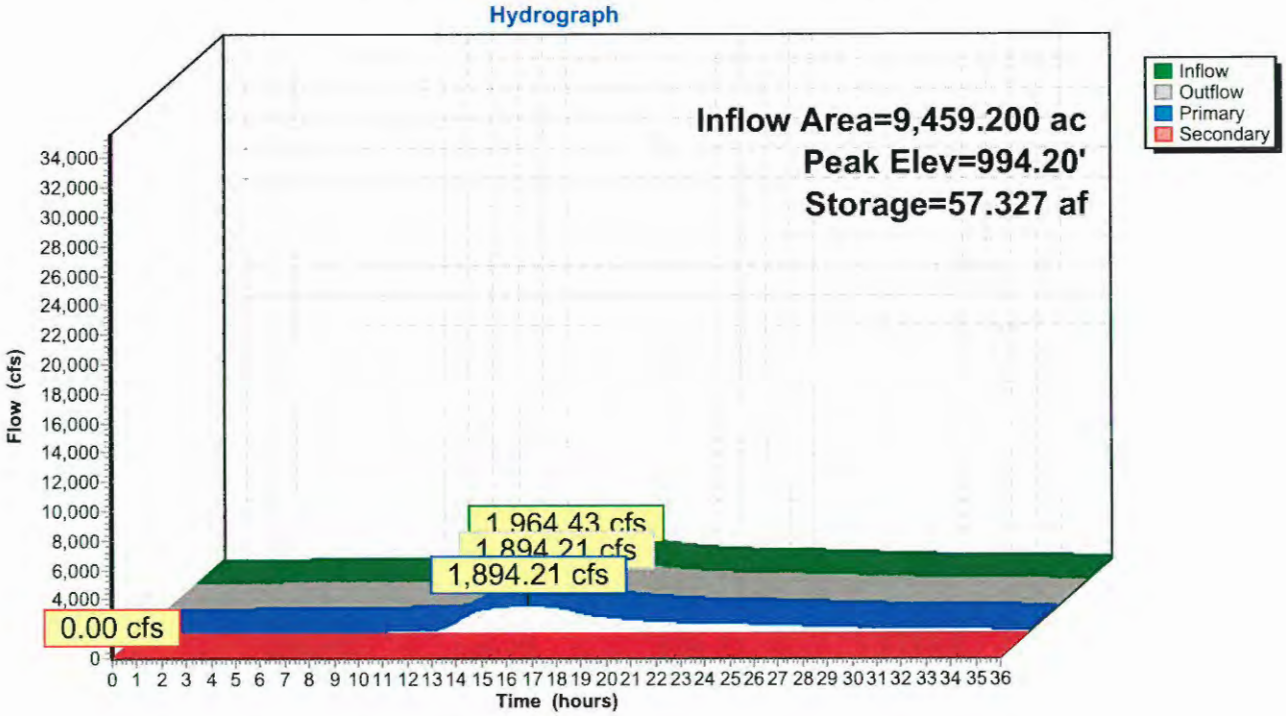
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
978.00	0.100	200.0	0.000	0.000	0.100
981.00	0.300	500.0	0.573	0.573	0.484
982.00	0.659	1,392.9	0.468	1.041	3.572
984.00	2.018	2,470.7	2.553	3.595	11.180
986.00	3.584	3,300.7	5.528	9.122	19.932
988.00	5.007	3,247.5	8.551	17.674	20.586
990.00	6.111	3,143.9	11.100	28.773	21.805
992.00	6.773	3,217.1	12.878	41.652	22.668
994.00	7.411	3,271.9	14.179	55.831	23.334
996.00	8.110	3,253.8	15.516	71.347	23.597
998.00	8.804	3,273.8	16.909	88.256	23.878
1,000.00	9.441	3,318.6	18.241	106.497	24.439
1,002.00	10.181	3,437.0	19.617	126.114	25.908
1,004.00	11.109	3,548.6	21.283	147.398	27.341
1,006.00	12.538	3,553.4	23.633	171.030	27.516
1,008.00	13.465	3,829.8	25.997	197.028	31.248
1,010.00	14.326	4,085.3	27.787	224.814	34.947
1,012.00	15.633	4,329.5	29.949	254.764	38.706
1,014.00	17.576	4,742.6	33.190	287.954	45.555
1,016.00	20.521	5,940.5	38.059	326.013	68.935
1,018.00	24.905	6,310.6	45.355	371.368	77.223

Device	Routing	Invert	Outlet Devices
#1	Primary	978.25'	**168.0" W x 98.0" H Box Box Culvert** L= 121.8' Ke= 0.400 Inlet / Outlet Invert= 978.25' / 978.13' S= 0.0010 '/' Cc= 0.900 n= 0.015 Brickwork
#2	Secondary	1,008.00'	**Linclon Way (172), Cv= 2.63 (C= 3.29)** Head (feet) 0.00 1.00 2.00 4.00 6.00 8.00 10.00 Width (feet) 233.00 373.00 475.00 630.00 790.00 940.00 1,090.00

Primary OutFlow Max=1,894.21 cfs @ 15.71 hrs HW=994.20' TW=983.25' (Dynamic Tailwater)
└**1=Box Culvert** (Inlet Controls 1,894.21 cfs @ 16.57 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=978.00' TW=978.13' (Dynamic Tailwater)
└**2=Linclon Way (172)** (Controls 0.00 cfs)

Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-



Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	978.00	0.00	0.00	**0.00**
0.10	0.00	0.000	978.00	0.00	0.00	0.00
0.20	0.00	0.000	978.00	0.00	0.00	0.00
0.30	0.00	0.000	978.00	0.00	0.00	0.00
0.40	0.00	0.000	978.00	0.00	0.00	0.00
0.50	0.00	0.000	978.00	0.00	0.00	0.00
0.60	0.00	0.000	978.00	0.00	0.00	0.00
0.70	0.00	0.000	978.00	0.00	0.00	0.00
0.80	0.00	0.000	978.00	0.00	0.00	0.00
0.90	0.00	0.000	978.00	0.00	0.00	0.00
1.00	0.00	0.000	978.00	0.00	0.00	0.00
1.10	0.00	0.000	978.00	0.00	0.00	0.00
1.20	0.00	0.000	978.00	0.00	0.00	0.00
1.30	0.00	0.000	978.00	0.00	0.00	0.00
1.40	0.01	0.000	978.00	0.00	0.00	0.00
1.50	0.03	0.000	978.00	0.00	0.00	0.00
1.60	0.07	0.001	978.01	0.00	0.00	0.00
1.70	0.16	0.001	978.01	0.00	0.00	0.00
1.80	0.31	0.003	978.03	0.00	0.00	0.00
1.90	0.58	0.007	978.06	0.00	0.00	0.00
2.00	1.00	0.013	978.12	0.00	0.00	0.00
2.10	1.64	0.023	978.22	0.00	0.00	0.00
2.20	2.56	0.039	978.36	0.68	0.68	0.00
2.30	3.80	0.053	978.47	2.33	2.33	0.00
2.40	5.41	0.064	978.55	4.13	4.13	0.00
2.50	7.48	0.075	978.63	6.18	6.18	0.00
2.60	10.03	0.086	978.72	8.65	8.65	0.00
2.70	13.20	0.097	978.81	11.64	11.64	0.00
2.80	16.97	0.112	978.90	15.09	15.09	0.00
2.90	21.30	0.128	979.00	19.31	19.31	0.00
3.00	26.14	0.144	979.11	24.10	24.10	0.00
3.10	31.29	0.161	979.22	29.17	29.17	0.00
3.20	36.67	0.180	979.32	34.38	34.38	0.00
3.30	42.32	0.199	979.42	40.03	40.03	0.00
3.40	48.13	0.217	979.53	45.92	45.92	0.00
3.50	53.95	0.235	979.62	51.64	51.64	0.00
3.60	59.91	0.255	979.72	57.49	57.49	0.00
3.70	65.68	0.275	979.81	63.44	63.44	0.00
3.80	71.34	0.293	979.90	69.18	69.18	0.00
3.90	76.96	0.310	979.98	74.88	74.88	0.00
4.00	82.51	0.328	980.06	80.26	80.26	0.00
4.10	87.92	0.347	980.14	85.75	85.75	0.00
4.20	93.17	0.364	980.21	91.11	91.11	0.00
4.30	98.21	0.381	980.28	96.27	96.27	0.00
4.40	103.05	0.396	980.35	101.22	101.22	0.00
4.50	107.71	0.411	980.41	105.87	105.87	0.00
4.60	112.16	0.427	980.47	110.31	110.31	0.00
4.70	116.37	0.441	980.53	114.65	114.65	0.00
4.80	120.16	0.455	980.58	118.62	118.62	0.00
4.90	123.78	0.467	980.62	122.33	122.33	0.00
5.00	127.23	0.479	980.67	125.86	125.86	0.00
5.10	130.51	0.490	980.71	129.22	129.22	0.00
5.20	133.62	0.500	980.75	132.41	132.41	0.00

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
5.30	136.56	0.510	980.78	135.42	135.42	0.00
5.40	139.33	0.519	980.82	138.19	138.19	0.00
5.50	141.94	0.529	980.85	140.85	140.85	0.00
5.60	144.38	0.537	980.88	143.37	143.37	0.00
5.70	146.66	0.545	980.90	145.72	145.72	0.00
5.80	148.77	0.553	980.93	147.91	147.91	0.00
5.90	150.73	0.560	980.95	149.93	149.93	0.00
6.00	152.54	0.566	980.98	151.80	151.80	0.00
6.10	154.20	0.572	981.00	153.53	153.53	0.00
6.20	155.74	0.578	981.01	155.05	155.05	0.00
6.30	157.14	0.583	981.03	156.50	156.50	0.00
6.40	158.43	0.588	981.05	157.85	157.85	0.00
6.50	159.60	0.593	981.06	159.07	159.07	0.00
6.60	160.66	0.597	981.07	160.18	160.18	0.00
6.70	161.62	0.601	981.08	161.19	161.19	0.00
6.80	162.49	0.604	981.09	162.10	162.10	0.00
6.90	163.26	0.607	981.10	162.91	162.91	0.00
7.00	163.94	0.610	981.11	163.64	163.64	0.00
7.10	164.55	0.612	981.12	164.28	164.28	0.00
7.20	165.08	0.615	981.13	164.85	164.85	0.00
7.30	165.56	0.616	981.13	165.35	165.35	0.00
7.40	165.97	0.618	981.14	165.79	165.79	0.00
7.50	166.35	0.620	981.14	166.18	166.18	0.00
7.60	166.69	0.621	981.14	166.54	166.54	0.00
7.70	167.01	0.622	981.15	166.87	166.87	0.00
7.80	167.32	0.623	981.15	167.18	167.18	0.00
7.90	167.61	0.624	981.16	167.48	167.48	0.00
8.00	167.91	0.625	981.16	167.77	167.77	0.00
8.10	168.20	0.627	981.16	168.07	168.07	0.00
8.20	168.49	0.628	981.16	168.36	168.36	0.00
8.30	168.79	0.629	981.17	168.66	168.66	0.00
8.40	169.09	0.630	981.17	168.95	168.95	0.00
8.50	169.40	0.631	981.17	169.26	169.26	0.00
8.60	169.71	0.632	981.18	169.57	169.57	0.00
8.70	170.04	0.633	981.18	169.89	169.89	0.00
8.80	170.38	0.634	981.19	170.23	170.23	0.00
8.90	170.75	0.636	981.19	170.58	170.58	0.00
9.00	171.15	0.637	981.19	170.97	170.97	0.00
9.10	171.60	0.639	981.20	171.40	171.40	0.00
9.20	172.10	0.641	981.20	171.83	171.83	0.00
9.30	172.68	0.643	981.21	172.35	172.35	0.00
9.40	173.33	0.646	981.22	172.95	172.95	0.00
9.50	174.08	0.649	981.22	173.65	173.65	0.00
9.60	174.94	0.653	981.23	174.45	174.45	0.00
9.70	175.89	0.657	981.24	175.35	175.35	0.00
9.80	176.95	0.662	981.25	176.35	176.35	0.00
9.90	178.11	0.667	981.27	177.45	177.45	0.00
10.00	179.38	0.673	981.28	178.66	178.66	0.00
10.10	180.76	0.679	981.29	179.97	179.97	0.00
10.20	182.25	0.686	981.31	181.41	181.41	0.00
10.30	183.88	0.693	981.33	182.96	182.96	0.00
10.40	185.67	0.701	981.34	184.67	184.67	0.00
10.50	187.65	0.710	981.37	186.54	186.54	0.00

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
10.60	189.83	0.719	981.39	188.61	188.61	0.00
10.70	192.27	0.730	981.41	190.91	190.91	0.00
10.80	195.00	0.742	981.44	193.48	193.48	0.00
10.90	198.07	0.755	981.47	196.37	196.37	0.00
11.00	201.52	0.770	981.51	199.62	199.62	0.00
11.10	205.26	0.786	981.54	203.22	203.22	0.00
11.20	209.47	0.804	981.59	207.17	207.17	0.00
11.30	214.26	0.826	981.63	211.12	211.12	0.00
11.40	219.74	0.854	981.68	215.91	215.91	0.00
11.50	226.26	0.889	981.74	221.71	221.71	0.00
11.60	233.69	0.929	981.81	228.50	228.50	0.00
11.70	242.28	0.974	981.88	236.32	236.32	0.00
11.80	252.52	1.027	981.98	245.52	245.52	0.00
11.90	265.67	1.096	982.07	255.27	255.27	0.00
12.00	283.43	1.197	982.20	268.92	268.92	0.00
12.10	311.06	1.342	982.39	288.94	288.94	0.00
12.20	357.57	1.589	982.65	316.10	316.10	0.00
12.30	432.98	2.036	983.04	359.80	359.80	0.00
12.40	540.53	2.799	983.56	421.84	421.84	0.00
12.50	683.12	4.009	984.19	499.88	499.88	0.00
12.60	792.69	5.594	984.86	587.16	587.16	0.00
12.70	919.50	7.425	985.49	674.26	674.26	0.00
12.80	1,059.32	9.618	986.13	766.62	766.62	0.00
12.90	1,204.39	12.220	986.80	867.17	867.17	0.00
13.00	1,353.65	15.167	987.48	972.01	972.01	0.00
13.10	1,487.51	18.432	988.15	1,080.75	1,080.75	0.00
13.20	1,593.34	21.810	988.79	1,188.49	1,188.49	0.00
13.30	1,659.63	25.136	989.39	1,264.19	1,264.19	0.00
13.40	1,709.69	28.200	989.90	1,366.31	1,366.31	0.00
13.50	1,748.84	30.879	990.34	1,446.63	1,446.63	0.00
13.60	1,780.76	33.246	990.72	1,512.48	1,512.48	0.00
13.70	1,807.66	35.354	991.05	1,567.77	1,567.77	0.00
13.80	1,831.20	37.245	991.34	1,615.05	1,615.05	0.00
13.90	1,852.51	38.960	991.60	1,651.59	1,651.59	0.00
14.00	1,871.56	40.602	991.84	1,675.88	1,675.88	0.00
14.10	1,888.20	42.196	992.08	1,698.98	1,698.98	0.00
14.20	1,902.96	43.734	992.30	1,720.71	1,720.71	0.00
14.30	1,916.33	45.213	992.52	1,741.16	1,741.16	0.00
14.40	1,928.37	46.634	992.72	1,760.44	1,760.44	0.00
14.50	1,938.99	47.995	992.92	1,778.49	1,778.49	0.00
14.60	1,947.97	49.292	993.10	1,795.43	1,795.43	0.00
14.70	1,955.24	50.521	993.27	1,811.22	1,811.22	0.00
14.80	1,960.55	51.678	993.43	1,825.81	1,825.81	0.00
14.90	**1,963.68**	52.754	993.58	1,839.27	1,839.27	0.00
15.00	**1,964.37**	53.740	993.72	1,851.35	1,851.35	0.00
15.10	1,962.49	54.628	993.84	1,862.13	1,862.13	0.00
15.20	1,957.96	55.407	993.94	1,871.52	1,871.52	0.00
15.30	1,950.70	56.065	994.03	1,879.39	1,879.39	0.00
15.40	1,940.78	56.595	994.10	1,885.61	1,885.61	0.00
15.50	1,928.21	56.988	994.15	1,890.21	1,890.21	0.00
15.60	1,913.11	57.236	994.19	1,893.09	1,893.09	0.00
15.70	1,895.59	**57.332**	**994.20**	**1,894.20**	**1,894.20**	0.00
15.80	1,875.46	**57.273**	**994.19**	**1,893.49**	**1,893.49**	0.00

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
15.90	1,852.64	57.049	994.16	1,890.84	1,890.84	0.00
16.00	1,828.13	56.659	994.11	1,886.24	1,886.24	0.00
16.10	1,802.17	56.106	994.04	1,879.70	1,879.70	0.00
16.20	1,774.97	55.395	993.94	1,871.18	1,871.18	0.00
16.30	1,746.82	54.533	993.82	1,860.74	1,860.74	0.00
16.40	1,717.85	53.529	993.69	1,848.50	1,848.50	0.00
16.50	1,688.23	52.390	993.53	1,834.42	1,834.42	0.00
16.60	1,658.17	51.128	993.36	1,818.54	1,818.54	0.00
16.70	1,626.43	49.749	993.16	1,800.97	1,800.97	0.00
16.80	1,594.83	48.260	992.95	1,781.54	1,781.54	0.00
16.90	1,556.73	46.661	992.73	1,760.30	1,760.30	0.00
17.00	1,518.67	44.921	992.48	1,736.64	1,736.64	0.00
17.10	1,483.41	43.081	992.21	1,710.94	1,710.94	0.00
17.20	1,449.42	41.173	991.93	1,683.62	1,683.62	0.00
17.30	1,417.60	39.224	991.64	1,654.86	1,654.86	0.00
17.40	1,387.18	37.278	991.34	1,615.87	1,615.87	0.00
17.50	1,356.82	35.445	991.06	1,570.09	1,570.09	0.00
17.60	1,328.14	33.740	990.80	1,525.83	1,525.83	0.00
17.70	1,300.77	32.165	990.55	1,482.87	1,482.87	0.00
17.80	1,274.56	30.715	990.31	1,441.88	1,441.88	0.00
17.90	1,249.38	29.385	990.10	1,402.71	1,402.71	0.00
18.00	1,227.48	28.175	989.90	1,365.54	1,365.54	0.00
18.10	1,205.89	27.085	989.72	1,330.65	1,330.65	0.00
18.20	1,184.66	26.098	989.55	1,297.86	1,297.86	0.00
18.30	1,163.90	25.202	989.40	1,266.55	1,266.55	0.00
18.40	1,143.67	24.388	989.26	1,237.38	1,237.38	0.00
18.50	1,122.24	23.609	989.12	1,244.04	1,244.04	0.00
18.60	1,101.93	22.640	988.94	1,214.02	1,214.02	0.00
18.70	1,082.66	21.745	988.78	1,186.39	1,186.39	0.00
18.80	1,064.29	20.918	988.63	1,160.14	1,160.14	0.00
18.90	1,046.78	20.151	988.48	1,135.97	1,135.97	0.00
19.00	1,030.03	19.436	988.34	1,113.22	1,113.22	0.00
19.10	1,014.00	18.770	988.21	1,091.63	1,091.63	0.00
19.20	998.65	18.146	988.09	1,071.56	1,071.56	0.00
19.30	984.02	17.559	987.98	1,052.58	1,052.58	0.00
19.40	970.66	17.012	987.86	1,034.24	1,034.24	0.00
19.50	957.57	16.502	987.76	1,017.24	1,017.24	0.00
19.60	944.82	16.021	987.66	1,001.30	1,001.30	0.00
19.70	931.91	15.564	987.56	985.88	985.88	0.00
19.80	918.85	15.126	987.47	970.58	970.58	0.00
19.90	906.50	14.707	987.38	956.00	956.00	0.00
20.00	894.74	14.306	987.29	942.12	942.12	0.00
20.10	883.52	13.922	987.20	928.90	928.90	0.00
20.20	872.76	13.557	987.12	915.56	915.56	0.00
20.30	862.44	13.212	987.04	902.99	902.99	0.00
20.40	852.51	12.884	986.96	891.10	891.10	0.00
20.50	842.93	12.572	986.89	879.82	879.82	0.00
20.60	833.71	12.273	986.82	869.07	869.07	0.00
20.70	824.80	11.987	986.75	858.29	858.29	0.00
20.80	816.21	11.717	986.68	847.98	847.98	0.00
20.90	807.93	11.460	986.61	838.21	838.21	0.00
21.00	799.93	11.215	986.55	828.92	828.92	0.00
21.10	792.22	10.979	986.49	820.04	820.04	0.00

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
21.20	784.79	10.753	986.44	811.55	811.55	0.00
21.30	777.66	10.536	986.38	803.21	803.21	0.00
21.40	770.80	10.330	986.33	794.96	794.96	0.00
21.50	764.08	10.135	986.27	787.17	787.17	0.00
21.60	757.34	9.947	986.22	779.69	779.69	0.00
21.70	750.45	9.764	986.17	772.41	772.41	0.00
21.80	744.13	9.585	986.12	765.33	765.33	0.00
21.90	738.25	9.413	986.08	758.55	758.55	0.00
22.00	732.76	9.249	986.03	752.09	752.09	0.00
22.10	727.59	9.093	985.99	745.86	745.86	0.00
22.20	722.71	8.947	985.95	739.64	739.64	0.00
22.30	718.08	8.811	985.91	733.88	733.88	0.00
22.40	713.68	8.685	985.87	728.50	728.50	0.00
22.50	709.49	8.565	985.84	723.45	723.45	0.00
22.60	705.48	8.453	985.80	718.70	718.70	0.00
22.70	701.65	8.346	985.77	714.20	714.20	0.00
22.80	697.98	8.245	985.74	709.93	709.93	0.00
22.90	694.47	8.148	985.71	705.88	705.88	0.00
23.00	691.10	8.056	985.69	702.01	702.01	0.00
23.10	687.86	7.967	985.66	698.31	698.31	0.00
23.20	684.75	7.882	985.64	694.77	694.77	0.00
23.30	681.75	7.801	985.61	691.38	691.38	0.00
23.40	678.87	7.723	985.59	687.97	687.97	0.00
23.50	676.09	7.650	985.56	684.60	684.60	0.00
23.60	673.41	7.582	985.54	681.45	681.45	0.00
23.70	670.82	7.517	985.52	678.46	678.46	0.00
23.80	668.32	7.455	985.50	675.62	675.62	0.00
23.90	665.90	7.396	985.48	672.90	672.90	0.00
24.00	663.55	7.339	985.46	670.29	670.29	0.00
24.10	661.28	7.284	985.45	667.79	667.79	0.00
24.20	659.07	7.231	985.43	665.37	665.37	0.00
24.30	656.86	7.180	985.41	663.02	663.02	0.00
24.40	654.60	7.129	985.39	660.71	660.71	0.00
24.50	652.18	7.078	985.38	658.40	658.40	0.00
24.60	649.48	7.026	985.36	656.01	656.01	0.00
24.70	646.34	6.970	985.34	653.47	653.47	0.00
24.80	642.68	6.908	985.32	650.66	650.66	0.00
24.90	638.43	6.838	985.30	647.49	647.49	0.00
25.00	633.61	6.759	985.27	643.90	643.90	0.00
25.10	628.28	6.669	985.24	639.85	639.85	0.00
25.20	622.52	6.569	985.21	635.33	635.33	0.00
25.30	616.43	6.459	985.17	630.03	630.03	0.00
25.40	610.12	6.345	985.13	624.30	624.30	0.00
25.50	603.68	6.226	985.09	618.35	618.35	0.00
25.60	597.21	6.103	985.04	612.25	612.25	0.00
25.70	590.77	5.978	985.00	606.04	606.04	0.00
25.80	584.28	5.851	984.95	599.78	599.78	0.00
25.90	577.51	5.721	984.90	593.39	593.39	0.00
26.00	570.95	5.589	984.86	586.92	586.92	0.00
26.10	564.58	5.457	984.81	580.48	580.48	0.00
26.20	558.37	5.328	984.76	573.55	573.55	0.00
26.30	552.37	5.206	984.71	566.86	566.86	0.00
26.40	546.45	5.088	984.66	560.46	560.46	0.00

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
26.50	540.60	4.973	984.61	554.27	554.27	0.00
26.60	534.82	4.861	984.57	548.23	548.23	0.00
26.70	529.10	4.751	984.52	542.31	542.31	0.00
26.80	523.44	4.643	984.48	536.50	536.50	0.00
26.90	517.83	4.535	984.43	530.76	530.76	0.00
27.00	512.28	4.429	984.39	524.91	524.91	0.00
27.10	506.73	4.327	984.34	518.79	518.79	0.00
27.20	501.06	4.228	984.29	512.89	512.89	0.00
27.30	495.48	4.131	984.25	507.11	507.11	0.00
27.40	490.00	4.036	984.20	501.45	501.45	0.00
27.50	484.59	3.942	984.16	495.89	495.89	0.00
27.60	479.27	3.849	984.12	490.42	490.42	0.00
27.70	474.03	3.757	984.08	485.04	485.04	0.00
27.80	468.88	3.667	984.03	479.75	479.75	0.00
27.90	463.80	3.578	983.99	474.38	474.38	0.00
28.00	458.82	3.493	983.95	468.67	468.67	0.00
28.10	453.93	3.413	983.90	463.31	463.31	0.00
28.20	449.14	3.337	983.86	458.20	458.20	0.00
28.30	444.46	3.263	983.82	453.26	453.26	0.00
28.40	439.88	3.191	983.78	448.47	448.47	0.00
28.50	435.36	3.121	983.74	443.80	443.80	0.00
28.60	430.84	3.052	983.71	439.20	439.20	0.00
28.70	426.48	2.983	983.67	434.68	434.68	0.00
28.80	422.24	2.916	983.63	430.27	430.27	0.00
28.90	418.13	2.850	983.60	425.91	425.91	0.00
29.00	414.13	2.789	983.56	421.11	421.11	0.00
29.10	410.24	2.734	983.52	416.74	416.74	0.00
29.20	406.45	2.681	983.49	412.64	412.64	0.00
29.30	402.76	2.631	983.45	408.72	408.72	0.00
29.40	399.16	2.582	983.42	404.95	404.95	0.00
29.50	395.65	2.535	983.39	401.29	401.29	0.00
29.60	392.22	2.489	983.36	397.73	397.73	0.00
29.70	388.87	2.444	983.33	394.26	394.26	0.00
29.80	385.59	2.400	983.30	390.87	390.87	0.00
29.90	382.39	2.357	983.28	387.56	387.56	0.00
30.00	379.27	2.314	983.25	384.33	384.33	0.00
30.10	376.23	2.273	983.22	381.18	381.18	0.00
30.20	373.27	2.232	983.19	377.96	377.96	0.00
30.30	370.38	2.196	983.16	374.55	374.55	0.00
30.40	367.55	2.162	983.14	371.45	371.45	0.00
30.50	364.79	2.131	983.11	368.53	368.53	0.00
30.60	362.10	2.100	983.09	365.72	365.72	0.00
30.70	359.47	2.071	983.06	362.99	362.99	0.00
30.80	356.90	2.042	983.04	360.34	360.34	0.00
30.90	354.39	2.014	983.02	357.76	357.76	0.00
31.00	351.95	1.986	983.00	355.24	355.24	0.00
31.10	349.56	1.959	982.97	352.78	352.78	0.00
31.20	347.24	1.933	982.95	350.38	350.38	0.00
31.30	344.98	1.907	982.93	348.05	348.05	0.00
31.40	342.78	1.882	982.91	345.77	345.77	0.00
31.50	340.63	1.858	982.89	343.56	343.56	0.00
31.60	338.55	1.834	982.87	341.40	341.40	0.00
31.70	336.52	1.811	982.85	339.30	339.30	0.00

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
31.80	334.54	1.788	982.84	337.26	337.26	0.00
31.90	332.62	1.766	982.82	335.27	335.27	0.00
32.00	330.76	1.744	982.80	333.33	333.33	0.00
32.10	328.94	1.724	982.78	331.14	331.14	0.00
32.20	327.17	1.707	982.76	329.19	329.19	0.00
32.30	325.45	1.691	982.75	327.37	327.37	0.00
32.40	323.86	1.675	982.73	325.64	325.64	0.00
32.50	322.34	1.661	982.72	324.04	324.04	0.00
32.60	320.83	1.647	982.70	322.49	322.49	0.00
32.70	319.34	1.633	982.69	320.97	320.97	0.00
32.80	317.88	1.620	982.68	319.48	319.48	0.00
32.90	316.44	1.607	982.66	318.02	318.02	0.00
33.00	315.03	1.594	982.65	316.58	316.58	0.00
33.10	313.66	1.581	982.64	315.18	315.18	0.00
33.20	312.31	1.569	982.62	313.80	313.80	0.00
33.30	310.99	1.556	982.61	312.45	312.45	0.00
33.40	309.69	1.544	982.60	311.13	311.13	0.00
33.50	308.39	1.533	982.59	309.83	309.83	0.00
33.60	307.10	1.521	982.58	308.53	308.53	0.00
33.70	305.85	1.509	982.56	307.25	307.25	0.00
33.80	304.64	1.498	982.55	306.00	306.00	0.00
33.90	303.46	1.487	982.54	304.78	304.78	0.00
34.00	302.31	1.476	982.53	303.60	303.60	0.00
34.10	301.19	1.465	982.52	302.45	302.45	0.00
34.20	300.09	1.455	982.51	301.32	301.32	0.00
34.30	299.02	1.445	982.50	300.23	300.23	0.00
34.40	297.98	1.435	982.49	299.16	299.16	0.00
34.50	296.95	1.425	982.48	298.11	298.11	0.00
34.60	295.95	1.416	982.47	297.08	297.08	0.00
34.70	294.96	1.407	982.46	296.07	296.07	0.00
34.80	293.98	1.398	982.45	295.08	295.08	0.00
34.90	293.03	1.389	982.44	294.11	294.11	0.00
35.00	292.09	1.380	982.43	293.15	293.15	0.00
35.10	291.16	1.371	982.42	292.21	292.21	0.00
35.20	290.25	1.362	982.42	291.28	291.28	0.00
35.30	289.35	1.354	982.41	290.37	290.37	0.00
35.40	288.47	1.346	982.40	289.45	289.45	0.00
35.50	287.61	1.338	982.39	288.42	288.42	0.00
35.60	286.75	1.332	982.38	287.51	287.51	0.00
35.70	285.91	1.325	982.37	286.65	286.65	0.00
35.80	285.08	1.319	982.36	285.80	285.80	0.00
35.90	284.26	1.313	982.36	284.97	284.97	0.00
36.00	0.00	1.308	982.35	284.16	284.16	0.00

Stage-Area-Storage for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
978.00	0.100	0.000	986.48	3.904	10.919
978.16	0.108	0.017	986.64	4.014	11.552
978.32	0.116	0.035	986.80	4.125	12.203
978.48	0.125	0.054	986.96	4.237	12.872
978.64	0.134	0.075	987.12	4.352	13.559
978.80	0.143	0.097	987.28	4.467	14.265
978.96	0.152	0.120	987.44	4.585	14.989
979.12	0.162	0.145	987.60	4.703	15.732
979.28	0.172	0.172	987.76	4.824	16.494
979.44	0.183	0.201	987.92	4.946	17.275
979.60	0.193	0.231	988.08	5.049	18.076
979.76	0.204	0.262	988.24	5.134	18.890
979.92	0.216	0.296	988.40	5.219	19.719
980.08	0.227	0.331	988.56	5.305	20.561
980.24	0.239	0.369	988.72	5.392	21.416
980.40	0.251	0.408	988.88	5.479	22.286
980.56	0.264	0.449	989.04	5.567	23.170
980.72	0.277	0.492	989.20	5.656	24.068
980.88	0.290	0.538	989.36	5.746	24.980
981.04	0.312	0.585	989.52	5.836	25.906
981.20	0.361	0.639	989.68	5.927	26.847
981.36	0.413	0.701	989.84	6.019	27.803
981.52	0.469	0.772	990.00	6.111	28.773
981.68	0.529	0.851	990.16	6.163	29.755
981.84	0.592	0.941	990.32	6.215	30.745
982.00	0.659	1.041	990.48	6.267	31.744
982.16	0.740	1.153	990.64	6.319	32.751
982.32	0.827	1.278	990.80	6.372	33.766
982.48	0.918	1.418	990.96	6.425	34.790
982.64	1.013	1.572	991.12	6.478	35.822
982.80	1.114	1.742	991.28	6.531	36.862
982.96	1.219	1.929	991.44	6.584	37.912
983.12	1.329	2.133	991.60	6.638	38.969
983.28	1.443	2.354	991.76	6.692	40.036
983.44	1.563	2.595	991.92	6.746	41.111
983.60	1.687	2.855	992.08	6.798	42.194
983.76	1.816	3.135	992.24	6.848	43.286
983.92	1.949	3.436	992.40	6.898	44.386
984.08	2.072	3.758	992.56	6.949	45.494
984.24	2.182	4.098	992.72	6.999	46.609
984.40	2.295	4.457	992.88	7.050	47.733
984.56	2.411	4.833	993.04	7.101	48.865
984.72	2.530	5.228	993.20	7.152	50.006
984.88	2.652	5.643	993.36	7.204	51.154
985.04	2.777	6.077	993.52	7.255	52.311
985.20	2.904	6.532	993.68	7.307	53.476
985.36	3.034	7.007	993.84	7.359	54.649
985.52	3.167	7.503	994.00	7.411	55.831
985.68	3.303	8.020	994.16	7.466	57.021
985.84	3.442	8.560	994.32	7.521	58.220
986.00	3.584	9.122	994.48	7.576	59.428
986.16	3.689	9.704	994.64	7.631	60.644
986.32	3.796	10.303	994.80	7.687	61.870

Stage-Area-Storage for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
994.96	7.743	63.104	1,003.44	10.845	141.251
995.12	7.799	64.347	1,003.60	10.920	142.992
995.28	7.855	65.599	1,003.76	10.996	144.745
995.44	7.911	66.861	1,003.92	11.071	146.510
995.60	7.968	68.131	1,004.08	11.165	148.289
995.76	8.024	69.410	1,004.24	11.276	150.084
995.92	8.081	70.699	1,004.40	11.388	151.897
996.08	8.137	71.996	1,004.56	11.500	153.728
996.24	8.192	73.303	1,004.72	11.613	155.577
996.40	8.247	74.618	1,004.88	11.727	157.444
996.56	8.301	75.942	1,005.04	11.841	159.330
996.72	8.357	77.274	1,005.20	11.956	161.234
996.88	8.412	78.616	1,005.36	12.071	163.156
997.04	8.467	79.966	1,005.52	12.187	165.096
997.20	8.523	81.325	1,005.68	12.304	167.056
997.36	8.579	82.693	1,005.84	12.420	169.034
997.52	8.635	84.071	1,006.00	12.538	171.030
997.68	8.691	85.457	1,006.16	12.611	173.042
997.84	8.747	86.852	1,006.32	12.684	175.066
998.00	8.804	88.256	1,006.48	12.757	177.101
998.16	8.854	89.668	1,006.64	12.831	179.148
998.32	8.904	91.089	1,006.80	12.905	181.207
998.48	8.955	92.518	1,006.96	12.979	183.278
998.64	9.005	93.955	1,007.12	13.053	185.360
998.80	9.056	95.400	1,007.28	13.127	187.455
998.96	9.107	96.853	1,007.44	13.202	189.561
999.12	9.158	98.314	1,007.60	13.277	191.679
999.28	9.209	99.783	1,007.76	13.352	193.810
999.44	9.260	101.261	1,007.92	13.427	195.952
999.60	9.312	102.747	1,008.08	13.499	198.106
999.76	9.363	104.241	1,008.24	13.567	200.272
999.92	9.415	105.743	1,008.40	13.635	202.448
1,000.08	9.470	107.254	1,008.56	13.703	204.635
1,000.24	9.528	108.773	1,008.72	13.772	206.833
1,000.40	9.587	110.303	1,008.88	13.841	209.042
1,000.56	9.645	111.841	1,009.04	13.909	211.262
1,000.72	9.704	113.389	1,009.20	13.978	213.493
1,000.88	9.763	114.947	1,009.36	14.048	215.735
1,001.04	9.822	116.513	1,009.52	14.117	217.988
1,001.20	9.882	118.090	1,009.68	14.186	220.252
1,001.36	9.941	119.675	1,009.84	14.256	222.528
1,001.52	10.001	121.271	1,010.00	14.326	224.814
1,001.68	10.061	122.876	1,010.16	14.428	227.115
1,001.84	10.121	124.490	1,010.32	14.531	229.431
1,002.00	10.181	126.114	1,010.48	14.634	231.765
1,002.16	10.254	127.749	1,010.64	14.738	234.114
1,002.32	10.327	129.396	1,010.80	14.842	236.481
1,002.48	10.400	131.054	1,010.96	14.946	238.864
1,002.64	10.474	132.724	1,011.12	15.051	241.264
1,002.80	10.547	134.405	1,011.28	15.156	243.680
1,002.96	10.621	136.099	1,011.44	15.261	246.114
1,003.12	10.696	137.804	1,011.60	15.367	248.564
1,003.28	10.770	139.521	1,011.76	15.473	251.031

Stage-Area-Storage for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Elevation (feet)	Surface (acres)	Storage (acre-feet)
1,011.92	15.580	253.515
1,012.08	15.709	256.017
1,012.24	15.860	258.543
1,012.40	16.012	261.093
1,012.56	16.166	263.667
1,012.72	16.319	266.266
1,012.88	16.474	268.889
1,013.04	16.629	271.537
1,013.20	16.785	274.211
1,013.36	16.942	276.909
1,013.52	17.099	279.632
1,013.68	17.257	282.381
1,013.84	17.416	285.154
1,014.00	17.576	287.954
1,014.16	17.803	290.784
1,014.32	18.032	293.651
1,014.48	18.262	296.554
1,014.64	18.494	299.495
1,014.80	18.727	302.472
1,014.96	18.961	305.487
1,015.12	19.197	308.540
1,015.28	19.435	311.631
1,015.44	19.673	314.759
1,015.60	19.914	317.926
1,015.76	20.156	321.132
1,015.92	20.399	324.376
1,016.08	20.688	327.661
1,016.24	21.025	330.998
1,016.40	21.364	334.389
1,016.56	21.706	337.835
1,016.72	22.050	341.335
1,016.88	22.398	344.891
1,017.04	22.748	348.503
1,017.20	23.101	352.170
1,017.36	23.456	355.895
1,017.52	23.814	359.677
1,017.68	24.175	363.516
1,017.84	24.539	367.413
1,018.00	**24.905**	**371.368**

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Pond 1P: Sippo Creek Reservoir Peak Elev=1,007.55' Storage=110.844 af Inflow=2,649.63 cfs 2,261.486 af
,383.52 cfs 2,200.944 af Secondary=260.46 cfs 46.896 af Tertiary=0.00 cfs 0.000 af Outflow=2,643.98 cfs 2,247.840 af

Pond 16P: Lincoln Way Box Peak Elev=1,000.84' Storage=114.589 af Inflow=2,643.98 cfs 2,247.577 af
Primary=2,409.16 cfs 2,246.222 af Secondary=0.00 cfs 0.000 af Outflow=2,409.16 cfs 2,246.222 af

Summary for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 2.87" for 500 year-FEMA event
Inflow = 2,649.63 cfs @ 14.49 hrs, Volume= 2,261.486 af
Outflow = 2,643.98 cfs @ 14.67 hrs, Volume= 2,247.840 af, Atten= 0%, Lag= 10.8 min
Primary = 2,383.52 cfs @ 14.67 hrs, Volume= 2,200.944 af
Secondary = 260.46 cfs @ 14.67 hrs, Volume= 46.896 af
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,001.64' Surf.Area= 6.730 ac Storage= 37.975 af
Peak Elev= 1,007.55' @ 14.67 hrs Surf.Area= 20.274 ac Storage= 110.844 af (72.869 af above start)
Flood Elev= 1,005.00' Surf.Area= 12.657 ac Storage= 68.385 af (30.411 af above start)

Plug-Flow detention time= 54.6 min calculated for 2,209.865 af (98% of inflow)
Center-of-Mass det. time= 17.8 min (1,170.2 - 1,152.4)

Volume	Invert	Avail.Storage	Storage Description
#1	987.68'	1,269.498 af	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
987.68	0.500	500.0	0.000	0.000	0.500
990.00	1.200	1,000.0	1.914	1.914	1.871
994.00	2.000	2,500.0	6.332	8.246	11.463
998.00	3.060	2,611.0	10.045	18.291	12.526
1,000.00	6.204	3,251.0	9.081	27.372	19.381
1,001.64	6.730	4,770.0	10.603	37.975	41.639
1,002.00	7.243	5,147.0	2.515	40.489	48.470
1,004.00	9.610	10,274.0	16.797	57.287	192.907
1,006.00	16.124	11,202.9	25.455	82.741	229.356
1,008.00	21.577	15,736.9	37.569	120.310	452.497
1,010.00	29.674	20,301.4	51.036	171.347	753.009
1,012.00	39.539	22,845.5	68.977	240.324	953.544
1,014.00	68.669	34,370.5	106.876	347.201	2,158.194
1,025.00	100.000	50,000.0	922.298	1,269.498	4,567.224

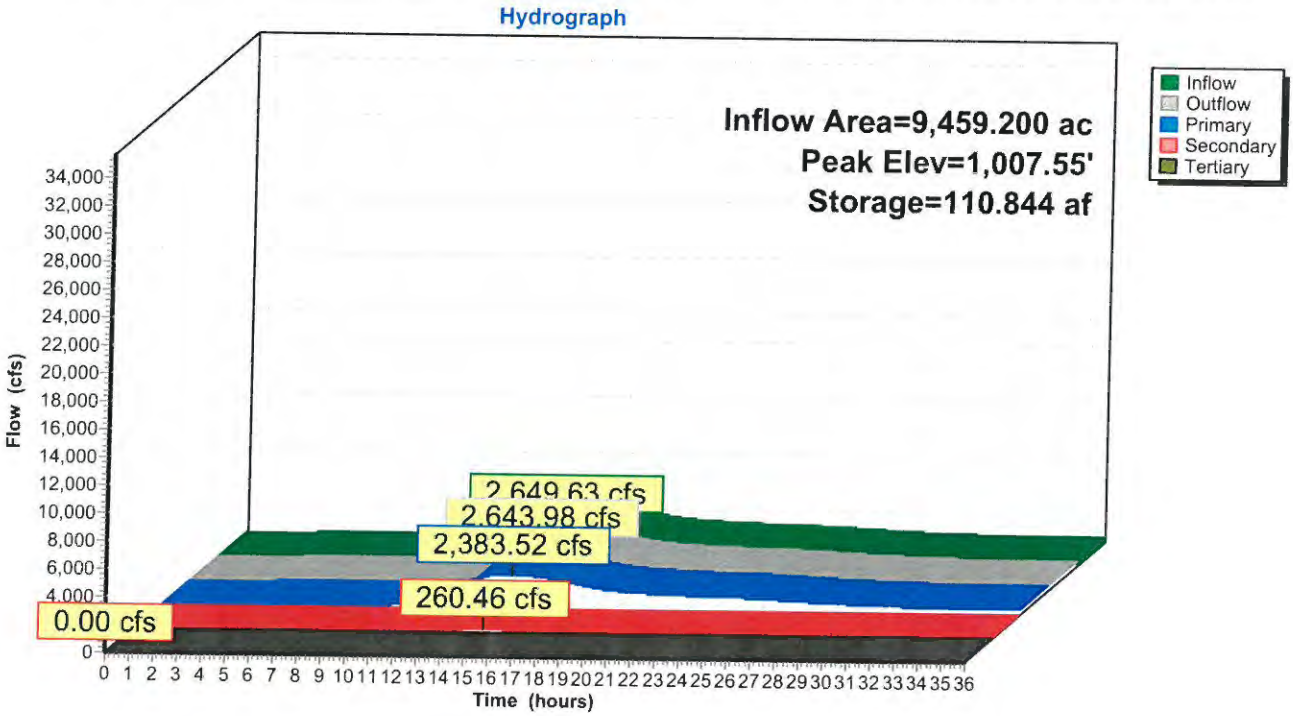
Device	Routing	Invert	Outlet Devices
#1	Primary	1,001.64'	**50.0' long x 2.9' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.45 2.58 2.66 2.66 2.65 2.64 2.65 2.69 2.69 2.73 2.83 2.95 3.01 3.12 3.32
#2	Secondary	1,007.00'	**Right Embankment Weir - Building side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 3.00 4.00 22.00 Width (feet) 78.00 78.00 78.00 78.00
#3	Secondary	1,007.00'	**Left Embankment Weir - Playground side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 3.00 13.00 15.00 Width (feet) 115.00 130.00 180.00 205.00 225.00
#4	Tertiary	1,008.00'	**Weir Flow around Bldg. X 0.50, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 2.00 4.00 6.00 8.00 10.00 12.00 Width (feet) 50.00 90.00 122.00 166.00 240.00 334.00 420.00

Primary OutFlow Max=2,383.52 cfs @ 14.67 hrs HW=1,007.55' TW=998.87' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 2,383.52 cfs @ 8.07 fps)

Secondary OutFlow Max=260.45 cfs @ 14.67 hrs HW=1,007.55' TW=998.87' (Dynamic Tailwater)
└─**2=Right Embankment Weir - Building side** (Weir Controls 103.50 cfs @ 2.42 fps)
└─**3=Left Embankment Weir - Playground side** (Weir Controls 156.95 cfs @ 2.41 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,001.64' (Free Discharge)
└─**4=Weir Flow around Bldg.** (Controls 0.00 cfs)

Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007



Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
0.00	0.00	37.975	1,001.64	0.00	0.00	0.00	**0.00**
0.10	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.20	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.30	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.40	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.50	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.60	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.70	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.80	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.90	0.02	37.975	1,001.64	0.00	0.00	0.00	0.00
1.00	0.05	37.975	1,001.64	0.00	0.00	0.00	0.00
1.10	0.13	37.976	1,001.64	0.00	0.00	0.00	0.00
1.20	0.31	37.977	1,001.64	0.00	0.00	0.00	0.00
1.30	0.65	37.981	1,001.64	0.00	0.00	0.00	0.00
1.40	1.25	37.989	1,001.64	0.01	0.01	0.00	0.00
1.50	2.09	38.002	1,001.64	0.03	0.03	0.00	0.00
1.60	3.30	38.023	1,001.65	0.07	0.07	0.00	0.00
1.70	4.98	38.055	1,001.65	0.16	0.16	0.00	0.00
1.80	7.02	38.102	1,001.66	0.31	0.31	0.00	0.00
1.90	9.68	38.166	1,001.67	0.58	0.58	0.00	0.00
2.00	12.67	38.250	1,001.68	1.00	1.00	0.00	0.00
2.10	16.30	38.358	1,001.70	1.64	1.64	0.00	0.00
2.20	20.24	38.490	1,001.72	2.56	2.56	0.00	0.00
2.30	24.77	38.648	1,001.74	3.80	3.80	0.00	0.00
2.40	29.54	38.833	1,001.77	5.41	5.41	0.00	0.00
2.50	34.80	39.045	1,001.80	7.48	7.48	0.00	0.00
2.60	40.22	39.281	1,001.83	10.03	10.03	0.00	0.00
2.70	45.95	39.541	1,001.87	13.20	13.20	0.00	0.00
2.80	51.40	39.818	1,001.90	16.97	16.97	0.00	0.00
2.90	56.99	40.107	1,001.95	21.30	21.30	0.00	0.00
3.00	62.42	40.405	1,001.99	26.14	26.14	0.00	0.00
3.10	67.83	40.706	1,002.03	31.29	31.29	0.00	0.00
3.20	73.33	41.009	1,002.07	36.67	36.67	0.00	0.00
3.30	78.56	41.310	1,002.11	42.32	42.32	0.00	0.00
3.40	83.80	41.608	1,002.15	48.13	48.13	0.00	0.00
3.50	89.06	41.900	1,002.19	53.95	53.95	0.00	0.00
3.60	94.06	42.188	1,002.23	59.91	59.91	0.00	0.00
3.70	98.83	42.466	1,002.26	65.68	65.68	0.00	0.00
3.80	103.47	42.736	1,002.30	71.34	71.34	0.00	0.00
3.90	107.98	42.998	1,002.33	76.96	76.96	0.00	0.00
4.00	112.22	43.249	1,002.37	82.51	82.51	0.00	0.00
4.10	116.18	43.490	1,002.40	87.92	87.92	0.00	0.00
4.20	120.00	43.718	1,002.43	93.17	93.17	0.00	0.00
4.30	123.67	43.934	1,002.46	98.21	98.21	0.00	0.00
4.40	127.19	44.140	1,002.48	103.05	103.05	0.00	0.00
4.50	130.54	44.334	1,002.51	107.71	107.71	0.00	0.00
4.60	133.62	44.518	1,002.53	112.16	112.16	0.00	0.00
4.70	136.48	44.690	1,002.56	116.37	116.37	0.00	0.00
4.80	139.21	44.853	1,002.58	120.16	120.16	0.00	0.00
4.90	141.78	45.006	1,002.60	123.78	123.78	0.00	0.00
5.00	144.21	45.151	1,002.61	127.23	127.23	0.00	0.00
5.10	146.50	45.288	1,002.63	130.51	130.51	0.00	0.00
5.20	148.64	45.416	1,002.65	133.62	133.62	0.00	0.00

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continuec

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
5.30	150.65	45.537	1,002.66	136.56	136.56	0.00	0.00
5.40	152.51	45.650	1,002.67	139.33	139.33	0.00	0.00
5.50	154.25	45.756	1,002.69	141.94	141.94	0.00	0.00
5.60	155.83	45.854	1,002.70	144.38	144.38	0.00	0.00
5.70	157.23	45.945	1,002.71	146.66	146.66	0.00	0.00
5.80	158.53	46.030	1,002.72	148.77	148.77	0.00	0.00
5.90	159.72	46.107	1,002.73	150.73	150.73	0.00	0.00
6.00	160.80	46.179	1,002.74	152.54	152.54	0.00	0.00
6.10	161.79	46.245	1,002.75	154.20	154.20	0.00	0.00
6.20	162.69	46.305	1,002.76	155.74	155.74	0.00	0.00
6.30	163.51	46.360	1,002.76	157.15	157.15	0.00	0.00
6.40	164.26	46.411	1,002.77	158.44	158.44	0.00	0.00
6.50	164.96	46.457	1,002.77	159.63	159.63	0.00	0.00
6.60	165.62	46.500	1,002.78	160.72	160.72	0.00	0.00
6.70	166.27	46.539	1,002.78	161.72	161.72	0.00	0.00
6.80	166.91	46.575	1,002.79	162.66	162.66	0.00	0.00
6.90	167.54	46.609	1,002.79	163.54	163.54	0.00	0.00
7.00	168.18	46.641	1,002.80	164.38	164.38	0.00	0.00
7.10	168.82	46.672	1,002.80	165.18	165.18	0.00	0.00
7.20	169.47	46.702	1,002.80	165.95	165.95	0.00	0.00
7.30	170.12	46.731	1,002.81	166.70	166.70	0.00	0.00
7.40	170.78	46.759	1,002.81	167.43	167.43	0.00	0.00
7.50	171.43	46.786	1,002.81	168.14	168.14	0.00	0.00
7.60	172.08	46.813	1,002.82	168.85	168.85	0.00	0.00
7.70	172.72	46.840	1,002.82	169.54	169.54	0.00	0.00
7.80	173.35	46.866	1,002.82	170.22	170.22	0.00	0.00
7.90	173.99	46.891	1,002.83	170.90	170.90	0.00	0.00
8.00	174.62	46.917	1,002.83	171.56	171.56	0.00	0.00
8.10	175.28	46.942	1,002.83	172.23	172.23	0.00	0.00
8.20	175.94	46.967	1,002.84	172.89	172.89	0.00	0.00
8.30	176.63	46.993	1,002.84	173.56	173.56	0.00	0.00
8.40	177.38	47.018	1,002.84	174.25	174.25	0.00	0.00
8.50	178.15	47.044	1,002.85	174.96	174.96	0.00	0.00
8.60	179.03	47.071	1,002.85	175.69	175.69	0.00	0.00
8.70	179.99	47.099	1,002.85	176.47	176.47	0.00	0.00
8.80	181.09	47.129	1,002.86	177.29	177.29	0.00	0.00
8.90	182.32	47.162	1,002.86	178.18	178.18	0.00	0.00
9.00	183.71	47.198	1,002.87	179.16	179.16	0.00	0.00
9.10	185.30	47.237	1,002.87	180.24	180.24	0.00	0.00
9.20	187.05	47.281	1,002.88	181.45	181.45	0.00	0.00
9.30	189.04	47.330	1,002.88	182.80	182.80	0.00	0.00
9.40	191.21	47.384	1,002.89	184.29	184.29	0.00	0.00
9.50	193.58	47.443	1,002.90	185.96	185.96	0.00	0.00
9.60	196.13	47.509	1,002.90	187.79	187.79	0.00	0.00
9.70	198.81	47.581	1,002.91	189.79	189.79	0.00	0.00
9.80	201.67	47.658	1,002.92	191.95	191.95	0.00	0.00
9.90	204.58	47.740	1,002.93	194.28	194.28	0.00	0.00
10.00	207.71	47.828	1,002.94	196.76	196.76	0.00	0.00
10.10	210.95	47.920	1,002.95	199.40	199.40	0.00	0.00
10.20	214.42	48.018	1,002.97	202.20	202.20	0.00	0.00
10.30	218.18	48.122	1,002.98	205.05	205.05	0.00	0.00
10.40	222.22	48.235	1,002.99	208.11	208.11	0.00	0.00
10.50	226.75	48.356	1,003.01	211.43	211.43	0.00	0.00

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continued

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
10.60	231.58	48.487	1,003.02	215.04	215.04	0.00	0.00
10.70	237.04	48.629	1,003.04	218.98	218.98	0.00	0.00
10.80	243.09	48.784	1,003.06	223.50	223.50	0.00	0.00
10.90	249.85	48.952	1,003.08	228.49	228.49	0.00	0.00
11.00	257.46	49.136	1,003.10	234.00	234.00	0.00	0.00
11.10	265.85	49.338	1,003.12	240.12	240.12	0.00	0.00
11.20	275.49	49.561	1,003.15	246.94	246.94	0.00	0.00
11.30	286.22	49.808	1,003.18	254.59	254.59	0.00	0.00
11.40	298.40	50.083	1,003.21	263.21	263.21	0.00	0.00
11.50	312.13	50.388	1,003.24	272.86	272.86	0.00	0.00
11.60	327.88	50.732	1,003.28	283.16	283.16	0.00	0.00
11.70	347.18	51.128	1,003.33	295.14	295.14	0.00	0.00
11.80	371.39	51.593	1,003.38	309.43	309.43	0.00	0.00
11.90	409.78	52.178	1,003.45	326.88	326.88	0.00	0.00
12.00	472.05	52.974	1,003.53	353.19	353.19	0.00	0.00
12.10	579.62	54.171	1,003.67	394.42	394.42	0.00	0.00
12.20	738.99	56.025	1,003.87	461.16	461.16	0.00	0.00
12.30	953.47	58.729	1,004.15	561.45	561.45	0.00	0.00
12.40	1,007.69	62.100	1,004.46	689.23	689.23	0.00	0.00
12.50	1,289.27	65.334	1,004.75	810.99	810.99	0.00	0.00
12.60	1,563.44	69.756	1,005.10	968.79	968.79	0.00	0.00
12.70	1,811.84	74.919	1,005.48	1,162.57	1,162.57	0.00	0.00
12.80	2,024.72	80.346	1,005.85	1,382.68	1,382.68	0.00	0.00
12.90	2,204.00	85.505	1,006.17	1,599.32	1,599.32	0.00	0.00
13.00	2,336.10	90.445	1,006.46	1,755.37	1,755.37	0.00	0.00
13.10	2,431.83	95.063	1,006.72	1,901.65	1,901.65	0.00	0.00
13.20	2,488.44	99.189	1,006.95	2,029.40	2,029.40	0.00	0.00
13.30	2,514.43	102.625	1,007.13	2,164.40	2,134.91	29.49	0.00
13.40	2,521.53	105.054	1,007.25	2,288.81	2,207.63	81.18	0.00
13.50	2,533.54	106.653	1,007.33	2,379.65	2,255.93	123.72	0.00
13.60	2,550.34	107.730	1,007.39	2,444.31	2,288.65	155.65	0.00
13.70	2,567.62	108.488	1,007.43	2,491.40	2,311.79	179.61	0.00
13.80	2,586.95	109.054	1,007.46	2,527.34	2,329.10	198.23	0.00
13.90	2,603.77	109.500	1,007.48	2,556.17	2,342.79	213.37	0.00
14.00	2,616.09	109.852	1,007.50	2,579.18	2,353.60	225.58	0.00
14.10	2,626.83	110.125	1,007.51	2,597.22	2,362.01	235.21	0.00
14.20	2,636.06	110.351	1,007.52	2,611.51	2,368.62	242.89	0.00
14.30	2,643.63	110.537	1,007.53	2,623.30	2,374.05	249.25	0.00
14.40	**2,647.45**	110.686	1,007.54	2,632.71	2,378.37	254.34	0.00
14.50	**2,649.60**	110.792	1,007.54	2,639.52	2,381.48	258.03	0.00
14.60	2,646.96	**110.851**	**1,007.55**	**2,643.23**	**2,383.18**	**260.05**	0.00
14.70	2,641.28	**110.860**	**1,007.55**	**2,643.80**	**2,383.44**	**260.36**	0.00
14.80	2,631.21	110.812	1,007.55	2,640.74	2,382.05	258.70	0.00
14.90	2,616.38	110.704	1,007.54	2,633.90	2,378.91	254.98	0.00
15.00	2,597.58	110.530	1,007.53	2,622.87	2,373.86	249.01	0.00
15.10	2,573.66	110.289	1,007.52	2,607.64	2,366.83	240.80	0.00
15.20	2,546.30	109.981	1,007.50	2,587.68	2,357.57	230.11	0.00
15.30	2,514.78	109.610	1,007.49	2,563.37	2,346.19	217.19	0.00
15.40	2,480.37	109.184	1,007.46	2,535.73	2,333.11	202.62	0.00
15.50	2,443.12	108.702	1,007.44	2,504.91	2,318.33	186.58	0.00
15.60	2,403.66	108.169	1,007.41	2,471.43	2,302.05	169.38	0.00
15.70	2,362.57	107.589	1,007.38	2,435.69	2,284.36	151.33	0.00
15.80	2,319.21	106.963	1,007.35	2,398.00	2,265.34	132.66	0.00

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continue

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
15.90	2,274.21	106.292	1,007.32	2,358.59	2,245.00	113.59	0.00
16.00	2,227.71	105.573	1,007.28	2,317.59	2,223.28	94.32	0.00
16.10	2,180.68	104.812	1,007.24	2,275.62	2,200.34	75.28	0.00
16.20	2,133.76	104.010	1,007.20	2,233.14	2,176.28	56.86	0.00
16.30	2,086.82	103.172	1,007.16	2,190.80	2,151.22	39.58	0.00
16.40	2,041.00	102.298	1,007.11	2,149.16	2,125.20	23.97	0.00
16.50	1,995.14	101.387	1,007.06	2,107.87	2,097.42	10.45	0.00
16.60	1,950.06	100.434	1,007.01	2,069.32	2,068.23	1.09	0.00
16.70	1,905.72	99.406	1,006.96	2,036.19	2,036.19	0.00	0.00
16.80	1,862.57	98.294	1,006.90	2,001.47	2,001.47	0.00	0.00
16.90	1,820.71	97.124	1,006.83	1,965.13	1,965.13	0.00	0.00
17.00	1,780.01	95.917	1,006.77	1,927.85	1,927.85	0.00	0.00
17.10	1,741.45	94.690	1,006.70	1,890.24	1,890.24	0.00	0.00
17.20	1,704.56	93.466	1,006.63	1,851.31	1,851.31	0.00	0.00
17.30	1,669.68	92.265	1,006.56	1,812.99	1,812.99	0.00	0.00
17.40	1,636.63	91.095	1,006.50	1,775.89	1,775.89	0.00	0.00
17.50	1,604.68	89.959	1,006.43	1,740.10	1,740.10	0.00	0.00
17.60	1,574.53	88.856	1,006.37	1,705.59	1,705.59	0.00	0.00
17.70	1,545.72	87.788	1,006.30	1,672.43	1,672.43	0.00	0.00
17.80	1,518.71	86.760	1,006.24	1,639.87	1,639.87	0.00	0.00
17.90	1,493.06	85.781	1,006.18	1,608.22	1,608.22	0.00	0.00
18.00	1,468.92	84.853	1,006.13	1,576.13	1,576.13	0.00	0.00
18.10	1,446.22	84.019	1,006.08	1,540.07	1,540.07	0.00	0.00
18.20	1,424.44	83.281	1,006.03	1,508.58	1,508.58	0.00	0.00
18.30	1,404.22	82.616	1,005.99	1,480.30	1,480.30	0.00	0.00
18.40	1,385.02	82.014	1,005.95	1,454.19	1,454.19	0.00	0.00
18.50	1,367.17	81.465	1,005.92	1,430.60	1,430.60	0.00	0.00
18.60	1,350.31	80.958	1,005.89	1,409.04	1,409.04	0.00	0.00
18.70	1,334.45	80.489	1,005.86	1,389.08	1,389.08	0.00	0.00
18.80	1,319.57	80.054	1,005.83	1,369.68	1,369.68	0.00	0.00
18.90	1,305.37	79.654	1,005.80	1,351.94	1,351.94	0.00	0.00
19.00	1,292.13	79.281	1,005.78	1,335.54	1,335.54	0.00	0.00
19.10	1,279.28	78.932	1,005.75	1,320.26	1,320.26	0.00	0.00
19.20	1,267.08	78.601	1,005.73	1,305.92	1,305.92	0.00	0.00
19.30	1,255.28	78.287	1,005.71	1,292.35	1,292.35	0.00	0.00
19.40	1,243.87	77.987	1,005.69	1,279.45	1,279.45	0.00	0.00
19.50	1,233.10	77.698	1,005.67	1,267.14	1,267.14	0.00	0.00
19.60	1,222.60	77.422	1,005.65	1,255.40	1,255.40	0.00	0.00
19.70	1,212.72	77.155	1,005.63	1,244.59	1,244.59	0.00	0.00
19.80	1,203.08	76.892	1,005.62	1,234.79	1,234.79	0.00	0.00
19.90	1,193.84	76.632	1,005.60	1,225.13	1,225.13	0.00	0.00
20.00	1,184.90	76.375	1,005.58	1,215.64	1,215.64	0.00	0.00
20.10	1,176.10	76.123	1,005.56	1,206.36	1,206.36	0.00	0.00
20.20	1,167.61	75.875	1,005.55	1,197.27	1,197.27	0.00	0.00
20.30	1,159.12	75.631	1,005.53	1,188.37	1,188.37	0.00	0.00
20.40	1,150.95	75.392	1,005.52	1,179.66	1,179.66	0.00	0.00
20.50	1,142.84	75.156	1,005.50	1,171.10	1,171.10	0.00	0.00
20.60	1,134.91	74.924	1,005.48	1,162.73	1,162.73	0.00	0.00
20.70	1,127.17	74.696	1,005.47	1,154.51	1,154.51	0.00	0.00
20.80	1,119.51	74.471	1,005.45	1,146.46	1,146.46	0.00	0.00
20.90	1,112.16	74.251	1,005.44	1,138.11	1,138.11	0.00	0.00
21.00	1,104.84	74.041	1,005.42	1,129.81	1,129.81	0.00	0.00
21.10	1,097.80	73.838	1,005.41	1,121.86	1,121.86	0.00	0.00

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continued

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
21.20	1,090.87	73.642	1,005.39	1,114.18	1,114.18	0.00	0.00
21.30	1,084.10	73.452	1,005.38	1,106.78	1,106.78	0.00	0.00
21.40	1,077.49	73.266	1,005.36	1,099.58	1,099.58	0.00	0.00
21.50	1,070.87	73.086	1,005.35	1,092.57	1,092.57	0.00	0.00
21.60	1,064.53	72.908	1,005.34	1,085.73	1,085.73	0.00	0.00
21.70	1,058.19	72.734	1,005.33	1,079.03	1,079.03	0.00	0.00
21.80	1,052.05	72.564	1,005.31	1,072.49	1,072.49	0.00	0.00
21.90	1,046.00	72.396	1,005.30	1,066.07	1,066.07	0.00	0.00
22.00	1,040.02	72.231	1,005.29	1,059.79	1,059.79	0.00	0.00
22.10	1,034.22	72.069	1,005.28	1,053.63	1,053.63	0.00	0.00
22.20	1,028.40	71.910	1,005.26	1,047.58	1,047.58	0.00	0.00
22.30	1,022.81	71.752	1,005.25	1,041.64	1,041.64	0.00	0.00
22.40	1,017.24	71.598	1,005.24	1,035.81	1,035.81	0.00	0.00
22.50	1,011.86	71.446	1,005.23	1,030.09	1,030.09	0.00	0.00
22.60	1,006.54	71.296	1,005.22	1,024.48	1,024.48	0.00	0.00
22.70	1,001.24	71.149	1,005.21	1,018.97	1,018.97	0.00	0.00
22.80	996.08	71.003	1,005.20	1,013.54	1,013.54	0.00	0.00
22.90	990.83	70.859	1,005.19	1,008.18	1,008.18	0.00	0.00
23.00	985.76	70.717	1,005.18	1,002.90	1,002.90	0.00	0.00
23.10	980.65	70.575	1,005.16	997.67	997.67	0.00	0.00
23.20	975.62	70.435	1,005.15	992.50	992.50	0.00	0.00
23.30	970.66	70.296	1,005.14	987.38	987.38	0.00	0.00
23.40	965.67	70.158	1,005.13	982.51	982.51	0.00	0.00
23.50	960.85	70.019	1,005.12	977.74	977.74	0.00	0.00
23.60	955.94	69.878	1,005.11	972.95	972.95	0.00	0.00
23.70	951.17	69.738	1,005.10	968.17	968.17	0.00	0.00
23.80	946.40	69.597	1,005.09	963.39	963.39	0.00	0.00
23.90	941.68	69.457	1,005.08	958.63	958.63	0.00	0.00
24.00	937.04	69.317	1,005.07	953.90	953.90	0.00	0.00
24.10	932.35	69.178	1,005.06	949.19	949.19	0.00	0.00
24.20	927.69	69.039	1,005.05	944.51	944.51	0.00	0.00
24.30	922.71	68.899	1,005.04	939.80	939.80	0.00	0.00
24.40	917.32	68.757	1,005.03	934.77	934.77	0.00	0.00
24.50	911.22	68.610	1,005.02	929.33	929.33	0.00	0.00
24.60	904.18	68.457	1,005.00	923.62	923.62	0.00	0.00
24.70	896.17	68.289	1,004.99	917.43	917.43	0.00	0.00
24.80	886.98	68.105	1,004.98	910.62	910.62	0.00	0.00
24.90	877.13	67.901	1,004.96	903.11	903.11	0.00	0.00
25.00	866.56	67.677	1,004.94	894.91	894.91	0.00	0.00
25.10	855.68	67.435	1,004.92	886.08	886.08	0.00	0.00
25.20	844.58	67.177	1,004.90	876.70	876.70	0.00	0.00
25.30	833.43	66.906	1,004.88	866.91	866.91	0.00	0.00
25.40	822.42	66.626	1,004.85	856.82	856.82	0.00	0.00
25.50	811.65	66.340	1,004.83	846.57	846.57	0.00	0.00
25.60	801.17	66.050	1,004.81	836.26	836.26	0.00	0.00
25.70	790.91	65.760	1,004.78	825.98	825.98	0.00	0.00
25.80	780.82	65.471	1,004.76	815.78	815.78	0.00	0.00
25.90	770.86	65.182	1,004.73	805.67	805.67	0.00	0.00
26.00	761.00	64.895	1,004.71	795.66	795.66	0.00	0.00
26.10	751.29	64.610	1,004.69	785.75	785.75	0.00	0.00
26.20	741.68	64.326	1,004.66	775.95	775.95	0.00	0.00
26.30	732.09	64.043	1,004.64	766.23	766.23	0.00	0.00
26.40	722.55	63.764	1,004.62	755.74	755.74	0.00	0.00

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continuec

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
26.50	713.13	63.495	1,004.59	744.81	744.81	0.00	0.00
26.60	703.81	63.238	1,004.57	734.39	734.39	0.00	0.00
26.70	694.59	62.988	1,004.54	724.37	724.37	0.00	0.00
26.80	685.49	62.745	1,004.52	714.64	714.64	0.00	0.00
26.90	676.49	62.505	1,004.50	705.16	705.16	0.00	0.00
27.00	667.60	62.270	1,004.48	695.88	695.88	0.00	0.00
27.10	658.82	62.037	1,004.46	686.78	686.78	0.00	0.00
27.20	650.14	61.807	1,004.44	677.83	677.83	0.00	0.00
27.30	641.58	61.580	1,004.41	669.02	669.02	0.00	0.00
27.40	633.14	61.354	1,004.39	660.34	660.34	0.00	0.00
27.50	624.82	61.130	1,004.37	651.79	651.79	0.00	0.00
27.60	616.65	60.908	1,004.35	643.37	643.37	0.00	0.00
27.70	608.61	60.688	1,004.33	635.08	635.08	0.00	0.00
27.80	600.63	60.470	1,004.31	626.91	626.91	0.00	0.00
27.90	592.78	60.253	1,004.29	618.85	618.85	0.00	0.00
28.00	585.11	60.039	1,004.27	610.91	610.91	0.00	0.00
28.10	577.61	59.827	1,004.25	603.11	603.11	0.00	0.00
28.20	570.29	59.617	1,004.23	595.45	595.45	0.00	0.00
28.30	563.14	59.411	1,004.21	587.94	587.94	0.00	0.00
28.40	556.16	59.208	1,004.19	580.16	580.16	0.00	0.00
28.50	549.35	59.013	1,004.17	572.51	572.51	0.00	0.00
28.60	542.70	58.824	1,004.16	565.16	565.16	0.00	0.00
28.70	536.21	58.641	1,004.14	558.08	558.08	0.00	0.00
28.80	529.88	58.462	1,004.12	551.33	551.33	0.00	0.00
28.90	523.70	58.286	1,004.10	544.74	544.74	0.00	0.00
29.00	517.67	58.114	1,004.08	538.31	538.31	0.00	0.00
29.10	511.78	57.945	1,004.07	532.03	532.03	0.00	0.00
29.20	506.04	57.779	1,004.05	525.91	525.91	0.00	0.00
29.30	500.43	57.616	1,004.03	519.93	519.93	0.00	0.00
29.40	494.95	57.456	1,004.02	514.09	514.09	0.00	0.00
29.50	489.60	57.299	1,004.00	508.39	508.39	0.00	0.00
29.60	484.28	57.146	1,003.99	502.60	502.60	0.00	0.00
29.70	479.09	56.996	1,003.97	496.97	496.97	0.00	0.00
29.80	474.03	56.850	1,003.95	491.50	491.50	0.00	0.00
29.90	469.10	56.707	1,003.94	486.18	486.18	0.00	0.00
30.00	464.28	56.567	1,003.92	481.00	481.00	0.00	0.00
30.10	459.58	56.430	1,003.91	475.95	475.95	0.00	0.00
30.20	454.99	56.296	1,003.90	471.03	471.03	0.00	0.00
30.30	450.52	56.165	1,003.88	466.24	466.24	0.00	0.00
30.40	446.15	56.036	1,003.87	461.55	461.55	0.00	0.00
30.50	441.89	55.910	1,003.85	456.99	456.99	0.00	0.00
30.60	437.73	55.786	1,003.84	452.53	452.53	0.00	0.00
30.70	433.69	55.665	1,003.83	448.18	448.18	0.00	0.00
30.80	429.76	55.546	1,003.82	443.94	443.94	0.00	0.00
30.90	425.94	55.430	1,003.80	439.81	439.81	0.00	0.00
31.00	422.21	55.317	1,003.79	435.75	435.75	0.00	0.00
31.10	418.59	55.206	1,003.78	431.70	431.70	0.00	0.00
31.20	415.06	55.100	1,003.77	427.78	427.78	0.00	0.00
31.30	411.61	54.996	1,003.76	423.99	423.99	0.00	0.00
31.40	408.24	54.895	1,003.75	420.31	420.31	0.00	0.00
31.50	404.95	54.796	1,003.73	416.74	416.74	0.00	0.00
31.60	401.74	54.699	1,003.72	413.26	413.26	0.00	0.00
31.70	398.59	54.605	1,003.71	409.87	409.87	0.00	0.00

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continuec

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
31.80	395.52	54.513	1,003.70	406.56	406.56	0.00	0.00
31.90	392.51	54.422	1,003.69	403.34	403.34	0.00	0.00
32.00	389.56	54.334	1,003.68	400.18	400.18	0.00	0.00
32.10	386.68	54.247	1,003.67	397.10	397.10	0.00	0.00
32.20	383.84	54.161	1,003.67	394.08	394.08	0.00	0.00
32.30	381.04	54.077	1,003.66	391.12	391.12	0.00	0.00
32.40	378.31	53.994	1,003.65	388.22	388.22	0.00	0.00
32.50	375.64	53.913	1,003.64	385.38	385.38	0.00	0.00
32.60	373.04	53.833	1,003.63	382.60	382.60	0.00	0.00
32.70	370.51	53.755	1,003.62	379.88	379.88	0.00	0.00
32.80	368.04	53.678	1,003.61	377.22	377.22	0.00	0.00
32.90	365.64	53.603	1,003.60	374.62	374.62	0.00	0.00
33.00	363.30	53.530	1,003.60	372.09	372.09	0.00	0.00
33.10	361.02	53.458	1,003.59	369.62	369.62	0.00	0.00
33.20	358.80	53.387	1,003.58	367.21	367.21	0.00	0.00
33.30	356.62	53.318	1,003.57	364.86	364.86	0.00	0.00
33.40	354.48	53.251	1,003.56	362.56	362.56	0.00	0.00
33.50	352.38	53.185	1,003.56	360.31	360.31	0.00	0.00
33.60	350.33	53.120	1,003.55	358.11	358.11	0.00	0.00
33.70	348.32	53.056	1,003.54	355.96	355.96	0.00	0.00
33.80	346.36	52.993	1,003.54	353.85	353.85	0.00	0.00
33.90	344.44	52.932	1,003.53	351.79	351.79	0.00	0.00
34.00	342.57	52.872	1,003.52	349.77	349.77	0.00	0.00
34.10	340.74	52.813	1,003.52	347.80	347.80	0.00	0.00
34.20	338.95	52.755	1,003.51	345.87	345.87	0.00	0.00
34.30	337.21	52.698	1,003.50	343.99	343.99	0.00	0.00
34.40	335.50	52.643	1,003.50	342.15	342.15	0.00	0.00
34.50	333.84	52.588	1,003.49	340.34	340.34	0.00	0.00
34.60	332.21	52.535	1,003.49	338.58	338.58	0.00	0.00
34.70	330.62	52.483	1,003.48	336.86	336.86	0.00	0.00
34.80	329.07	52.432	1,003.47	335.18	335.18	0.00	0.00
34.90	327.55	52.382	1,003.47	333.54	333.54	0.00	0.00
35.00	326.06	52.333	1,003.46	331.93	331.93	0.00	0.00
35.10	324.61	52.285	1,003.46	330.36	330.36	0.00	0.00
35.20	323.19	52.237	1,003.45	328.82	328.82	0.00	0.00
35.30	321.79	52.191	1,003.45	327.32	327.32	0.00	0.00
35.40	320.43	52.146	1,003.44	325.85	325.85	0.00	0.00
35.50	319.10	52.102	1,003.44	324.44	324.44	0.00	0.00
35.60	317.79	52.057	1,003.43	323.13	323.13	0.00	0.00
35.70	316.51	52.013	1,003.43	321.82	321.82	0.00	0.00
35.80	315.26	51.970	1,003.42	320.53	320.53	0.00	0.00
35.90	314.03	51.926	1,003.42	319.24	319.24	0.00	0.00
36.00	0.00	51.883	1,003.41	317.97	317.97	0.00	0.00

Stage-Area-Storage for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
987.68	0.500	0.000	997.22	2.836	15.992
987.86	0.544	0.094	997.40	2.887	16.507
988.04	0.589	0.196	997.58	2.938	17.032
988.22	0.636	0.306	997.76	2.990	17.565
988.40	0.685	0.425	997.94	3.042	18.108
988.58	0.736	0.553	998.12	3.218	18.668
988.76	0.788	0.690	998.30	3.461	19.269
988.94	0.843	0.837	998.48	3.714	19.914
989.12	0.899	0.993	998.66	3.976	20.606
989.30	0.957	1.160	998.84	4.247	21.346
989.48	1.017	1.338	999.02	4.526	22.136
989.66	1.079	1.527	999.20	4.814	22.976
989.84	1.142	1.726	999.38	5.112	23.869
990.02	1.203	1.938	999.56	5.418	24.817
990.20	1.235	2.157	999.74	5.733	25.820
990.38	1.267	2.382	999.92	6.057	26.881
990.56	1.300	2.613	1,000.10	6.235	27.994
990.74	1.333	2.850	1,000.28	6.292	29.121
990.92	1.366	3.093	1,000.46	6.349	30.259
991.10	1.400	3.342	1,000.64	6.407	31.407
991.28	1.434	3.597	1,000.82	6.464	32.565
991.46	1.468	3.858	1,001.00	6.522	33.734
991.64	1.503	4.126	1,001.18	6.580	34.913
991.82	1.539	4.400	1,001.36	6.639	36.103
992.00	1.575	4.680	1,001.54	6.697	37.303
992.18	1.611	4.966	1,001.72	6.842	38.518
992.36	1.647	5.260	1,001.90	7.099	39.772
992.54	1.684	5.560	1,002.08	7.331	41.072
992.72	1.722	5.866	1,002.26	7.532	42.410
992.90	1.760	6.179	1,002.44	7.735	43.784
993.08	1.798	6.500	1,002.62	7.941	45.195
993.26	1.837	6.827	1,002.80	8.150	46.643
993.44	1.876	7.161	1,002.98	8.361	48.129
993.62	1.915	7.502	1,003.16	8.575	49.653
993.80	1.955	7.850	1,003.34	8.792	51.216
993.98	1.995	8.206	1,003.52	9.011	52.818
994.16	2.038	8.569	1,003.70	9.234	54.460
994.34	2.081	8.940	1,003.88	9.459	56.143
994.52	2.125	9.318	1,004.06	9.781	57.868
994.70	2.169	9.705	1,004.24	10.303	59.676
994.88	2.214	10.099	1,004.42	10.839	61.578
995.06	2.259	10.502	1,004.60	11.388	63.579
995.24	2.305	10.913	1,004.78	11.951	65.679
995.42	2.351	11.332	1,004.96	12.528	67.882
995.60	2.397	11.759	1,005.14	13.118	70.190
995.78	2.444	12.194	1,005.32	13.721	72.605
995.96	2.491	12.639	1,005.50	14.338	75.130
996.14	2.539	13.091	1,005.68	14.969	77.768
996.32	2.587	13.553	1,005.86	15.613	80.520
996.50	2.636	14.023	1,006.04	16.225	83.388
996.68	2.685	14.502	1,006.22	16.685	86.350
996.86	2.735	14.990	1,006.40	17.151	89.395
997.04	2.785	15.486	1,006.58	17.624	92.525

ge-Area-Storage for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (contir

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
1,006.76	18.103	95.740	1,016.30	74.735	512.065
1,006.94	18.588	99.042	1,016.48	75.220	525.561
1,007.12	19.080	102.432	1,016.66	75.707	539.145
1,007.30	19.578	105.911	1,016.84	76.196	552.816
1,007.48	20.083	109.481	1,017.02	76.686	566.575
1,007.66	20.594	113.142	1,017.20	77.178	580.423
1,007.84	21.112	116.895	1,017.38	77.671	594.360
1,008.02	21.652	120.742	1,017.56	78.166	608.385
1,008.20	22.329	124.701	1,017.74	78.663	622.499
1,008.38	23.016	128.781	1,017.92	79.161	636.704
1,008.56	23.714	132.987	1,018.10	79.661	650.998
1,008.74	24.423	137.319	1,018.28	80.162	665.382
1,008.92	25.142	141.780	1,018.46	80.665	679.856
1,009.10	25.871	146.371	1,018.64	81.169	694.421
1,009.28	26.611	151.094	1,018.82	81.675	709.077
1,009.46	27.361	155.951	1,019.00	82.183	723.824
1,009.64	28.122	160.945	1,019.18	82.692	738.663
1,009.82	28.893	166.076	1,019.36	83.202	753.593
1,010.00	29.674	171.347	1,019.54	83.715	768.616
1,010.18	30.504	176.762	1,019.72	84.228	783.730
1,010.36	31.345	182.329	1,019.90	84.744	798.938
1,010.54	32.198	188.047	1,020.08	85.261	814.238
1,010.72	33.063	193.921	1,020.26	85.779	829.632
1,010.90	33.938	199.951	1,020.44	86.299	845.119
1,011.08	34.826	206.139	1,020.62	86.821	860.700
1,011.26	35.724	212.489	1,020.80	87.344	876.375
1,011.44	36.634	219.001	1,020.98	87.869	892.144
1,011.62	37.556	225.678	1,021.16	88.396	908.008
1,011.80	38.489	232.522	1,021.34	88.924	923.966
1,011.98	39.433	239.534	1,021.52	89.453	940.020
1,012.16	41.575	246.813	1,021.70	89.984	956.170
1,012.34	43.927	254.507	1,021.88	90.517	972.415
1,012.52	46.344	262.630	1,022.06	91.051	988.756
1,012.70	48.826	271.195	1,022.24	91.587	1,005.193
1,012.88	51.372	280.211	1,022.42	92.124	1,021.727
1,013.06	53.983	289.692	1,022.60	92.663	1,038.358
1,013.24	56.658	299.649	1,022.78	93.204	1,055.086
1,013.42	59.399	310.093	1,022.96	93.746	1,071.912
1,013.60	62.204	321.037	1,023.14	94.290	1,088.835
1,013.78	65.074	332.491	1,023.32	94.835	1,105.856
1,013.96	68.008	344.467	1,023.50	95.382	1,122.976
1,014.14	69.031	356.839	1,023.68	95.930	1,140.194
1,014.32	69.498	369.307	1,023.86	96.480	1,157.511
1,014.50	69.966	381.859	1,024.04	97.032	1,174.927
1,014.68	70.436	394.495	1,024.22	97.585	1,192.442
1,014.86	70.907	407.216	1,024.40	98.140	1,210.057
1,015.04	71.380	420.021	1,024.58	98.696	1,227.772
1,015.22	71.854	432.912	1,024.76	99.254	1,245.588
1,015.40	72.331	445.889	1,024.94	**99.813**	**1,263.504**
1,015.58	72.808	458.952	1,025.12	**100.000**	**1,269.498**
1,015.76	73.287	472.100	1,025.30	100.000	1,269.498
1,015.94	73.768	485.335	1,025.48	100.000	1,269.498
1,016.12	74.251	498.657	1,025.66	100.000	1,269.498

Stage-Area-Storage for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (contir

Elevation (feet)	Surface (acres)	Storage (acre-feet)
1,025.84	100.000	1,269.498
1,026.02	100.000	1,269.498
1,026.20	100.000	1,269.498
1,026.38	100.000	1,269.498
1,026.56	100.000	1,269.498
1,026.74	100.000	1,269.498
1,026.92	100.000	1,269.498
1,027.10	100.000	1,269.498
1,027.28	100.000	1,269.498
1,027.46	100.000	1,269.498
1,027.64	100.000	1,269.498
1,027.82	100.000	1,269.498
1,028.00	100.000	1,269.498
1,028.18	100.000	1,269.498
1,028.36	100.000	1,269.498
1,028.54	100.000	1,269.498
1,028.72	100.000	1,269.498
1,028.90	100.000	1,269.498

Summary for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 2.85" for 500 year-FEMA event
Inflow = 2,643.98 cfs @ 14.67 hrs, Volume= 2,247.577 af
Outflow = 2,409.16 cfs @ 15.78 hrs, Volume= 2,246.222 af, Atten= 9%, Lag= 66.4 min
Primary = 2,409.16 cfs @ 15.78 hrs, Volume= 2,246.222 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 1,000.84' @ 15.78 hrs Surf.Area= 9.750 ac Storage= 114.589 af
Flood Elev= 1,008.00' Surf.Area= 13.465 ac Storage= 197.028 af

Plug-Flow detention time= 17.9 min calculated for 2,245.598 af (100% of inflow)
Center-of-Mass det. time= 17.3 min (1,187.4 - 1,170.1)

Volume	Invert	Avail.Storage	Storage Description
#1	978.00'	371.368 af	**Stage Storage in Sippo Park (Irregular)** Listed below (Recalc)

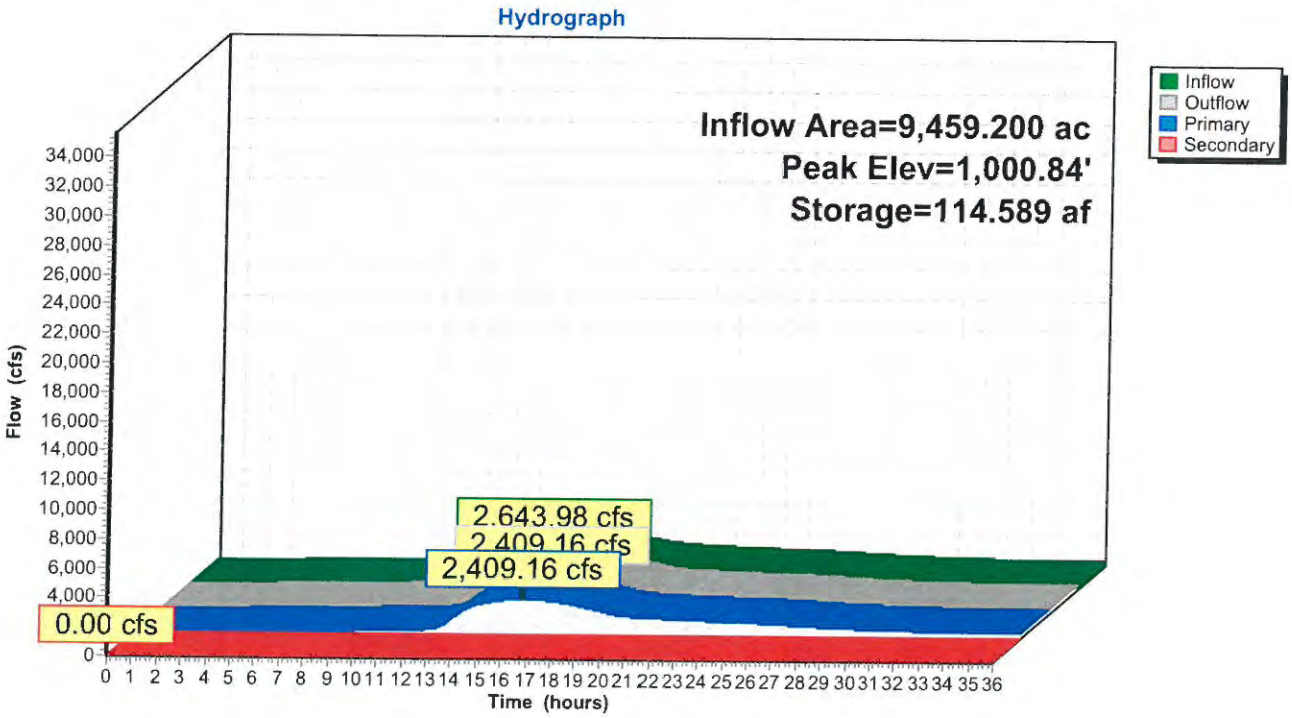
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
978.00	0.100	200.0	0.000	0.000	0.100
981.00	0.300	500.0	0.573	0.573	0.484
982.00	0.659	1,392.9	0.468	1.041	3.572
984.00	2.018	2,470.7	2.553	3.595	11.180
986.00	3.584	3,300.7	5.528	9.122	19.932
988.00	5.007	3,247.5	8.551	17.674	20.586
990.00	6.111	3,143.9	11.100	28.773	21.805
992.00	6.773	3,217.1	12.878	41.652	22.668
994.00	7.411	3,271.9	14.179	55.831	23.334
996.00	8.110	3,253.8	15.516	71.347	23.597
998.00	8.804	3,273.8	16.909	88.256	23.878
1,000.00	9.441	3,318.6	18.241	106.497	24.439
1,002.00	10.181	3,437.0	19.617	126.114	25.908
1,004.00	11.109	3,548.6	21.283	147.398	27.341
1,006.00	12.538	3,553.4	23.633	171.030	27.516
1,008.00	13.465	3,829.8	25.997	197.028	31.248
1,010.00	14.326	4,085.3	27.787	224.814	34.947
1,012.00	15.633	4,329.5	29.949	254.764	38.706
1,014.00	17.576	4,742.6	33.190	287.954	45.555
1,016.00	20.521	5,940.5	38.059	326.013	68.935
1,018.00	24.905	6,310.6	45.355	371.368	77.223

Device	Routing	Invert	Outlet Devices
#1	Primary	978.25'	**168.0" W x 98.0" H Box Box Culvert** L= 121.8' Ke= 0.400 Inlet / Outlet Invert= 978.25' / 978.13' S= 0.0010 '/' Cc= 0.900 n= 0.015 Brickwork
#2	Secondary	1,008.00'	**Linclon Way (172), Cv= 2.63 (C= 3.29)** Head (feet) 0.00 1.00 2.00 4.00 6.00 8.00 10.00 Width (feet) 233.00 373.00 475.00 630.00 790.00 940.00 1,090.00

Primary OutFlow Max=2,409.15 cfs @ 15.78 hrs HW=1,000.84' TW=983.70' (Dynamic Tailwater)
↑—**1=Box Culvert** (Inlet Controls 2,409.15 cfs @ 21.07 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=978.00' TW=978.13' (Dynamic Tailwater)
↑—**2=Linclon Way (172)** (Controls 0.00 cfs)

Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-



Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	978.00	0.00	0.00	**0.00**
0.10	0.00	0.000	978.00	0.00	0.00	0.00
0.20	0.00	0.000	978.00	0.00	0.00	0.00
0.30	0.00	0.000	978.00	0.00	0.00	0.00
0.40	0.00	0.000	978.00	0.00	0.00	0.00
0.50	0.00	0.000	978.00	0.00	0.00	0.00
0.60	0.00	0.000	978.00	0.00	0.00	0.00
0.70	0.00	0.000	978.00	0.00	0.00	0.00
0.80	0.00	0.000	978.00	0.00	0.00	0.00
0.90	0.00	0.000	978.00	0.00	0.00	0.00
1.00	0.00	0.000	978.00	0.00	0.00	0.00
1.10	0.00	0.000	978.00	0.00	0.00	0.00
1.20	0.00	0.000	978.00	0.00	0.00	0.00
1.30	0.00	0.000	978.00	0.00	0.00	0.00
1.40	0.01	0.000	978.00	0.00	0.00	0.00
1.50	0.03	0.000	978.00	0.00	0.00	0.00
1.60	0.07	0.001	978.01	0.00	0.00	0.00
1.70	0.16	0.001	978.01	0.00	0.00	0.00
1.80	0.31	0.003	978.03	0.00	0.00	0.00
1.90	0.58	0.007	978.06	0.00	0.00	0.00
2.00	1.00	0.013	978.12	0.00	0.00	0.00
2.10	1.64	0.023	978.22	0.00	0.00	0.00
2.20	2.56	0.039	978.36	0.68	0.68	0.00
2.30	3.80	0.053	978.47	2.33	2.33	0.00
2.40	5.41	0.064	978.55	4.13	4.13	0.00
2.50	7.48	0.075	978.63	6.18	6.18	0.00
2.60	10.03	0.086	978.72	8.65	8.65	0.00
2.70	13.20	0.097	978.81	11.64	11.64	0.00
2.80	16.97	0.112	978.90	15.09	15.09	0.00
2.90	21.30	0.128	979.00	19.31	19.31	0.00
3.00	26.14	0.144	979.11	24.10	24.10	0.00
3.10	31.29	0.161	979.22	29.17	29.17	0.00
3.20	36.67	0.180	979.32	34.38	34.38	0.00
3.30	42.32	0.199	979.42	40.03	40.03	0.00
3.40	48.13	0.217	979.53	45.92	45.92	0.00
3.50	53.95	0.235	979.62	51.64	51.64	0.00
3.60	59.91	0.255	979.72	57.49	57.49	0.00
3.70	65.68	0.275	979.81	63.44	63.44	0.00
3.80	71.34	0.293	979.90	69.18	69.18	0.00
3.90	76.96	0.310	979.98	74.88	74.88	0.00
4.00	82.51	0.328	980.06	80.26	80.26	0.00
4.10	87.92	0.347	980.14	85.75	85.75	0.00
4.20	93.17	0.364	980.21	91.11	91.11	0.00
4.30	98.21	0.381	980.28	96.27	96.27	0.00
4.40	103.05	0.396	980.35	101.22	101.22	0.00
4.50	107.71	0.411	980.41	105.87	105.87	0.00
4.60	112.16	0.427	980.47	110.31	110.31	0.00
4.70	116.37	0.441	980.53	114.65	114.65	0.00
4.80	120.16	0.455	980.58	118.62	118.62	0.00
4.90	123.78	0.467	980.62	122.33	122.33	0.00
5.00	127.23	0.479	980.67	125.86	125.86	0.00
5.10	130.51	0.490	980.71	129.22	129.22	0.00
5.20	133.62	0.500	980.75	132.41	132.41	0.00

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
5.30	136.56	0.510	980.78	135.42	135.42	0.00
5.40	139.33	0.519	980.82	138.19	138.19	0.00
5.50	141.94	0.529	980.85	140.85	140.85	0.00
5.60	144.38	0.537	980.88	143.37	143.37	0.00
5.70	146.66	0.545	980.90	145.72	145.72	0.00
5.80	148.77	0.553	980.93	147.91	147.91	0.00
5.90	150.73	0.560	980.95	149.93	149.93	0.00
6.00	152.54	0.566	980.98	151.80	151.80	0.00
6.10	154.20	0.572	981.00	153.53	153.53	0.00
6.20	155.74	0.578	981.01	155.05	155.05	0.00
6.30	157.15	0.583	981.03	156.51	156.51	0.00
6.40	158.44	0.588	981.05	157.85	157.85	0.00
6.50	159.63	0.593	981.06	159.09	159.09	0.00
6.60	160.72	0.597	981.07	160.22	160.22	0.00
6.70	161.72	0.601	981.08	161.27	161.27	0.00
6.80	162.66	0.605	981.10	162.24	162.24	0.00
6.90	163.54	0.608	981.11	163.15	163.15	0.00
7.00	164.38	0.611	981.12	164.00	164.00	0.00
7.10	165.18	0.614	981.13	164.82	164.82	0.00
7.20	165.95	0.617	981.13	165.60	165.60	0.00
7.30	166.70	0.620	981.14	166.36	166.36	0.00
7.40	167.43	0.623	981.15	167.10	167.10	0.00
7.50	168.14	0.626	981.16	167.82	167.82	0.00
7.60	168.85	0.628	981.17	168.53	168.53	0.00
7.70	169.54	0.631	981.17	169.23	169.23	0.00
7.80	170.22	0.633	981.18	169.92	169.92	0.00
7.90	170.90	0.636	981.19	170.60	170.60	0.00
8.00	171.56	0.638	981.20	171.27	171.27	0.00
8.10	172.23	0.641	981.20	171.87	171.87	0.00
8.20	172.89	0.644	981.21	172.51	172.51	0.00
8.30	173.56	0.647	981.22	173.17	173.17	0.00
8.40	174.25	0.650	981.23	173.85	173.85	0.00
8.50	174.96	0.654	981.23	174.55	174.55	0.00
8.60	175.69	0.657	981.24	175.27	175.27	0.00
8.70	176.47	0.661	981.25	176.02	176.02	0.00
8.80	177.29	0.664	981.26	176.82	176.82	0.00
8.90	178.18	0.668	981.27	177.67	177.67	0.00
9.00	179.16	0.673	981.28	178.60	178.60	0.00
9.10	180.24	0.678	981.29	179.63	179.63	0.00
9.20	181.45	0.683	981.30	180.77	180.77	0.00
9.30	182.80	0.689	981.32	182.03	182.03	0.00
9.40	184.29	0.696	981.33	183.45	183.45	0.00
9.50	185.96	0.703	981.35	185.02	185.02	0.00
9.60	187.79	0.711	981.37	186.76	186.76	0.00
9.70	189.79	0.720	981.39	188.67	188.67	0.00
9.80	191.95	0.729	981.41	190.75	190.75	0.00
9.90	194.28	0.740	981.43	192.99	192.99	0.00
10.00	196.76	0.751	981.46	195.39	195.39	0.00
10.10	199.40	0.762	981.49	197.94	197.94	0.00
10.20	202.20	0.775	981.52	200.66	200.66	0.00
10.30	205.05	0.787	981.55	203.48	203.48	0.00
10.40	208.11	0.801	981.58	206.44	206.44	0.00
10.50	211.43	0.815	981.61	209.39	209.39	0.00

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
10.60	215.04	0.834	981.64	212.53	212.53	0.00
10.70	218.98	0.856	981.68	216.18	216.18	0.00
10.80	223.50	0.880	981.72	220.32	220.32	0.00
10.90	228.49	0.908	981.77	224.98	224.98	0.00
11.00	234.00	0.938	981.82	230.14	230.14	0.00
11.10	240.12	0.972	981.88	235.87	235.87	0.00
11.20	246.94	1.008	981.94	242.24	242.24	0.00
11.30	254.59	1.049	982.01	249.05	249.05	0.00
11.40	263.21	1.102	982.08	256.04	256.04	0.00
11.50	272.86	1.165	982.16	264.61	264.61	0.00
11.60	283.16	1.235	982.25	274.21	274.21	0.00
11.70	295.14	1.314	982.36	284.99	284.99	0.00
11.80	309.43	1.407	982.46	296.09	296.09	0.00
11.90	326.88	1.530	982.59	309.56	309.56	0.00
12.00	353.19	1.700	982.76	328.36	328.36	0.00
12.10	394.42	1.959	982.97	352.76	352.76	0.00
12.20	461.16	2.398	983.30	390.76	390.76	0.00
12.30	561.45	3.137	983.75	444.83	444.83	0.00
12.40	689.23	4.327	984.34	518.80	518.80	0.00
12.50	810.99	5.869	984.96	600.67	600.67	0.00
12.60	968.79	7.839	985.62	692.95	692.95	0.00
12.70	1,162.57	10.437	986.35	799.23	799.23	0.00
12.80	1,382.68	13.771	987.17	923.37	923.37	0.00
12.90	1,599.32	17.888	988.04	1,063.29	1,063.29	0.00
13.00	1,755.37	22.376	988.89	1,205.89	1,205.89	0.00
13.10	1,901.65	27.092	989.72	1,330.87	1,330.87	0.00
13.20	2,029.40	31.755	990.48	1,471.48	1,471.48	0.00
13.30	2,164.40	36.382	991.21	1,593.88	1,593.88	0.00
13.40	2,288.81	41.198	991.93	1,685.22	1,685.22	0.00
13.50	2,379.65	46.280	992.67	1,756.24	1,756.24	0.00
13.60	2,444.31	51.434	993.40	1,823.31	1,823.31	0.00
13.70	2,491.40	56.516	994.09	1,885.27	1,885.27	0.00
13.80	2,527.34	61.451	994.75	1,941.89	1,941.89	0.00
13.90	2,556.17	66.206	995.36	1,993.45	1,993.45	0.00
14.00	2,579.18	70.768	995.93	2,040.56	2,040.56	0.00
14.10	2,597.22	75.126	996.46	2,083.57	2,083.57	0.00
14.20	2,611.51	79.278	996.96	2,122.88	2,122.88	0.00
14.30	2,623.30	83.225	997.42	2,158.94	2,158.94	0.00
14.40	2,632.71	86.974	997.85	2,192.06	2,192.06	0.00
14.50	2,639.52	90.528	998.26	2,222.52	2,222.52	0.00
14.60	**2,643.23**	93.885	998.63	2,250.53	2,250.53	0.00
14.70	**2,643.80**	97.037	998.98	2,276.21	2,276.21	0.00
14.80	2,640.74	99.977	999.30	2,299.65	2,299.65	0.00
14.90	2,633.90	102.693	999.59	2,320.90	2,320.90	0.00
15.00	2,622.87	105.170	999.86	2,339.85	2,339.85	0.00
15.10	2,607.64	107.391	1,000.09	2,356.62	2,356.62	0.00
15.20	2,587.68	109.340	1,000.30	2,371.11	2,371.11	0.00
15.30	2,563.37	110.995	1,000.47	2,383.26	2,383.26	0.00
15.40	2,535.73	112.345	1,000.61	2,393.05	2,393.05	0.00
15.50	2,504.91	113.382	1,000.72	2,400.53	2,400.53	0.00
15.60	2,471.43	114.101	1,000.79	2,405.70	2,405.70	0.00
15.70	2,435.69	**114.501**	**1,000.83**	**2,408.53**	**2,408.53**	0.00
15.80	2,398.00	**114.583**	**1,000.84**	**2,409.09**	**2,409.09**	0.00

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
15.90	2,358.59	114.350	1,000.82	2,407.42	2,407.42	0.00
16.00	2,317.59	113.808	1,000.76	2,403.51	2,403.51	0.00
16.10	2,275.62	112.964	1,000.68	2,397.39	2,397.39	0.00
16.20	2,233.14	111.829	1,000.56	2,389.15	2,389.15	0.00
16.30	2,190.80	110.419	1,000.41	2,378.88	2,378.88	0.00
16.40	2,149.16	108.753	1,000.24	2,366.52	2,366.52	0.00
16.50	2,107.87	106.854	1,000.04	2,352.34	2,352.34	0.00
16.60	2,069.32	104.746	999.81	2,336.31	2,336.31	0.00
16.70	2,036.19	102.479	999.57	2,318.90	2,318.90	0.00
16.80	2,001.47	100.084	999.31	2,300.12	2,300.12	0.00
16.90	1,965.13	97.556	999.04	2,279.98	2,279.98	0.00
17.00	1,927.85	94.895	998.74	2,258.41	2,258.41	0.00
17.10	1,890.24	92.108	998.43	2,235.35	2,235.35	0.00
17.20	1,851.31	89.202	998.11	2,210.76	2,210.76	0.00
17.30	1,812.99	86.184	997.76	2,184.62	2,184.62	0.00
17.40	1,775.89	83.076	997.40	2,157.00	2,157.00	0.00
17.50	1,740.10	79.899	997.03	2,128.00	2,128.00	0.00
17.60	1,705.59	76.675	996.65	2,097.71	2,097.71	0.00
17.70	1,672.43	73.427	996.25	2,066.25	2,066.25	0.00
17.80	1,639.87	70.171	995.85	2,033.72	2,033.72	0.00
17.90	1,608.22	66.922	995.45	2,000.14	2,000.14	0.00
18.00	1,576.13	63.697	995.04	1,965.65	1,965.65	0.00
18.10	1,540.07	60.472	994.62	1,929.90	1,929.90	0.00
18.20	1,508.58	57.267	994.19	1,893.02	1,893.02	0.00
18.30	1,480.30	54.122	993.77	1,855.45	1,855.45	0.00
18.40	1,454.19	51.063	993.35	1,817.48	1,817.48	0.00
18.50	1,430.60	48.113	992.93	1,779.40	1,779.40	0.00
18.60	1,409.04	45.290	992.53	1,741.52	1,741.52	0.00
18.70	1,389.08	42.607	992.14	1,704.09	1,704.09	0.00
18.80	1,369.68	40.067	991.76	1,667.25	1,667.25	0.00
18.90	1,351.94	37.680	991.40	1,625.62	1,625.62	0.00
19.00	1,335.54	35.555	991.08	1,572.91	1,572.91	0.00
19.10	1,320.26	33.717	990.79	1,525.20	1,525.20	0.00
19.20	1,305.92	32.133	990.54	1,481.99	1,481.99	0.00
19.30	1,292.35	30.773	990.32	1,443.55	1,443.55	0.00
19.40	1,279.45	29.605	990.13	1,409.26	1,409.26	0.00
19.50	1,267.14	28.601	989.97	1,378.93	1,378.93	0.00
19.60	1,255.40	27.737	989.83	1,351.63	1,351.63	0.00
19.70	1,244.59	26.992	989.70	1,327.61	1,327.61	0.00
19.80	1,234.79	26.349	989.60	1,306.53	1,306.53	0.00
19.90	1,225.13	25.794	989.50	1,287.31	1,287.31	0.00
20.00	1,215.64	25.309	989.42	1,270.31	1,270.31	0.00
20.10	1,206.36	24.880	989.34	1,255.08	1,255.08	0.00
20.20	1,197.27	24.496	989.27	1,241.27	1,241.27	0.00
20.30	1,188.37	24.147	989.21	1,228.59	1,228.59	0.00
20.40	1,179.66	23.827	989.16	1,216.51	1,216.51	0.00
20.50	1,171.10	23.367	989.07	1,236.52	1,236.52	0.00
20.60	1,162.73	22.855	988.98	1,220.68	1,220.68	0.00
20.70	1,154.51	22.399	988.90	1,206.61	1,206.61	0.00
20.80	1,146.46	21.986	988.82	1,193.93	1,193.93	0.00
20.90	1,138.11	21.608	988.75	1,182.04	1,182.04	0.00
21.00	1,129.81	21.256	988.69	1,170.86	1,170.86	0.00
21.10	1,121.86	20.926	988.63	1,160.41	1,160.41	0.00

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
21.20	1,114.18	20.616	988.57	1,150.60	1,150.60	0.00
21.30	1,106.78	20.322	988.51	1,141.34	1,141.34	0.00
21.40	1,099.58	20.042	988.46	1,132.56	1,132.56	0.00
21.50	1,092.57	19.775	988.41	1,124.18	1,124.18	0.00
21.60	1,085.73	19.519	988.36	1,115.92	1,115.92	0.00
21.70	1,079.03	19.274	988.31	1,107.97	1,107.97	0.00
21.80	1,072.49	19.039	988.27	1,100.35	1,100.35	0.00
21.90	1,066.07	18.813	988.22	1,093.01	1,093.01	0.00
22.00	1,059.79	18.593	988.18	1,085.93	1,085.93	0.00
22.10	1,053.63	18.380	988.14	1,079.06	1,079.06	0.00
22.20	1,047.58	18.172	988.10	1,072.38	1,072.38	0.00
22.30	1,041.64	17.969	988.06	1,065.87	1,065.87	0.00
22.40	1,035.81	17.771	988.02	1,059.53	1,059.53	0.00
22.50	1,030.09	17.577	987.98	1,053.17	1,053.17	0.00
22.60	1,024.48	17.389	987.94	1,046.85	1,046.85	0.00
22.70	1,018.97	17.206	987.90	1,040.73	1,040.73	0.00
22.80	1,013.54	17.028	987.87	1,034.78	1,034.78	0.00
22.90	1,008.18	16.854	987.83	1,028.98	1,028.98	0.00
23.00	1,002.90	16.684	987.80	1,023.30	1,023.30	0.00
23.10	997.67	16.517	987.76	1,017.74	1,017.74	0.00
23.20	992.50	16.352	987.73	1,012.27	1,012.27	0.00
23.30	987.38	16.190	987.69	1,006.89	1,006.89	0.00
23.40	982.51	16.030	987.66	1,001.60	1,001.60	0.00
23.50	977.74	15.874	987.63	996.44	996.44	0.00
23.60	972.95	15.720	987.60	991.35	991.35	0.00
23.70	968.17	15.570	987.56	986.09	986.09	0.00
23.80	963.39	15.423	987.53	980.95	980.95	0.00
23.90	958.63	15.279	987.50	975.91	975.91	0.00
24.00	953.90	15.137	987.47	970.96	970.96	0.00
24.10	949.19	14.997	987.44	966.07	966.07	0.00
24.20	944.51	14.858	987.41	961.24	961.24	0.00
24.30	939.80	14.720	987.38	956.45	956.45	0.00
24.40	934.77	14.582	987.35	951.67	951.67	0.00
24.50	929.33	14.441	987.32	946.77	946.77	0.00
24.60	923.62	14.294	987.28	941.71	941.71	0.00
24.70	917.43	14.141	987.25	936.44	936.44	0.00
24.80	910.62	13.980	987.22	930.88	930.88	0.00
24.90	903.11	13.807	987.18	924.72	924.72	0.00
25.00	894.91	13.623	987.13	917.99	917.99	0.00
25.10	886.08	13.427	987.09	910.81	910.81	0.00
25.20	876.70	13.216	987.04	903.14	903.14	0.00
25.30	866.91	12.991	986.98	894.98	894.98	0.00
25.40	856.82	12.754	986.93	886.38	886.38	0.00
25.50	846.57	12.504	986.87	877.40	877.40	0.00
25.60	836.26	12.246	986.81	868.10	868.10	0.00
25.70	825.98	11.981	986.74	858.07	858.07	0.00
25.80	815.78	11.716	986.68	847.94	847.94	0.00
25.90	805.67	11.450	986.61	837.83	837.83	0.00
26.00	795.66	11.184	986.54	827.77	827.77	0.00
26.10	785.75	10.919	986.48	817.77	817.77	0.00
26.20	775.95	10.655	986.41	807.85	807.85	0.00
26.30	766.23	10.393	986.34	797.48	797.48	0.00
26.40	755.74	10.135	986.27	787.16	787.16	0.00

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
26.50	744.81	9.873	986.20	776.73	776.73	0.00
26.60	734.39	9.609	986.13	766.28	766.28	0.00
26.70	724.37	9.347	986.06	755.93	755.93	0.00
26.80	714.64	9.087	985.99	745.63	745.63	0.00
26.90	705.16	8.836	985.92	734.92	734.92	0.00
27.00	695.88	8.594	985.85	724.66	724.66	0.00
27.10	686.78	8.359	985.78	714.75	714.75	0.00
27.20	677.83	8.131	985.71	705.14	705.14	0.00
27.30	669.02	7.907	985.64	695.79	695.79	0.00
27.40	660.34	7.688	985.58	686.33	686.33	0.00
27.50	651.79	7.477	985.51	676.65	676.65	0.00
27.60	643.37	7.275	985.44	667.38	667.38	0.00
27.70	635.08	7.079	985.38	658.44	658.44	0.00
27.80	626.91	6.888	985.32	649.76	649.76	0.00
27.90	618.85	6.701	985.26	641.29	641.29	0.00
28.00	610.91	6.517	985.19	632.92	632.92	0.00
28.10	603.11	6.339	985.13	624.03	624.03	0.00
28.20	595.45	6.169	985.07	615.57	615.57	0.00
28.30	587.94	6.006	985.01	607.43	607.43	0.00
28.40	580.16	5.846	984.95	599.52	599.52	0.00
28.50	572.51	5.686	984.89	591.68	591.68	0.00
28.60	565.16	5.529	984.83	583.98	583.98	0.00
28.70	558.08	5.375	984.78	576.13	576.13	0.00
28.80	551.33	5.231	984.72	568.23	568.23	0.00
28.90	544.74	5.094	984.66	560.81	560.81	0.00
29.00	538.31	4.964	984.61	553.75	553.75	0.00
29.10	532.03	4.838	984.56	546.97	546.97	0.00
29.20	525.91	4.716	984.51	540.43	540.43	0.00
29.30	519.93	4.598	984.46	534.08	534.08	0.00
29.40	514.09	4.482	984.41	527.92	527.92	0.00
29.50	508.39	4.370	984.36	521.39	521.39	0.00
29.60	502.60	4.265	984.31	515.08	515.08	0.00
29.70	496.97	4.163	984.26	509.03	509.03	0.00
29.80	491.50	4.065	984.22	503.19	503.19	0.00
29.90	486.18	3.970	984.17	497.55	497.55	0.00
30.00	481.00	3.877	984.13	492.07	492.07	0.00
30.10	475.95	3.787	984.09	486.76	486.76	0.00
30.20	471.03	3.698	984.05	481.58	481.58	0.00
30.30	466.24	3.612	984.01	476.55	476.55	0.00
30.40	461.55	3.529	983.96	471.11	471.11	0.00
30.50	456.99	3.453	983.92	465.94	465.94	0.00
30.60	452.53	3.380	983.88	461.08	461.08	0.00
30.70	448.18	3.311	983.85	456.42	456.42	0.00
30.80	443.94	3.244	983.81	451.94	451.94	0.00
30.90	439.81	3.178	983.77	447.59	447.59	0.00
31.00	435.75	3.115	983.74	443.37	443.37	0.00
31.10	431.70	3.052	983.71	439.22	439.22	0.00
31.20	427.78	2.990	983.67	435.16	435.16	0.00
31.30	423.99	2.930	983.64	431.19	431.19	0.00
31.40	420.31	2.871	983.61	427.33	427.33	0.00
31.50	416.74	2.815	983.57	423.13	423.13	0.00
31.60	413.26	2.764	983.54	419.14	419.14	0.00
31.70	409.87	2.717	983.51	415.44	415.44	0.00

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
31.80	406.56	2.672	983.48	411.91	411.91	0.00
31.90	403.34	2.628	983.45	408.52	408.52	0.00
32.00	400.18	2.586	983.42	405.23	405.23	0.00
32.10	397.10	2.545	983.40	402.03	402.03	0.00
32.20	394.08	2.504	983.37	398.91	398.91	0.00
32.30	391.12	2.465	983.35	395.86	395.86	0.00
32.40	388.22	2.426	983.32	392.88	392.88	0.00
32.50	385.38	2.388	983.30	389.95	389.95	0.00
32.60	382.60	2.350	983.27	387.08	387.08	0.00
32.70	379.88	2.314	983.25	384.28	384.28	0.00
32.80	377.22	2.278	983.22	381.53	381.53	0.00
32.90	374.62	2.242	983.20	378.85	378.85	0.00
33.00	372.09	2.209	983.17	375.81	375.81	0.00
33.10	369.62	2.180	983.15	373.06	373.06	0.00
33.20	367.21	2.152	983.13	370.48	370.48	0.00
33.30	364.86	2.125	983.11	368.02	368.02	0.00
33.40	362.56	2.100	983.09	365.64	365.64	0.00
33.50	360.31	2.074	983.07	363.32	363.32	0.00
33.60	358.11	2.050	983.05	361.06	361.06	0.00
33.70	355.96	2.026	983.03	358.84	358.84	0.00
33.80	353.85	2.002	983.01	356.68	356.68	0.00
33.90	351.79	1.979	982.99	354.56	354.56	0.00
34.00	349.77	1.956	982.97	352.49	352.49	0.00
34.10	347.80	1.934	982.95	350.46	350.46	0.00
34.20	345.87	1.912	982.94	348.48	348.48	0.00
34.30	343.99	1.891	982.92	346.54	346.54	0.00
34.40	342.15	1.870	982.90	344.65	344.65	0.00
34.50	340.34	1.849	982.89	342.80	342.80	0.00
34.60	338.58	1.829	982.87	340.99	340.99	0.00
34.70	336.86	1.810	982.85	339.21	339.21	0.00
34.80	335.18	1.790	982.84	337.48	337.48	0.00
34.90	333.54	1.772	982.82	335.79	335.79	0.00
35.00	331.93	1.753	982.81	334.14	334.14	0.00
35.10	330.36	1.735	982.79	332.38	332.38	0.00
35.20	328.82	1.720	982.78	330.61	330.61	0.00
35.30	327.32	1.705	982.76	329.00	329.00	0.00
35.40	325.85	1.692	982.75	327.47	327.47	0.00
35.50	324.44	1.678	982.74	325.99	325.99	0.00
35.60	323.13	1.666	982.72	324.60	324.60	0.00
35.70	321.82	1.654	982.71	323.26	323.26	0.00
35.80	320.53	1.642	982.70	321.94	321.94	0.00
35.90	319.24	1.630	982.69	320.65	320.65	0.00
36.00	0.00	1.619	982.68	319.36	319.36	0.00

Stage-Area-Storage for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

Elevation (feet)	Surface (acres)	Storage (acre-feet)
978.00	0.100	0.000
978.16	0.108	0.017
978.32	0.116	0.035
978.48	0.125	0.054
978.64	0.134	0.075
978.80	0.143	0.097
978.96	0.152	0.120
979.12	0.162	0.145
979.28	0.172	0.172
979.44	0.183	0.201
979.60	0.193	0.231
979.76	0.204	0.262
979.92	0.216	0.296
980.08	0.227	0.331
980.24	0.239	0.369
980.40	0.251	0.408
980.56	0.264	0.449
980.72	0.277	0.492
980.88	0.290	0.538
981.04	0.312	0.585
981.20	0.361	0.639
981.36	0.413	0.701
981.52	0.469	0.772
981.68	0.529	0.851
981.84	0.592	0.941
982.00	0.659	1.041
982.16	0.740	1.153
982.32	0.827	1.278
982.48	0.918	1.418
982.64	1.013	1.572
982.80	1.114	1.742
982.96	1.219	1.929
983.12	1.329	2.133
983.28	1.443	2.354
983.44	1.563	2.595
983.60	1.687	2.855
983.76	1.816	3.135
983.92	1.949	3.436
984.08	2.072	3.758
984.24	2.182	4.098
984.40	2.295	4.457
984.56	2.411	4.833
984.72	2.530	5.228
984.88	2.652	5.643
985.04	2.777	6.077
985.20	2.904	6.532
985.36	3.034	7.007
985.52	3.167	7.503
985.68	3.303	8.020
985.84	3.442	8.560
986.00	3.584	9.122
986.16	3.689	9.704
986.32	3.796	10.303
986.48	3.904	10.919
986.64	4.014	11.552
986.80	4.125	12.203
986.96	4.237	12.872
987.12	4.352	13.559
987.28	4.467	14.265
987.44	4.585	14.989
987.60	4.703	15.732
987.76	4.824	16.494
987.92	4.946	17.275
988.08	5.049	18.076
988.24	5.134	18.890
988.40	5.219	19.719
988.56	5.305	20.561
988.72	5.392	21.416
988.88	5.479	22.286
989.04	5.567	23.170
989.20	5.656	24.068
989.36	5.746	24.980
989.52	5.836	25.906
989.68	5.927	26.847
989.84	6.019	27.803
990.00	6.111	28.773
990.16	6.163	29.755
990.32	6.215	30.745
990.48	6.267	31.744
990.64	6.319	32.751
990.80	6.372	33.766
990.96	6.425	34.790
991.12	6.478	35.822
991.28	6.531	36.862
991.44	6.584	37.912
991.60	6.638	38.969
991.76	6.692	40.036
991.92	6.746	41.111
992.08	6.798	42.194
992.24	6.848	43.286
992.40	6.898	44.386
992.56	6.949	45.494
992.72	6.999	46.609
992.88	7.050	47.733
993.04	7.101	48.865
993.20	7.152	50.006
993.36	7.204	51.154
993.52	7.255	52.311
993.68	7.307	53.476
993.84	7.359	54.649
994.00	7.411	55.831
994.16	7.466	57.021
994.32	7.521	58.220
994.48	7.576	59.428
994.64	7.631	60.644
994.80	7.687	61.870

Stage-Area-Storage for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
994.96	7.743	63.104	1,003.44	10.845	141.251
995.12	7.799	64.347	1,003.60	10.920	142.992
995.28	7.855	65.599	1,003.76	10.996	144.745
995.44	7.911	66.861	1,003.92	11.071	146.510
995.60	7.968	68.131	1,004.08	11.165	148.289
995.76	8.024	69.410	1,004.24	11.276	150.084
995.92	8.081	70.699	1,004.40	11.388	151.897
996.08	8.137	71.996	1,004.56	11.500	153.728
996.24	8.192	73.303	1,004.72	11.613	155.577
996.40	8.247	74.618	1,004.88	11.727	157.444
996.56	8.301	75.942	1,005.04	11.841	159.330
996.72	8.357	77.274	1,005.20	11.956	161.234
996.88	8.412	78.616	1,005.36	12.071	163.156
997.04	8.467	79.966	1,005.52	12.187	165.096
997.20	8.523	81.325	1,005.68	12.304	167.056
997.36	8.579	82.693	1,005.84	12.420	169.034
997.52	8.635	84.071	1,006.00	12.538	171.030
997.68	8.691	85.457	1,006.16	12.611	173.042
997.84	8.747	86.852	1,006.32	12.684	175.066
998.00	8.804	88.256	1,006.48	12.757	177.101
998.16	8.854	89.668	1,006.64	12.831	179.148
998.32	8.904	91.089	1,006.80	12.905	181.207
998.48	8.955	92.518	1,006.96	12.979	183.278
998.64	9.005	93.955	1,007.12	13.053	185.360
998.80	9.056	95.400	1,007.28	13.127	187.455
998.96	9.107	96.853	1,007.44	13.202	189.561
999.12	9.158	98.314	1,007.60	13.277	191.679
999.28	9.209	99.783	1,007.76	13.352	193.810
999.44	9.260	101.261	1,007.92	13.427	195.952
999.60	9.312	102.747	1,008.08	13.499	198.106
999.76	9.363	104.241	1,008.24	13.567	200.272
999.92	9.415	105.743	1,008.40	13.635	202.448
1,000.08	9.470	107.254	1,008.56	13.703	204.635
1,000.24	9.528	108.773	1,008.72	13.772	206.833
1,000.40	9.587	110.303	1,008.88	13.841	209.042
1,000.56	9.645	111.841	1,009.04	13.909	211.262
1,000.72	9.704	113.389	1,009.20	13.978	213.493
1,000.88	9.763	114.947	1,009.36	14.048	215.735
1,001.04	9.822	116.513	1,009.52	14.117	217.988
1,001.20	9.882	118.090	1,009.68	14.186	220.252
1,001.36	9.941	119.675	1,009.84	14.256	222.528
1,001.52	10.001	121.271	1,010.00	14.326	224.814
1,001.68	10.061	122.876	1,010.16	14.428	227.115
1,001.84	10.121	124.490	1,010.32	14.531	229.431
1,002.00	10.181	126.114	1,010.48	14.634	231.765
1,002.16	10.254	127.749	1,010.64	14.738	234.114
1,002.32	10.327	129.396	1,010.80	14.842	236.481
1,002.48	10.400	131.054	1,010.96	14.946	238.864
1,002.64	10.474	132.724	1,011.12	15.051	241.264
1,002.80	10.547	134.405	1,011.28	15.156	243.680
1,002.96	10.621	136.099	1,011.44	15.261	246.114
1,003.12	10.696	137.804	1,011.60	15.367	248.564
1,003.28	10.770	139.521	1,011.76	15.473	251.031

Stage-Area-Storage for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Elevation (feet)	Surface (acres)	Storage (acre-feet)
1,011.92	15.580	253.515
1,012.08	15.709	256.017
1,012.24	15.860	258.543
1,012.40	16.012	261.093
1,012.56	16.166	263.667
1,012.72	16.319	266.266
1,012.88	16.474	268.889
1,013.04	16.629	271.537
1,013.20	16.785	274.211
1,013.36	16.942	276.909
1,013.52	17.099	279.632
1,013.68	17.257	282.381
1,013.84	17.416	285.154
1,014.00	17.576	287.954
1,014.16	17.803	290.784
1,014.32	18.032	293.651
1,014.48	18.262	296.554
1,014.64	18.494	299.495
1,014.80	18.727	302.472
1,014.96	18.961	305.487
1,015.12	19.197	308.540
1,015.28	19.435	311.631
1,015.44	19.673	314.759
1,015.60	19.914	317.926
1,015.76	20.156	321.132
1,015.92	20.399	324.376
1,016.08	20.688	327.661
1,016.24	21.025	330.998
1,016.40	21.364	334.389
1,016.56	21.706	337.835
1,016.72	22.050	341.335
1,016.88	22.398	344.891
1,017.04	22.748	348.503
1,017.20	23.101	352.170
1,017.36	23.456	355.895
1,017.52	23.814	359.677
1,017.68	24.175	363.516
1,017.84	24.539	367.413
1,018.00	**24.905**	**371.368**

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Pond 1P: Sippo Creek Reservoir Peak Elev=1,007.93' Storage=118.712 af Inflow=3,077.78 cfs 2,602.956 af
3.57 cfs 2,448.628 af Secondary=579.00 cfs 140.060 af Tertiary=0.00 cfs 0.000 af Outflow=3,071.75 cfs 2,588.688 af

Pond 16P: Lincoln Way Box Peak Elev=1,004.84' Storage=157.023 af Inflow=3,071.75 cfs 2,588.408 af
Primary=2,673.49 cfs 2,586.868 af Secondary=0.00 cfs 0.000 af Outflow=2,673.49 cfs 2,586.868 af

Summary for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 3.30" for 1000 year-FEMA event
Inflow = 3,077.78 cfs @ 14.44 hrs, Volume= 2,602.956 af
Outflow = 3,071.75 cfs @ 14.49 hrs, Volume= 2,588.688 af, Atten= 0%, Lag= 2.6 min
Primary = 2,566.57 cfs @ 14.48 hrs, Volume= 2,448.628 af
Secondary = 579.00 cfs @ 15.36 hrs, Volume= 140.060 af
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,001.64' Surf.Area= 6.730 ac Storage= 37.975 af
Peak Elev= 1,007.93' @ 15.36 hrs Surf.Area= 21.360 ac Storage= 118.712 af (80.737 af above start)
Flood Elev= 1,005.00' Surf.Area= 12.657 ac Storage= 68.385 af (30.411 af above start)

Plug-Flow detention time= 49.9 min calculated for 2,550.005 af (98% of inflow)
Center-of-Mass det. time= 17.7 min (1,169.0 - 1,151.2)

Volume	Invert	Avail.Storage	Storage Description
#1	987.68'	1,269.498 af	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
987.68	0.500	500.0	0.000	0.000	0.500
990.00	1.200	1,000.0	1.914	1.914	1.871
994.00	2.000	2,500.0	6.332	8.246	11.463
998.00	3.060	2,611.0	10.045	18.291	12.526
1,000.00	6.204	3,251.0	9.081	27.372	19.381
1,001.64	6.730	4,770.0	10.603	37.975	41.639
1,002.00	7.243	5,147.0	2.515	40.489	48.470
1,004.00	9.610	10,274.0	16.797	57.287	192.907
1,006.00	16.124	11,202.9	25.455	82.741	229.356
1,008.00	21.577	15,736.9	37.569	120.310	452.497
1,010.00	29.674	20,301.4	51.036	171.347	753.009
1,012.00	39.539	22,845.5	68.977	240.324	953.544
1,014.00	68.669	34,370.5	106.876	347.201	2,158.194
1,025.00	100.000	50,000.0	922.298	1,269.498	4,567.224

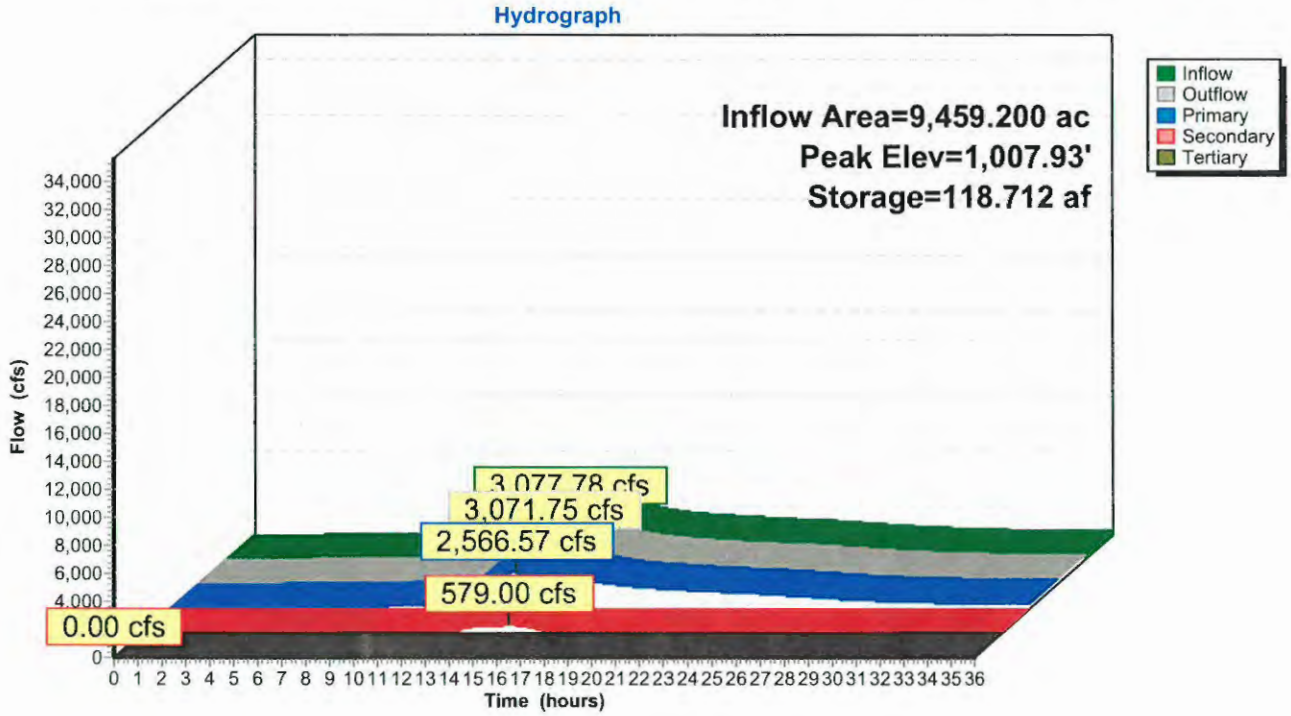
Device	Routing	Invert	Outlet Devices
#1	Primary	1,001.64'	**50.0' long x 2.9' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.45 2.58 2.66 2.66 2.65 2.64 2.65 2.69 2.69 2.73 2.83 2.95 3.01 3.12 3.32
#2	Secondary	1,007.00'	**Right Embankment Weir - Building side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 3.00 4.00 22.00 Width (feet) 78.00 78.00 78.00 78.00
#3	Secondary	1,007.00'	**Left Embankment Weir - Playground side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 3.00 13.00 15.00 Width (feet) 115.00 130.00 180.00 205.00 225.00
#4	Tertiary	1,008.00'	**Weir Flow around Bldg. X 0.50, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 2.00 4.00 6.00 8.00 10.00 12.00 Width (feet) 50.00 90.00 122.00 166.00 240.00 334.00 420.00

Primary OutFlow Max=2,566.24 cfs @ 14.48 hrs HW=1,007.85' TW=1,001.67' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 2,566.24 cfs @ 8.27 fps)

Secondary OutFlow Max=578.99 cfs @ 15.36 hrs HW=1,007.93' TW=1,004.44' (Dynamic Tailwater)
├─**2=Right Embankment Weir - Building side** (Weir Controls 227.45 cfs @ 3.15 fps)
└─**3=Left Embankment Weir - Playground side** (Weir Controls 351.54 cfs @ 3.11 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,001.64' (Free Discharge)
└─**4=Weir Flow around Bldg.** (Controls 0.00 cfs)

Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007



Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
0.00	0.00	37.975	1,001.64	0.00	0.00	0.00	**0.00**
0.10	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.20	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.30	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.40	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.50	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.60	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.70	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.80	0.00	37.975	1,001.64	0.00	0.00	0.00	0.00
0.90	0.02	37.975	1,001.64	0.00	0.00	0.00	0.00
1.00	0.05	37.975	1,001.64	0.00	0.00	0.00	0.00
1.10	0.13	37.976	1,001.64	0.00	0.00	0.00	0.00
1.20	0.31	37.977	1,001.64	0.00	0.00	0.00	0.00
1.30	0.65	37.981	1,001.64	0.00	0.00	0.00	0.00
1.40	1.25	37.989	1,001.64	0.01	0.01	0.00	0.00
1.50	2.09	38.002	1,001.64	0.03	0.03	0.00	0.00
1.60	3.30	38.023	1,001.65	0.07	0.07	0.00	0.00
1.70	4.98	38.055	1,001.65	0.16	0.16	0.00	0.00
1.80	7.02	38.102	1,001.66	0.31	0.31	0.00	0.00
1.90	9.68	38.166	1,001.67	0.58	0.58	0.00	0.00
2.00	12.67	38.250	1,001.68	1.00	1.00	0.00	0.00
2.10	16.30	38.358	1,001.70	1.64	1.64	0.00	0.00
2.20	20.24	38.490	1,001.72	2.56	2.56	0.00	0.00
2.30	24.77	38.648	1,001.74	3.80	3.80	0.00	0.00
2.40	29.54	38.833	1,001.77	5.41	5.41	0.00	0.00
2.50	34.80	39.045	1,001.80	7.48	7.48	0.00	0.00
2.60	40.22	39.281	1,001.83	10.03	10.03	0.00	0.00
2.70	45.95	39.541	1,001.87	13.20	13.20	0.00	0.00
2.80	51.40	39.818	1,001.90	16.97	16.97	0.00	0.00
2.90	56.99	40.107	1,001.95	21.30	21.30	0.00	0.00
3.00	62.42	40.405	1,001.99	26.14	26.14	0.00	0.00
3.10	67.83	40.706	1,002.03	31.29	31.29	0.00	0.00
3.20	73.33	41.009	1,002.07	36.67	36.67	0.00	0.00
3.30	78.56	41.310	1,002.11	42.32	42.32	0.00	0.00
3.40	83.80	41.608	1,002.15	48.13	48.13	0.00	0.00
3.50	89.06	41.900	1,002.19	53.95	53.95	0.00	0.00
3.60	94.06	42.188	1,002.23	59.91	59.91	0.00	0.00
3.70	98.83	42.466	1,002.26	65.68	65.68	0.00	0.00
3.80	103.47	42.736	1,002.30	71.34	71.34	0.00	0.00
3.90	107.98	42.998	1,002.33	76.96	76.96	0.00	0.00
4.00	112.22	43.249	1,002.37	82.51	82.51	0.00	0.00
4.10	116.18	43.490	1,002.40	87.92	87.92	0.00	0.00
4.20	120.00	43.718	1,002.43	93.17	93.17	0.00	0.00
4.30	123.67	43.934	1,002.46	98.21	98.21	0.00	0.00
4.40	127.19	44.140	1,002.48	103.05	103.05	0.00	0.00
4.50	130.54	44.334	1,002.51	107.71	107.71	0.00	0.00
4.60	133.62	44.518	1,002.53	112.16	112.16	0.00	0.00
4.70	136.48	44.690	1,002.56	116.37	116.37	0.00	0.00
4.80	139.21	44.853	1,002.58	120.16	120.16	0.00	0.00
4.90	141.78	45.006	1,002.60	123.78	123.78	0.00	0.00
5.00	144.21	45.151	1,002.61	127.23	127.23	0.00	0.00
5.10	146.50	45.288	1,002.63	130.51	130.51	0.00	0.00
5.20	148.64	45.416	1,002.65	133.62	133.62	0.00	0.00

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continued

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
5.30	150.65	45.537	1,002.66	136.56	136.56	0.00	0.00
5.40	152.51	45.650	1,002.67	139.33	139.33	0.00	0.00
5.50	154.25	45.756	1,002.69	141.94	141.94	0.00	0.00
5.60	155.83	45.854	1,002.70	144.38	144.38	0.00	0.00
5.70	157.23	45.945	1,002.71	146.66	146.66	0.00	0.00
5.80	158.53	46.030	1,002.72	148.77	148.77	0.00	0.00
5.90	159.73	46.107	1,002.73	150.73	150.73	0.00	0.00
6.00	160.85	46.179	1,002.74	152.54	152.54	0.00	0.00
6.10	161.89	46.245	1,002.75	154.22	154.22	0.00	0.00
6.20	162.89	46.307	1,002.76	155.78	155.78	0.00	0.00
6.30	163.84	46.364	1,002.76	157.23	157.23	0.00	0.00
6.40	164.78	46.417	1,002.77	158.59	158.59	0.00	0.00
6.50	165.70	46.466	1,002.78	159.86	159.86	0.00	0.00
6.60	166.62	46.513	1,002.78	161.08	161.08	0.00	0.00
6.70	167.54	46.558	1,002.79	162.23	162.23	0.00	0.00
6.80	168.45	46.601	1,002.79	163.35	163.35	0.00	0.00
6.90	169.36	46.643	1,002.80	164.42	164.42	0.00	0.00
7.00	170.27	46.683	1,002.80	165.47	165.47	0.00	0.00
7.10	171.16	46.722	1,002.81	166.49	166.49	0.00	0.00
7.20	172.04	46.761	1,002.81	167.48	167.48	0.00	0.00
7.30	172.91	46.798	1,002.82	168.45	168.45	0.00	0.00
7.40	173.78	46.835	1,002.82	169.41	169.41	0.00	0.00
7.50	174.63	46.870	1,002.83	170.34	170.34	0.00	0.00
7.60	175.48	46.905	1,002.83	171.27	171.27	0.00	0.00
7.70	176.34	46.940	1,002.83	172.17	172.17	0.00	0.00
7.80	177.21	46.974	1,002.84	173.08	173.08	0.00	0.00
7.90	178.11	47.008	1,002.84	173.99	173.99	0.00	0.00
8.00	179.03	47.042	1,002.85	174.92	174.92	0.00	0.00
8.10	180.01	47.077	1,002.85	175.85	175.85	0.00	0.00
8.20	181.02	47.111	1,002.85	176.79	176.79	0.00	0.00
8.30	182.08	47.147	1,002.86	177.76	177.76	0.00	0.00
8.40	183.23	47.183	1,002.86	178.75	178.75	0.00	0.00
8.50	184.43	47.220	1,002.87	179.79	179.79	0.00	0.00
8.60	185.78	47.260	1,002.87	180.87	180.87	0.00	0.00
8.70	187.22	47.301	1,002.88	182.02	182.02	0.00	0.00
8.80	188.85	47.346	1,002.88	183.25	183.25	0.00	0.00
8.90	190.64	47.394	1,002.89	184.57	184.57	0.00	0.00
9.00	192.63	47.446	1,002.90	186.02	186.02	0.00	0.00
9.10	194.87	47.503	1,002.90	187.61	187.61	0.00	0.00
9.20	197.29	47.565	1,002.91	189.36	189.36	0.00	0.00
9.30	200.02	47.634	1,002.92	191.28	191.28	0.00	0.00
9.40	202.94	47.709	1,002.93	193.40	193.40	0.00	0.00
9.50	206.11	47.791	1,002.94	195.72	195.72	0.00	0.00
9.60	209.47	47.880	1,002.95	198.25	198.25	0.00	0.00
9.70	212.97	47.976	1,002.96	200.98	200.98	0.00	0.00
9.80	216.69	48.078	1,002.97	203.84	203.84	0.00	0.00
9.90	220.45	48.187	1,002.99	206.80	206.80	0.00	0.00
10.00	224.44	48.303	1,003.00	209.98	209.98	0.00	0.00
10.10	228.48	48.425	1,003.01	213.33	213.33	0.00	0.00
10.20	232.78	48.553	1,003.03	216.87	216.87	0.00	0.00
10.30	237.43	48.688	1,003.04	220.67	220.67	0.00	0.00
10.40	242.40	48.829	1,003.06	224.84	224.84	0.00	0.00
10.50	247.97	48.978	1,003.08	229.27	229.27	0.00	0.00

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continue

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
10.60	254.01	49.137	1,003.10	234.04	234.04	0.00	0.00
10.70	260.81	49.308	1,003.12	239.21	239.21	0.00	0.00
10.80	268.31	49.493	1,003.14	244.85	244.85	0.00	0.00
10.90	276.66	49.695	1,003.16	251.07	251.07	0.00	0.00
11.00	286.03	49.916	1,003.19	257.93	257.93	0.00	0.00
11.10	296.15	50.157	1,003.22	265.55	265.55	0.00	0.00
11.20	307.75	50.422	1,003.25	273.87	273.87	0.00	0.00
11.30	320.64	50.716	1,003.28	282.68	282.68	0.00	0.00
11.40	335.39	51.047	1,003.32	292.69	292.69	0.00	0.00
11.50	352.17	51.419	1,003.36	304.08	304.08	0.00	0.00
11.60	370.99	51.839	1,003.41	316.65	316.65	0.00	0.00
11.70	393.96	52.318	1,003.46	331.44	331.44	0.00	0.00
11.80	422.68	52.871	1,003.52	349.75	349.75	0.00	0.00
11.90	467.83	53.550	1,003.60	372.80	372.80	0.00	0.00
12.00	540.10	54.460	1,003.70	404.68	404.68	0.00	0.00
12.10	663.82	55.819	1,003.85	453.73	453.73	0.00	0.00
12.20	846.53	57.924	1,004.06	531.26	531.26	0.00	0.00
12.30	1,091.85	60.990	1,004.36	646.50	646.50	0.00	0.00
12.40	1,165.16	63.752	1,004.61	755.25	755.25	0.00	0.00
12.50	1,490.36	67.835	1,004.95	900.70	900.70	0.00	0.00
12.60	1,808.49	73.215	1,005.36	1,097.60	1,097.60	0.00	0.00
12.70	2,097.87	79.342	1,005.78	1,338.19	1,338.19	0.00	0.00
12.80	2,347.01	85.589	1,006.17	1,602.02	1,602.02	0.00	0.00
12.90	2,557.13	91.818	1,006.54	1,798.79	1,798.79	0.00	0.00
13.00	2,713.24	97.980	1,006.88	1,991.68	1,991.68	0.00	0.00
13.10	2,827.31	103.630	1,007.18	2,213.70	2,164.92	48.78	0.00
13.20	2,896.45	108.028	1,007.40	2,462.70	2,297.76	164.95	0.00
13.30	2,930.07	111.002	1,007.55	2,652.89	2,387.58	265.31	0.00
13.40	2,942.16	112.846	1,007.64	2,774.05	2,441.57	332.48	0.00
13.50	2,958.44	113.976	1,007.70	2,851.02	2,474.84	376.18	0.00
13.60	2,978.05	114.728	1,007.73	2,903.37	2,497.07	406.30	0.00
13.70	2,997.85	115.271	1,007.76	2,941.70	2,513.15	428.54	0.00
13.80	3,019.20	115.702	1,007.78	2,972.43	2,525.94	446.49	0.00
13.90	3,036.73	116.058	1,007.80	2,998.06	2,536.53	461.53	0.00
14.00	3,049.67	116.347	1,007.81	3,018.95	2,545.12	473.83	0.00
14.10	3,060.50	116.575	1,007.82	3,035.59	2,551.93	483.67	0.00
14.20	3,068.74	116.761	1,007.83	3,049.20	2,557.48	491.72	0.00
14.30	3,075.17	116.907	1,007.84	3,059.86	2,561.81	498.04	0.00
14.40	**3,077.08**	117.013	1,007.84	**3,067.66**	**2,564.98**	502.68	0.00
14.50	**3,076.69**	117.075	1,007.85	**3,071.00**	**2,565.59**	505.41	0.00
14.60	3,070.61	117.161	1,007.85	3,052.70	2,543.50	509.20	0.00
14.70	3,060.63	117.358	1,007.86	3,031.04	2,513.19	517.86	0.00
14.80	3,045.17	117.626	1,007.87	3,009.94	2,480.16	529.77	0.00
14.90	3,023.93	117.921	1,007.89	2,988.83	2,445.85	542.98	0.00
15.00	2,997.91	118.200	1,007.90	2,966.27	2,410.67	555.59	0.00
15.10	2,965.96	118.435	1,007.91	2,941.65	2,375.35	566.30	0.00
15.20	2,930.25	118.607	1,007.92	2,914.52	2,340.35	574.17	0.00
15.30	2,889.93	**118.698**	**1,007.92**	2,884.49	2,306.14	**578.35**	0.00
15.40	2,846.41	**118.703**	**1,007.93**	2,852.28	2,273.72	**578.57**	0.00
15.50	2,799.83	118.609	1,007.92	2,817.66	2,243.40	574.27	0.00
15.60	2,750.22	118.415	1,007.91	2,780.90	2,215.52	565.38	0.00
15.70	2,698.37	118.113	1,007.90	2,742.17	2,190.51	551.66	0.00
15.80	2,644.28	117.699	1,007.88	2,701.91	2,168.86	533.05	0.00

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continued

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
15.90	2,589.34	117.174	1,007.85	2,660.24	2,150.49	509.76	0.00
16.00	2,533.88	116.539	1,007.82	2,617.57	2,135.46	482.12	0.00
16.10	2,478.10	115.801	1,007.79	2,574.49	2,123.85	450.64	0.00
16.20	2,423.47	114.960	1,007.74	2,531.21	2,115.46	415.75	0.00
16.30	2,369.94	114.031	1,007.70	2,488.18	2,109.86	378.32	0.00
16.40	2,318.69	113.021	1,007.65	2,445.68	2,106.58	339.10	0.00
16.50	2,268.37	111.938	1,007.60	2,404.16	2,105.40	298.76	0.00
16.60	2,219.72	110.787	1,007.54	2,363.22	2,105.38	257.84	0.00
16.70	2,173.02	109.579	1,007.48	2,321.08	2,104.97	216.10	0.00
16.80	2,128.48	108.345	1,007.42	2,279.47	2,104.47	175.01	0.00
16.90	2,086.11	107.086	1,007.36	2,240.05	2,103.78	136.27	0.00
17.00	2,045.39	105.804	1,007.29	2,202.12	2,101.76	100.36	0.00
17.10	2,006.76	104.500	1,007.22	2,165.61	2,097.71	67.90	0.00
17.20	1,970.10	103.181	1,007.16	2,130.32	2,090.56	39.76	0.00
17.30	1,935.73	101.855	1,007.09	2,096.05	2,079.04	17.01	0.00
17.40	1,903.40	100.536	1,007.02	2,062.43	2,060.67	1.76	0.00
17.50	1,872.82	99.218	1,006.95	2,030.32	2,030.32	0.00	0.00
17.60	1,844.08	97.957	1,006.88	1,990.96	1,990.96	0.00	0.00
17.70	1,816.37	96.777	1,006.82	1,954.37	1,954.37	0.00	0.00
17.80	1,790.44	95.668	1,006.75	1,920.20	1,920.20	0.00	0.00
17.90	1,765.86	94.623	1,006.70	1,888.19	1,888.19	0.00	0.00
18.00	1,742.75	93.642	1,006.64	1,856.97	1,856.97	0.00	0.00
18.10	1,721.01	92.726	1,006.59	1,827.68	1,827.68	0.00	0.00
18.20	1,700.36	91.870	1,006.54	1,800.43	1,800.43	0.00	0.00
18.30	1,681.13	91.067	1,006.49	1,774.98	1,774.98	0.00	0.00
18.40	1,662.72	90.311	1,006.45	1,751.17	1,751.17	0.00	0.00
18.50	1,645.49	89.600	1,006.41	1,728.84	1,728.84	0.00	0.00
18.60	1,629.00	88.928	1,006.37	1,707.84	1,707.84	0.00	0.00
18.70	1,613.15	88.291	1,006.33	1,688.03	1,688.03	0.00	0.00
18.80	1,598.13	87.686	1,006.30	1,669.27	1,669.27	0.00	0.00
18.90	1,583.59	87.111	1,006.27	1,651.25	1,651.25	0.00	0.00
19.00	1,569.88	86.567	1,006.23	1,633.60	1,633.60	0.00	0.00
19.10	1,556.46	86.052	1,006.20	1,616.96	1,616.96	0.00	0.00
19.20	1,543.62	85.564	1,006.17	1,601.21	1,601.21	0.00	0.00
19.30	1,531.13	85.097	1,006.14	1,586.22	1,586.22	0.00	0.00
19.40	1,518.93	84.664	1,006.12	1,567.94	1,567.94	0.00	0.00
19.50	1,507.15	84.278	1,006.09	1,551.24	1,551.24	0.00	0.00
19.60	1,495.43	83.927	1,006.07	1,536.15	1,536.15	0.00	0.00
19.70	1,484.15	83.601	1,006.05	1,522.21	1,522.21	0.00	0.00
19.80	1,472.90	83.294	1,006.03	1,509.11	1,509.11	0.00	0.00
19.90	1,461.88	83.000	1,006.02	1,496.68	1,496.68	0.00	0.00
20.00	1,451.00	82.717	1,006.00	1,484.68	1,484.68	0.00	0.00
20.10	1,440.15	82.443	1,005.98	1,472.75	1,472.75	0.00	0.00
20.20	1,429.53	82.177	1,005.96	1,461.22	1,461.22	0.00	0.00
20.30	1,418.64	81.916	1,005.95	1,449.97	1,449.97	0.00	0.00
20.40	1,407.89	81.659	1,005.93	1,438.91	1,438.91	0.00	0.00
20.50	1,397.04	81.403	1,005.92	1,427.94	1,427.94	0.00	0.00
20.60	1,386.23	81.148	1,005.90	1,417.08	1,417.08	0.00	0.00
20.70	1,375.50	80.893	1,005.88	1,406.26	1,406.26	0.00	0.00
20.80	1,364.75	80.639	1,005.87	1,395.53	1,395.53	0.00	0.00
20.90	1,354.25	80.386	1,005.85	1,384.48	1,384.48	0.00	0.00
21.00	1,343.70	80.138	1,005.83	1,373.41	1,373.41	0.00	0.00
21.10	1,333.40	79.895	1,005.82	1,362.59	1,362.59	0.00	0.00

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continuec

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
21.20	1,323.18	79.655	1,005.80	1,351.97	1,351.97	0.00	0.00
21.30	1,313.11	79.418	1,005.79	1,341.56	1,341.56	0.00	0.00
21.40	1,303.24	79.184	1,005.77	1,331.30	1,331.30	0.00	0.00
21.50	1,293.40	78.954	1,005.75	1,321.21	1,321.21	0.00	0.00
21.60	1,283.86	78.725	1,005.74	1,311.28	1,311.28	0.00	0.00
21.70	1,274.33	78.499	1,005.72	1,301.50	1,301.50	0.00	0.00
21.80	1,265.02	78.276	1,005.71	1,291.88	1,291.88	0.00	0.00
21.90	1,255.83	78.055	1,005.69	1,282.38	1,282.38	0.00	0.00
22.00	1,246.74	77.837	1,005.68	1,273.05	1,273.05	0.00	0.00
22.10	1,237.76	77.620	1,005.67	1,263.82	1,263.82	0.00	0.00
22.20	1,228.77	77.405	1,005.65	1,254.70	1,254.70	0.00	0.00
22.30	1,220.07	77.192	1,005.64	1,245.96	1,245.96	0.00	0.00
22.40	1,211.39	76.975	1,005.62	1,237.89	1,237.89	0.00	0.00
22.50	1,202.90	76.755	1,005.61	1,229.71	1,229.71	0.00	0.00
22.60	1,194.54	76.533	1,005.59	1,221.48	1,221.48	0.00	0.00
22.70	1,186.27	76.310	1,005.58	1,213.26	1,213.26	0.00	0.00
22.80	1,178.22	76.088	1,005.56	1,205.07	1,205.07	0.00	0.00
22.90	1,170.17	75.866	1,005.55	1,196.94	1,196.94	0.00	0.00
23.00	1,162.36	75.646	1,005.53	1,188.90	1,188.90	0.00	0.00
23.10	1,154.60	75.427	1,005.52	1,180.93	1,180.93	0.00	0.00
23.20	1,146.97	75.210	1,005.50	1,173.08	1,173.08	0.00	0.00
23.30	1,139.38	74.995	1,005.49	1,165.30	1,165.30	0.00	0.00
23.40	1,131.73	74.781	1,005.47	1,157.59	1,157.59	0.00	0.00
23.50	1,124.24	74.568	1,005.46	1,149.93	1,149.93	0.00	0.00
23.60	1,116.68	74.356	1,005.45	1,142.23	1,142.23	0.00	0.00
23.70	1,109.31	74.148	1,005.43	1,134.03	1,134.03	0.00	0.00
23.80	1,101.97	73.946	1,005.42	1,126.08	1,126.08	0.00	0.00
23.90	1,094.74	73.749	1,005.40	1,118.36	1,118.36	0.00	0.00
24.00	1,087.65	73.555	1,005.39	1,110.80	1,110.80	0.00	0.00
24.10	1,080.57	73.365	1,005.37	1,103.41	1,103.41	0.00	0.00
24.20	1,073.51	73.177	1,005.36	1,096.13	1,096.13	0.00	0.00
24.30	1,066.13	72.990	1,005.34	1,088.88	1,088.88	0.00	0.00
24.40	1,058.42	72.801	1,005.33	1,081.60	1,081.60	0.00	0.00
24.50	1,050.04	72.606	1,005.32	1,074.13	1,074.13	0.00	0.00
24.60	1,040.73	72.402	1,005.30	1,066.32	1,066.32	0.00	0.00
24.70	1,030.50	72.184	1,005.28	1,058.00	1,058.00	0.00	0.00
24.80	1,019.04	71.948	1,005.27	1,049.02	1,049.02	0.00	0.00
24.90	1,006.84	71.691	1,005.25	1,039.31	1,039.31	0.00	0.00
25.00	993.88	71.413	1,005.23	1,028.85	1,028.85	0.00	0.00
25.10	980.60	71.115	1,005.20	1,017.73	1,017.73	0.00	0.00
25.20	967.09	70.801	1,005.18	1,006.04	1,006.04	0.00	0.00
25.30	953.55	70.474	1,005.16	993.92	993.92	0.00	0.00
25.40	940.18	70.136	1,005.13	981.77	981.77	0.00	0.00
25.50	927.11	69.788	1,005.11	969.87	969.87	0.00	0.00
25.60	914.38	69.432	1,005.08	957.78	957.78	0.00	0.00
25.70	901.92	69.072	1,005.05	945.61	945.61	0.00	0.00
25.80	889.67	68.711	1,005.03	933.06	933.06	0.00	0.00
25.90	877.52	68.356	1,005.00	919.89	919.89	0.00	0.00
26.00	865.42	68.009	1,004.97	907.07	907.07	0.00	0.00
26.10	853.52	67.667	1,004.94	894.54	894.54	0.00	0.00
26.20	841.75	67.330	1,004.91	882.25	882.25	0.00	0.00
26.30	830.09	66.997	1,004.88	870.18	870.18	0.00	0.00
26.40	818.55	66.667	1,004.86	858.29	858.29	0.00	0.00

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
26.50	807.13	66.340	1,004.83	846.57	846.57	0.00	0.00
26.60	795.85	66.015	1,004.80	835.00	835.00	0.00	0.00
26.70	784.69	65.692	1,004.78	823.58	823.58	0.00	0.00
26.80	773.68	65.372	1,004.75	812.30	812.30	0.00	0.00
26.90	762.81	65.054	1,004.72	801.17	801.17	0.00	0.00
27.00	752.09	64.738	1,004.70	790.18	790.18	0.00	0.00
27.10	741.53	64.424	1,004.67	779.33	779.33	0.00	0.00
27.20	731.05	64.112	1,004.65	768.63	768.63	0.00	0.00
27.30	720.68	63.804	1,004.62	757.41	757.41	0.00	0.00
27.40	710.50	63.508	1,004.59	745.34	745.34	0.00	0.00
27.50	700.53	63.226	1,004.57	733.92	733.92	0.00	0.00
27.60	690.76	62.954	1,004.54	723.01	723.01	0.00	0.00
27.70	681.18	62.691	1,004.52	712.53	712.53	0.00	0.00
27.80	671.82	62.435	1,004.49	702.39	702.39	0.00	0.00
27.90	662.66	62.185	1,004.47	692.56	692.56	0.00	0.00
28.00	653.69	61.940	1,004.45	682.99	682.99	0.00	0.00
28.10	644.91	61.700	1,004.43	673.68	673.68	0.00	0.00
28.20	636.32	61.464	1,004.40	664.59	664.59	0.00	0.00
28.30	627.92	61.232	1,004.38	655.71	655.71	0.00	0.00
28.40	619.71	61.005	1,004.36	647.04	647.04	0.00	0.00
28.50	611.70	60.780	1,004.34	638.57	638.57	0.00	0.00
28.60	603.83	60.560	1,004.32	630.29	630.29	0.00	0.00
28.70	596.08	60.343	1,004.30	622.17	622.17	0.00	0.00
28.80	588.53	60.129	1,004.28	614.23	614.23	0.00	0.00
28.90	581.18	59.918	1,004.26	606.45	606.45	0.00	0.00
29.00	574.02	59.710	1,004.24	598.85	598.85	0.00	0.00
29.10	567.04	59.507	1,004.22	591.43	591.43	0.00	0.00
29.20	560.25	59.307	1,004.20	584.06	584.06	0.00	0.00
29.30	553.64	59.114	1,004.18	576.47	576.47	0.00	0.00
29.40	547.19	58.928	1,004.17	569.21	569.21	0.00	0.00
29.50	540.91	58.749	1,004.15	562.24	562.24	0.00	0.00
29.60	534.78	58.575	1,004.13	555.59	555.59	0.00	0.00
29.70	528.81	58.405	1,004.11	549.18	549.18	0.00	0.00
29.80	522.99	58.238	1,004.10	542.93	542.93	0.00	0.00
29.90	517.31	58.075	1,004.08	536.85	536.85	0.00	0.00
30.00	511.77	57.915	1,004.06	530.92	530.92	0.00	0.00
30.10	506.36	57.758	1,004.05	525.13	525.13	0.00	0.00
30.20	501.09	57.604	1,004.03	519.49	519.49	0.00	0.00
30.30	495.94	57.453	1,004.02	513.98	513.98	0.00	0.00
30.40	490.91	57.305	1,004.00	508.61	508.61	0.00	0.00
30.50	485.92	57.161	1,003.99	503.17	503.17	0.00	0.00
30.60	481.04	57.020	1,003.97	497.87	497.87	0.00	0.00
30.70	476.27	56.882	1,003.96	492.71	492.71	0.00	0.00
30.80	471.61	56.748	1,003.94	487.70	487.70	0.00	0.00
30.90	467.06	56.616	1,003.93	482.81	482.81	0.00	0.00
31.00	462.61	56.487	1,003.92	478.04	478.04	0.00	0.00
31.10	458.26	56.360	1,003.90	473.39	473.39	0.00	0.00
31.20	454.01	56.236	1,003.89	468.85	468.85	0.00	0.00
31.30	449.85	56.115	1,003.88	464.42	464.42	0.00	0.00
31.40	445.79	55.995	1,003.86	460.08	460.08	0.00	0.00
31.50	441.81	55.878	1,003.85	455.85	455.85	0.00	0.00
31.60	437.92	55.763	1,003.84	451.71	451.71	0.00	0.00
31.70	434.12	55.650	1,003.83	447.65	447.65	0.00	0.00

Hydrograph for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (continuec

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
31.80	430.42	55.539	1,003.82	443.69	443.69	0.00	0.00
31.90	426.82	55.431	1,003.80	439.83	439.83	0.00	0.00
32.00	423.30	55.324	1,003.79	436.02	436.02	0.00	0.00
32.10	419.87	55.220	1,003.78	432.21	432.21	0.00	0.00
32.20	416.52	55.120	1,003.77	428.52	428.52	0.00	0.00
32.30	413.25	55.022	1,003.76	424.94	424.94	0.00	0.00
32.40	410.05	54.926	1,003.75	421.46	421.46	0.00	0.00
32.50	406.92	54.833	1,003.74	418.08	418.08	0.00	0.00
32.60	403.87	54.742	1,003.73	414.78	414.78	0.00	0.00
32.70	400.87	54.652	1,003.72	411.56	411.56	0.00	0.00
32.80	397.95	54.565	1,003.71	408.42	408.42	0.00	0.00
32.90	395.09	54.479	1,003.70	405.35	405.35	0.00	0.00
33.00	392.29	54.395	1,003.69	402.36	402.36	0.00	0.00
33.10	389.56	54.312	1,003.68	399.43	399.43	0.00	0.00
33.20	386.89	54.231	1,003.67	396.56	396.56	0.00	0.00
33.30	384.27	54.152	1,003.66	393.77	393.77	0.00	0.00
33.40	381.69	54.074	1,003.66	391.03	391.03	0.00	0.00
33.50	379.18	53.998	1,003.65	388.34	388.34	0.00	0.00
33.60	376.74	53.923	1,003.64	385.72	385.72	0.00	0.00
33.70	374.36	53.849	1,003.63	383.15	383.15	0.00	0.00
33.80	372.05	53.777	1,003.62	380.65	380.65	0.00	0.00
33.90	369.80	53.707	1,003.62	378.21	378.21	0.00	0.00
34.00	367.61	53.638	1,003.61	375.83	375.83	0.00	0.00
34.10	365.47	53.571	1,003.60	373.51	373.51	0.00	0.00
34.20	363.39	53.505	1,003.59	371.25	371.25	0.00	0.00
34.30	361.37	53.441	1,003.59	369.05	369.05	0.00	0.00
34.40	359.40	53.378	1,003.58	366.90	366.90	0.00	0.00
34.50	357.48	53.317	1,003.57	364.80	364.80	0.00	0.00
34.60	355.60	53.257	1,003.57	362.76	362.76	0.00	0.00
34.70	353.75	53.198	1,003.56	360.77	360.77	0.00	0.00
34.80	351.94	53.141	1,003.55	358.82	358.82	0.00	0.00
34.90	350.15	53.084	1,003.55	356.92	356.92	0.00	0.00
35.00	348.40	53.029	1,003.54	355.05	355.05	0.00	0.00
35.10	346.68	52.974	1,003.53	353.21	353.21	0.00	0.00
35.20	344.98	52.921	1,003.53	351.41	351.41	0.00	0.00
35.30	343.33	52.868	1,003.52	349.65	349.65	0.00	0.00
35.40	341.70	52.816	1,003.52	347.91	347.91	0.00	0.00
35.50	340.10	52.765	1,003.51	346.21	346.21	0.00	0.00
35.60	338.54	52.715	1,003.51	344.54	344.54	0.00	0.00
35.70	337.00	52.666	1,003.50	342.91	342.91	0.00	0.00
35.80	335.49	52.617	1,003.50	341.30	341.30	0.00	0.00
35.90	334.02	52.570	1,003.49	339.73	339.73	0.00	0.00
36.00	0.00	52.523	1,003.48	338.18	338.18	0.00	0.00

Stage-Area-Storage for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
987.68	0.500	0.000	997.22	2.836	15.992
987.86	0.544	0.094	997.40	2.887	16.507
988.04	0.589	0.196	997.58	2.938	17.032
988.22	0.636	0.306	997.76	2.990	17.565
988.40	0.685	0.425	997.94	3.042	18.108
988.58	0.736	0.553	998.12	3.218	18.668
988.76	0.788	0.690	998.30	3.461	19.269
988.94	0.843	0.837	998.48	3.714	19.914
989.12	0.899	0.993	998.66	3.976	20.606
989.30	0.957	1.160	998.84	4.247	21.346
989.48	1.017	1.338	999.02	4.526	22.136
989.66	1.079	1.527	999.20	4.814	22.976
989.84	1.142	1.726	999.38	5.112	23.869
990.02	1.203	1.938	999.56	5.418	24.817
990.20	1.235	2.157	999.74	5.733	25.820
990.38	1.267	2.382	999.92	6.057	26.881
990.56	1.300	2.613	1,000.10	6.235	27.994
990.74	1.333	2.850	1,000.28	6.292	29.121
990.92	1.366	3.093	1,000.46	6.349	30.259
991.10	1.400	3.342	1,000.64	6.407	31.407
991.28	1.434	3.597	1,000.82	6.464	32.565
991.46	1.468	3.858	1,001.00	6.522	33.734
991.64	1.503	4.126	1,001.18	6.580	34.913
991.82	1.539	4.400	1,001.36	6.639	36.103
992.00	1.575	4.680	1,001.54	6.697	37.303
992.18	1.611	4.966	1,001.72	6.842	38.518
992.36	1.647	5.260	1,001.90	7.099	39.772
992.54	1.684	5.560	1,002.08	7.331	41.072
992.72	1.722	5.866	1,002.26	7.532	42.410
992.90	1.760	6.179	1,002.44	7.735	43.784
993.08	1.798	6.500	1,002.62	7.941	45.195
993.26	1.837	6.827	1,002.80	8.150	46.643
993.44	1.876	7.161	1,002.98	8.361	48.129
993.62	1.915	7.502	1,003.16	8.575	49.653
993.80	1.955	7.850	1,003.34	8.792	51.216
993.98	1.995	8.206	1,003.52	9.011	52.818
994.16	2.038	8.569	1,003.70	9.234	54.460
994.34	2.081	8.940	1,003.88	9.459	56.143
994.52	2.125	9.318	1,004.06	9.781	57.868
994.70	2.169	9.705	1,004.24	10.303	59.676
994.88	2.214	10.099	1,004.42	10.839	61.578
995.06	2.259	10.502	1,004.60	11.388	63.579
995.24	2.305	10.913	1,004.78	11.951	65.679
995.42	2.351	11.332	1,004.96	12.528	67.882
995.60	2.397	11.759	1,005.14	13.118	70.190
995.78	2.444	12.194	1,005.32	13.721	72.605
995.96	2.491	12.639	1,005.50	14.338	75.130
996.14	2.539	13.091	1,005.68	14.969	77.768
996.32	2.587	13.553	1,005.86	15.613	80.520
996.50	2.636	14.023	1,006.04	16.225	83.388
996.68	2.685	14.502	1,006.22	16.685	86.350
996.86	2.735	14.990	1,006.40	17.151	89.395
997.04	2.785	15.486	1,006.58	17.624	92.525

Stage-Area-Storage for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (conti

Elevation (feet)	Surface (acres)	Storage (acre-feet)
1,006.76	18.103	95.740
1,006.94	18.588	99.042
1,007.12	19.080	102.432
1,007.30	19.578	105.911
1,007.48	20.083	109.481
1,007.66	20.594	113.142
1,007.84	21.112	116.895
1,008.02	21.652	120.742
1,008.20	22.329	124.701
1,008.38	23.016	128.781
1,008.56	23.714	132.987
1,008.74	24.423	137.319
1,008.92	25.142	141.780
1,009.10	25.871	146.371
1,009.28	26.611	151.094
1,009.46	27.361	155.951
1,009.64	28.122	160.945
1,009.82	28.893	166.076
1,010.00	29.674	171.347
1,010.18	30.504	176.762
1,010.36	31.345	182.329
1,010.54	32.198	188.047
1,010.72	33.063	193.921
1,010.90	33.938	199.951
1,011.08	34.826	206.139
1,011.26	35.724	212.489
1,011.44	36.634	219.001
1,011.62	37.556	225.678
1,011.80	38.489	232.522
1,011.98	39.433	239.534
1,012.16	41.575	246.813
1,012.34	43.927	254.507
1,012.52	46.344	262.630
1,012.70	48.826	271.195
1,012.88	51.372	280.211
1,013.06	53.983	289.692
1,013.24	56.658	299.649
1,013.42	59.399	310.093
1,013.60	62.204	321.037
1,013.78	65.074	332.491
1,013.96	68.008	344.467
1,014.14	69.031	356.839
1,014.32	69.498	369.307
1,014.50	69.966	381.859
1,014.68	70.436	394.495
1,014.86	70.907	407.216
1,015.04	71.380	420.021
1,015.22	71.854	432.912
1,015.40	72.331	445.889
1,015.58	72.808	458.952
1,015.76	73.287	472.100
1,015.94	73.768	485.335
1,016.12	74.251	498.657
1,016.30	74.735	512.065
1,016.48	75.220	525.561
1,016.66	75.707	539.145
1,016.84	76.196	552.816
1,017.02	76.686	566.575
1,017.20	77.178	580.423
1,017.38	77.671	594.360
1,017.56	78.166	608.385
1,017.74	78.663	622.499
1,017.92	79.161	636.704
1,018.10	79.661	650.998
1,018.28	80.162	665.382
1,018.46	80.665	679.856
1,018.64	81.169	694.421
1,018.82	81.675	709.077
1,019.00	82.183	723.824
1,019.18	82.692	738.663
1,019.36	83.202	753.593
1,019.54	83.715	768.616
1,019.72	84.228	783.730
1,019.90	84.744	798.938
1,020.08	85.261	814.238
1,020.26	85.779	829.632
1,020.44	86.299	845.119
1,020.62	86.821	860.700
1,020.80	87.344	876.375
1,020.98	87.869	892.144
1,021.16	88.396	908.008
1,021.34	88.924	923.966
1,021.52	89.453	940.020
1,021.70	89.984	956.170
1,021.88	90.517	972.415
1,022.06	91.051	988.756
1,022.24	91.587	1,005.193
1,022.42	92.124	1,021.727
1,022.60	92.663	1,038.358
1,022.78	93.204	1,055.086
1,022.96	93.746	1,071.912
1,023.14	94.290	1,088.835
1,023.32	94.835	1,105.856
1,023.50	95.382	1,122.976
1,023.68	95.930	1,140.194
1,023.86	96.480	1,157.511
1,024.04	97.032	1,174.927
1,024.22	97.585	1,192.442
1,024.40	98.140	1,210.057
1,024.58	98.696	1,227.772
1,024.76	99.254	1,245.588
1,024.94	**99.813**	**1,263.504**
1,025.12	**100.000**	**1,269.498**
1,025.30	100.000	1,269.498
1,025.48	100.000	1,269.498
1,025.66	100.000	1,269.498

ıge-Area-Storage for Pond 1P: Sippo Creek Reservoir - Proposed Conditions Raise Crest El 1007 (contir

Elevation (feet)	Surface (acres)	Storage (acre-feet)
1,025.84	100.000	1,269.498
1,026.02	100.000	1,269.498
1,026.20	100.000	1,269.498
1,026.38	100.000	1,269.498
1,026.56	100.000	1,269.498
1,026.74	100.000	1,269.498
1,026.92	100.000	1,269.498
1,027.10	100.000	1,269.498
1,027.28	100.000	1,269.498
1,027.46	100.000	1,269.498
1,027.64	100.000	1,269.498
1,027.82	100.000	1,269.498
1,028.00	100.000	1,269.498
1,028.18	100.000	1,269.498
1,028.36	100.000	1,269.498
1,028.54	100.000	1,269.498
1,028.72	100.000	1,269.498
1,028.90	100.000	1,269.498

Summary for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 3.28" for 1000 year-FEMA event
Inflow = 3,071.75 cfs @ 14.49 hrs, Volume= 2,588.408 af
Outflow = 2,673.49 cfs @ 15.87 hrs, Volume= 2,586.868 af, Atten= 13%, Lag= 83.2 min
Primary = 2,673.49 cfs @ 15.87 hrs, Volume= 2,586.868 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 1,004.84' @ 15.87 hrs Surf.Area= 11.702 ac Storage= 157.023 af
Flood Elev= 1,008.00' Surf.Area= 13.465 ac Storage= 197.028 af

Plug-Flow detention time= 22.3 min calculated for 2,586.150 af (100% of inflow)
Center-of-Mass det. time= 21.7 min (1,190.5 - 1,168.8)

Volume	Invert	Avail.Storage	Storage Description
#1	978.00'	371.368 af	**Stage Storage in Sippo Park (Irregular)** Listed below (Recalc)

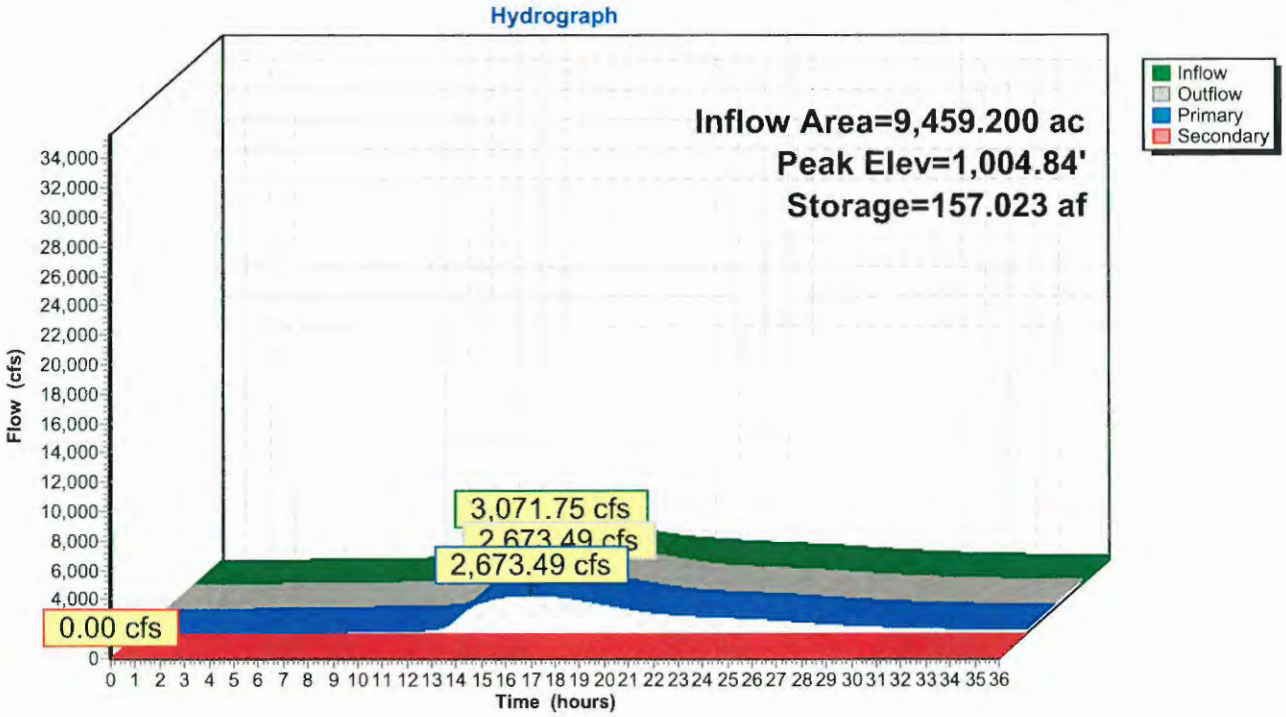
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
978.00	0.100	200.0	0.000	0.000	0.100
981.00	0.300	500.0	0.573	0.573	0.484
982.00	0.659	1,392.9	0.468	1.041	3.572
984.00	2.018	2,470.7	2.553	3.595	11.180
986.00	3.584	3,300.7	5.528	9.122	19.932
988.00	5.007	3,247.5	8.551	17.674	20.586
990.00	6.111	3,143.9	11.100	28.773	21.805
992.00	6.773	3,217.1	12.878	41.652	22.668
994.00	7.411	3,271.9	14.179	55.831	23.334
996.00	8.110	3,253.8	15.516	71.347	23.597
998.00	8.804	3,273.8	16.909	88.256	23.878
1,000.00	9.441	3,318.6	18.241	106.497	24.439
1,002.00	10.181	3,437.0	19.617	126.114	25.908
1,004.00	11.109	3,548.6	21.283	147.398	27.341
1,006.00	12.538	3,553.4	23.633	171.030	27.516
1,008.00	13.465	3,829.8	25.997	197.028	31.248
1,010.00	14.326	4,085.3	27.787	224.814	34.947
1,012.00	15.633	4,329.5	29.949	254.764	38.706
1,014.00	17.576	4,742.6	33.190	287.954	45.555
1,016.00	20.521	5,940.5	38.059	326.013	68.935
1,018.00	24.905	6,310.6	45.355	371.368	77.223

Device	Routing	Invert	Outlet Devices
#1	Primary	978.25'	**168.0" W x 98.0" H Box Box Culvert** L= 121.8' Ke= 0.400 Inlet / Outlet Invert= 978.25' / 978.13' S= 0.0010 '/' Cc= 0.900 n= 0.015 Brickwork
#2	Secondary	1,008.00'	**Linclon Way (172), Cv= 2.63 (C= 3.29)** Head (feet) 0.00 1.00 2.00 4.00 6.00 8.00 10.00 Width (feet) 233.00 373.00 475.00 630.00 790.00 940.00 1,090.00

Primary OutFlow Max=2,673.49 cfs @ 15.87 hrs HW=1,004.84' TW=983.91' (Dynamic Tailwater)
└─**1=Box Culvert** (Inlet Controls 2,673.49 cfs @ 23.38 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=978.00' TW=978.13' (Dynamic Tailwater)
└─**2=Linclon Way (172)** (Controls 0.00 cfs)

Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-



Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	978.00	0.00	0.00	**0.00**
0.10	0.00	0.000	978.00	0.00	0.00	0.00
0.20	0.00	0.000	978.00	0.00	0.00	0.00
0.30	0.00	0.000	978.00	0.00	0.00	0.00
0.40	0.00	0.000	978.00	0.00	0.00	0.00
0.50	0.00	0.000	978.00	0.00	0.00	0.00
0.60	0.00	0.000	978.00	0.00	0.00	0.00
0.70	0.00	0.000	978.00	0.00	0.00	0.00
0.80	0.00	0.000	978.00	0.00	0.00	0.00
0.90	0.00	0.000	978.00	0.00	0.00	0.00
1.00	0.00	0.000	978.00	0.00	0.00	0.00
1.10	0.00	0.000	978.00	0.00	0.00	0.00
1.20	0.00	0.000	978.00	0.00	0.00	0.00
1.30	0.00	0.000	978.00	0.00	0.00	0.00
1.40	0.01	0.000	978.00	0.00	0.00	0.00
1.50	0.03	0.000	978.00	0.00	0.00	0.00
1.60	0.07	0.001	978.01	0.00	0.00	0.00
1.70	0.16	0.001	978.01	0.00	0.00	0.00
1.80	0.31	0.003	978.03	0.00	0.00	0.00
1.90	0.58	0.007	978.06	0.00	0.00	0.00
2.00	1.00	0.013	978.12	0.00	0.00	0.00
2.10	1.64	0.023	978.22	0.00	0.00	0.00
2.20	2.56	0.039	978.36	0.68	0.68	0.00
2.30	3.80	0.053	978.47	2.33	2.33	0.00
2.40	5.41	0.064	978.55	4.13	4.13	0.00
2.50	7.48	0.075	978.63	6.18	6.18	0.00
2.60	10.03	0.086	978.72	8.65	8.65	0.00
2.70	13.20	0.097	978.81	11.64	11.64	0.00
2.80	16.97	0.112	978.90	15.09	15.09	0.00
2.90	21.30	0.128	979.00	19.31	19.31	0.00
3.00	26.14	0.144	979.11	24.10	24.10	0.00
3.10	31.29	0.161	979.22	29.17	29.17	0.00
3.20	36.67	0.180	979.32	34.38	34.38	0.00
3.30	42.32	0.199	979.42	40.03	40.03	0.00
3.40	48.13	0.217	979.53	45.92	45.92	0.00
3.50	53.95	0.235	979.62	51.64	51.64	0.00
3.60	59.91	0.255	979.72	57.49	57.49	0.00
3.70	65.68	0.275	979.81	63.44	63.44	0.00
3.80	71.34	0.293	979.90	69.18	69.18	0.00
3.90	76.96	0.310	979.98	74.88	74.88	0.00
4.00	82.51	0.328	980.06	80.26	80.26	0.00
4.10	87.92	0.347	980.14	85.75	85.75	0.00
4.20	93.17	0.364	980.21	91.11	91.11	0.00
4.30	98.21	0.381	980.28	96.27	96.27	0.00
4.40	103.05	0.396	980.35	101.22	101.22	0.00
4.50	107.71	0.411	980.41	105.87	105.87	0.00
4.60	112.16	0.427	980.47	110.31	110.31	0.00
4.70	116.37	0.441	980.53	114.65	114.65	0.00
4.80	120.16	0.455	980.58	118.62	118.62	0.00
4.90	123.78	0.467	980.62	122.33	122.33	0.00
5.00	127.23	0.479	980.67	125.86	125.86	0.00
5.10	130.51	0.490	980.71	129.22	129.22	0.00
5.20	133.62	0.500	980.75	132.41	132.41	0.00

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
5.30	136.56	0.510	980.78	135.42	135.42	0.00
5.40	139.33	0.519	980.82	138.19	138.19	0.00
5.50	141.94	0.529	980.85	140.85	140.85	0.00
5.60	144.38	0.537	980.88	143.37	143.37	0.00
5.70	146.66	0.545	980.90	145.72	145.72	0.00
5.80	148.77	0.553	980.93	147.91	147.91	0.00
5.90	150.73	0.560	980.95	149.93	149.93	0.00
6.00	152.54	0.566	980.98	151.81	151.81	0.00
6.10	154.22	0.572	981.00	153.54	153.54	0.00
6.20	155.78	0.578	981.01	155.08	155.08	0.00
6.30	157.23	0.583	981.03	156.57	156.57	0.00
6.40	158.59	0.589	981.05	157.97	157.97	0.00
6.50	159.86	0.594	981.06	159.28	159.28	0.00
6.60	161.08	0.598	981.08	160.53	160.53	0.00
6.70	162.23	0.603	981.09	161.71	161.71	0.00
6.80	163.35	0.607	981.10	162.84	162.84	0.00
6.90	164.42	0.611	981.12	163.94	163.94	0.00
7.00	165.47	0.615	981.13	165.00	165.00	0.00
7.10	166.49	0.619	981.14	166.03	166.03	0.00
7.20	167.48	0.623	981.15	167.03	167.03	0.00
7.30	168.45	0.626	981.16	168.02	168.02	0.00
7.40	169.41	0.630	981.17	168.98	168.98	0.00
7.50	170.34	0.633	981.18	169.93	169.93	0.00
7.60	171.27	0.637	981.19	170.86	170.86	0.00
7.70	172.17	0.640	981.20	171.72	171.72	0.00
7.80	173.08	0.644	981.21	172.57	172.57	0.00
7.90	173.99	0.649	981.22	173.46	173.46	0.00
8.00	174.92	0.653	981.23	174.39	174.39	0.00
8.10	175.85	0.657	981.24	175.31	175.31	0.00
8.20	176.79	0.662	981.25	176.25	176.25	0.00
8.30	177.76	0.666	981.26	177.21	177.21	0.00
8.40	178.75	0.671	981.27	178.18	178.18	0.00
8.50	179.79	0.676	981.29	179.20	179.20	0.00
8.60	180.87	0.681	981.30	180.25	180.25	0.00
8.70	182.02	0.686	981.31	181.37	181.37	0.00
8.80	183.25	0.691	981.32	182.55	182.55	0.00
8.90	184.57	0.697	981.34	183.82	183.82	0.00
9.00	186.02	0.704	981.35	185.21	185.21	0.00
9.10	187.61	0.711	981.37	186.72	186.72	0.00
9.20	189.36	0.718	981.39	188.38	188.38	0.00
9.30	191.28	0.727	981.40	190.21	190.21	0.00
9.40	193.40	0.736	981.43	192.22	192.22	0.00
9.50	195.72	0.746	981.45	194.43	194.43	0.00
9.60	198.25	0.757	981.48	196.85	196.85	0.00
9.70	200.98	0.769	981.50	199.48	199.48	0.00
9.80	203.84	0.782	981.53	202.28	202.28	0.00
9.90	206.80	0.795	981.56	205.18	205.18	0.00
10.00	209.98	0.809	981.60	208.25	208.25	0.00
10.10	213.33	0.825	981.63	211.06	211.06	0.00
10.20	216.87	0.845	981.66	214.36	214.36	0.00
10.30	220.67	0.866	981.70	217.95	217.95	0.00
10.40	224.84	0.890	981.74	221.90	221.90	0.00
10.50	229.27	0.915	981.78	226.14	226.14	0.00

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
10.60	234.04	0.941	981.83	230.70	230.70	0.00
10.70	239.21	0.970	981.88	235.61	235.61	0.00
10.80	244.85	1.001	981.93	240.95	240.95	0.00
10.90	251.07	1.034	981.99	246.80	246.80	0.00
11.00	257.93	1.074	982.04	252.37	252.37	0.00
11.10	265.55	1.124	982.11	259.04	259.04	0.00
11.20	273.87	1.180	982.18	266.70	266.70	0.00
11.30	282.68	1.241	982.26	275.01	275.01	0.00
11.40	292.69	1.308	982.35	284.17	284.17	0.00
11.50	304.08	1.383	982.44	293.55	293.55	0.00
11.60	316.65	1.479	982.53	303.98	303.98	0.00
11.70	331.44	1.592	982.65	316.34	316.34	0.00
11.80	349.75	1.728	982.79	331.55	331.55	0.00
11.90	372.80	1.903	982.93	347.61	347.61	0.00
12.00	404.68	2.144	983.12	369.76	369.76	0.00
12.10	453.73	2.499	983.37	398.48	398.48	0.00
12.20	531.26	3.072	983.72	440.57	440.57	0.00
12.30	646.50	4.014	984.19	500.17	500.17	0.00
12.40	755.25	5.336	984.76	573.99	573.99	0.00
12.50	900.70	7.037	985.36	656.52	656.52	0.00
12.60	1,097.60	9.385	986.07	757.44	757.44	0.00
12.70	1,338.19	12.605	986.89	881.04	881.04	0.00
12.80	1,602.02	16.857	987.83	1,029.07	1,029.07	0.00
12.90	1,798.79	21.741	988.78	1,186.28	1,186.28	0.00
13.00	1,991.68	27.068	989.72	1,330.10	1,330.10	0.00
13.10	2,213.70	32.660	990.62	1,496.51	1,496.51	0.00
13.20	2,462.70	38.942	991.60	1,652.82	1,652.82	0.00
13.30	2,652.89	46.026	992.64	1,753.17	1,753.17	0.00
13.40	2,774.05	53.583	993.69	1,850.36	1,850.36	0.00
13.50	2,851.02	61.189	994.71	1,939.27	1,939.27	0.00
13.60	2,903.37	68.628	995.66	2,019.06	2,019.06	0.00
13.70	2,941.70	75.815	996.54	2,090.44	2,090.44	0.00
13.80	2,972.43	82.725	997.36	2,154.68	2,154.68	0.00
13.90	2,998.06	89.361	998.12	2,212.85	2,212.85	0.00
14.00	3,018.95	95.731	998.84	2,265.91	2,265.91	0.00
14.10	3,035.59	101.836	999.50	2,314.43	2,314.43	0.00
14.20	3,049.20	107.680	1,000.12	2,359.00	2,359.00	0.00
14.30	3,059.86	113.270	1,000.71	2,400.00	2,400.00	0.00
14.40	**3,067.66**	118.613	1,001.25	2,437.75	2,437.75	0.00
14.50	**3,071.00**	123.706	1,001.76	2,472.50	2,472.50	0.00
14.60	3,052.70	128.472	1,002.23	2,504.02	2,504.02	0.00
14.70	3,031.04	132.819	1,002.65	2,531.91	2,531.91	0.00
14.80	3,009.94	136.771	1,003.02	2,556.57	2,556.57	0.00
14.90	2,988.83	140.356	1,003.36	2,578.41	2,578.41	0.00
15.00	2,966.27	143.592	1,003.65	2,597.74	2,597.74	0.00
15.10	2,941.65	146.484	1,003.92	2,614.65	2,614.65	0.00
15.20	2,914.52	149.031	1,004.15	2,629.26	2,629.26	0.00
15.30	2,884.49	151.231	1,004.34	2,641.72	2,641.72	0.00
15.40	2,852.28	153.079	1,004.50	2,651.98	2,651.98	0.00
15.50	2,817.66	154.575	1,004.63	2,660.19	2,660.19	0.00
15.60	2,780.90	155.717	1,004.73	2,666.43	2,666.43	0.00
15.70	2,742.17	156.503	1,004.80	2,670.71	2,670.71	0.00
15.80	2,701.91	**156.935**	**1,004.84**	**2,673.00**	**2,673.00**	0.00

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
15.90	2,660.24	**157.017**	**1,004.84**	**2,673.42**	**2,673.42**	0.00
16.00	2,617.57	156.754	1,004.82	2,672.01	2,672.01	0.00
16.10	2,574.49	156.155	1,004.77	2,668.75	2,668.75	0.00
16.20	2,531.21	155.232	1,004.69	2,663.69	2,663.69	0.00
16.30	2,488.18	154.001	1,004.58	2,656.93	2,656.93	0.00
16.40	2,445.68	152.478	1,004.45	2,648.54	2,648.54	0.00
16.50	2,404.16	150.683	1,004.29	2,638.45	2,638.45	0.00
16.60	2,363.22	148.636	1,004.11	2,626.82	2,626.82	0.00
16.70	2,321.08	146.351	1,003.91	2,613.65	2,613.65	0.00
16.80	2,279.47	143.831	1,003.68	2,598.88	2,598.88	0.00
16.90	2,240.05	141.102	1,003.43	2,582.61	2,582.61	0.00
17.00	2,202.12	138.194	1,003.16	2,565.02	2,565.02	0.00
17.10	2,165.61	135.128	1,002.87	2,546.07	2,546.07	0.00
17.20	2,130.32	131.926	1,002.56	2,525.86	2,525.86	0.00
17.30	2,096.05	128.608	1,002.24	2,504.49	2,504.49	0.00
17.40	2,062.43	125.188	1,001.91	2,481.98	2,481.98	0.00
17.50	2,030.32	121.696	1,001.56	2,458.47	2,458.47	0.00
17.60	1,990.96	118.101	1,001.20	2,433.71	2,433.71	0.00
17.70	1,954.37	114.400	1,000.82	2,407.58	2,407.58	0.00
17.80	1,920.20	110.627	1,000.43	2,380.26	2,380.26	0.00
17.90	1,888.19	106.810	1,000.03	2,351.89	2,351.89	0.00
18.00	1,856.97	102.969	999.62	2,322.59	2,322.59	0.00
18.10	1,827.68	99.122	999.21	2,292.45	2,292.45	0.00
18.20	1,800.43	95.293	998.79	2,261.61	2,261.61	0.00
18.30	1,774.98	91.503	998.37	2,230.21	2,230.21	0.00
18.40	1,751.17	87.769	997.94	2,198.39	2,198.39	0.00
18.50	1,728.84	84.108	997.52	2,166.24	2,166.24	0.00
18.60	1,707.84	80.535	997.11	2,133.86	2,133.86	0.00
18.70	1,688.03	77.060	996.69	2,101.37	2,101.37	0.00
18.80	1,669.27	73.695	996.29	2,068.88	2,068.88	0.00
18.90	1,651.25	70.446	995.89	2,036.51	2,036.51	0.00
19.00	1,633.60	67.315	995.50	2,004.30	2,004.30	0.00
19.10	1,616.96	64.308	995.11	1,972.33	1,972.33	0.00
19.20	1,601.21	61.430	994.74	1,940.74	1,940.74	0.00
19.30	1,586.22	58.684	994.38	1,909.63	1,909.63	0.00
19.40	1,567.94	56.058	994.03	1,878.89	1,878.89	0.00
19.50	1,551.24	53.539	993.69	1,848.43	1,848.43	0.00
19.60	1,536.15	51.137	993.36	1,818.50	1,818.50	0.00
19.70	1,522.21	48.860	993.04	1,789.28	1,789.28	0.00
19.80	1,509.11	46.710	992.73	1,760.90	1,760.90	0.00
19.90	1,496.68	44.685	992.44	1,733.38	1,733.38	0.00
20.00	1,484.68	42.784	992.17	1,706.74	1,706.74	0.00
20.10	1,472.75	41.000	991.90	1,681.11	1,681.11	0.00
20.20	1,461.22	39.327	991.65	1,656.45	1,656.45	0.00
20.30	1,449.97	37.767	991.42	1,627.74	1,627.74	0.00
20.40	1,438.91	36.385	991.21	1,593.95	1,593.95	0.00
20.50	1,427.94	35.179	991.02	1,563.28	1,563.28	0.00
20.60	1,417.08	34.124	990.86	1,535.92	1,535.92	0.00
20.70	1,406.26	33.195	990.71	1,511.10	1,511.10	0.00
20.80	1,395.53	32.374	990.58	1,488.64	1,488.64	0.00
20.90	1,384.48	31.641	990.46	1,468.29	1,468.29	0.00
21.00	1,373.41	30.978	990.36	1,449.48	1,449.48	0.00
21.10	1,362.59	30.375	990.26	1,431.95	1,431.95	0.00

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
21.20	1,351.97	29.823	990.17	1,415.72	1,415.72	0.00
21.30	1,341.56	29.314	990.09	1,400.58	1,400.58	0.00
21.40	1,331.30	28.842	990.01	1,386.37	1,386.37	0.00
21.50	1,321.21	28.400	989.94	1,372.63	1,372.63	0.00
21.60	1,311.28	27.987	989.87	1,359.59	1,359.59	0.00
21.70	1,301.50	27.598	989.80	1,347.18	1,347.18	0.00
21.80	1,291.88	27.229	989.74	1,335.31	1,335.31	0.00
21.90	1,282.38	26.878	989.68	1,323.90	1,323.90	0.00
22.00	1,273.05	26.541	989.63	1,312.88	1,312.88	0.00
22.10	1,263.82	26.218	989.57	1,302.00	1,302.00	0.00
22.20	1,254.70	25.908	989.52	1,291.30	1,291.30	0.00
22.30	1,245.96	25.611	989.47	1,280.94	1,280.94	0.00
22.40	1,237.89	25.329	989.42	1,271.03	1,271.03	0.00
22.50	1,229.71	25.061	989.37	1,261.52	1,261.52	0.00
22.60	1,221.48	24.802	989.33	1,252.28	1,252.28	0.00
22.70	1,213.26	24.550	989.28	1,243.24	1,243.24	0.00
22.80	1,205.07	24.305	989.24	1,234.36	1,234.36	0.00
22.90	1,196.94	24.065	989.20	1,225.62	1,225.62	0.00
23.00	1,188.90	23.832	989.16	1,216.69	1,216.69	0.00
23.10	1,180.93	23.466	989.09	1,239.60	1,239.60	0.00
23.20	1,173.08	23.006	989.01	1,225.34	1,225.34	0.00
23.30	1,165.30	22.593	988.93	1,212.60	1,212.60	0.00
23.40	1,157.59	22.217	988.87	1,201.02	1,201.02	0.00
23.50	1,149.93	21.870	988.80	1,190.37	1,190.37	0.00
23.60	1,142.23	21.546	988.74	1,180.08	1,180.08	0.00
23.70	1,134.03	21.239	988.69	1,170.33	1,170.33	0.00
23.80	1,126.08	20.945	988.63	1,160.99	1,160.99	0.00
23.90	1,118.36	20.661	988.58	1,152.03	1,152.03	0.00
24.00	1,110.80	20.387	988.53	1,143.39	1,143.39	0.00
24.10	1,103.41	20.121	988.48	1,135.03	1,135.03	0.00
24.20	1,096.13	19.863	988.43	1,126.93	1,126.93	0.00
24.30	1,088.88	19.611	988.38	1,118.91	1,118.91	0.00
24.40	1,081.60	19.366	988.33	1,110.93	1,110.93	0.00
24.50	1,074.13	19.125	988.28	1,103.12	1,103.12	0.00
24.60	1,066.32	18.885	988.24	1,095.36	1,095.36	0.00
24.70	1,058.00	18.644	988.19	1,087.56	1,087.56	0.00
24.80	1,049.02	18.396	988.14	1,079.58	1,079.58	0.00
24.90	1,039.31	18.138	988.09	1,071.30	1,071.30	0.00
25.00	1,028.85	17.867	988.04	1,062.62	1,062.62	0.00
25.10	1,017.73	17.581	987.98	1,053.32	1,053.32	0.00
25.20	1,006.04	17.281	987.92	1,043.25	1,043.25	0.00
25.30	993.92	16.968	987.85	1,032.76	1,032.76	0.00
25.40	981.77	16.641	987.79	1,021.87	1,021.87	0.00
25.50	969.87	16.307	987.72	1,010.77	1,010.77	0.00
25.60	957.78	15.966	987.65	999.48	999.48	0.00
25.70	945.61	15.619	987.58	987.79	987.79	0.00
25.80	933.06	15.270	987.50	975.59	975.59	0.00
25.90	919.89	14.915	987.42	963.22	963.22	0.00
26.00	907.07	14.555	987.34	950.74	950.74	0.00
26.10	894.54	14.194	987.26	938.26	938.26	0.00
26.20	882.25	13.833	987.18	925.67	925.67	0.00
26.30	870.18	13.478	987.10	912.68	912.68	0.00
26.40	858.29	13.130	987.02	900.01	900.01	0.00

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
26.50	846.57	12.787	986.94	887.61	887.61	0.00
26.60	835.00	12.450	986.86	875.46	875.46	0.00
26.70	823.58	12.118	986.78	863.32	863.32	0.00
26.80	812.30	11.794	986.70	850.93	850.93	0.00
26.90	801.17	11.478	986.62	838.91	838.91	0.00
27.00	790.18	11.169	986.54	827.20	827.20	0.00
27.10	779.33	10.865	986.46	815.76	815.76	0.00
27.20	768.63	10.566	986.39	804.42	804.42	0.00
27.30	757.41	10.273	986.31	792.68	792.68	0.00
27.40	745.34	9.980	986.23	780.98	780.98	0.00
27.50	733.92	9.686	986.15	769.32	769.32	0.00
27.60	723.01	9.395	986.07	757.85	757.85	0.00
27.70	712.53	9.110	986.00	746.60	746.60	0.00
27.80	702.39	8.835	985.92	734.86	734.86	0.00
27.90	692.56	8.571	985.84	723.70	723.70	0.00
28.00	682.99	8.318	985.76	713.02	713.02	0.00
28.10	673.68	8.074	985.69	702.76	702.76	0.00
28.20	664.59	7.836	985.62	692.85	692.85	0.00
28.30	655.71	7.607	985.55	682.62	682.62	0.00
28.40	647.04	7.390	985.48	672.63	672.63	0.00
28.50	638.57	7.182	985.41	663.14	663.14	0.00
28.60	630.29	6.982	985.35	654.04	654.04	0.00
28.70	622.17	6.789	985.28	645.26	645.26	0.00
28.80	614.23	6.600	985.22	636.75	636.75	0.00
28.90	606.45	6.417	985.16	627.92	627.92	0.00
29.00	598.85	6.244	985.10	619.27	619.27	0.00
29.10	591.43	6.078	985.03	611.03	611.03	0.00
29.20	584.06	5.919	984.98	603.13	603.13	0.00
29.30	576.47	5.762	984.92	595.38	595.38	0.00
29.40	569.21	5.606	984.86	587.77	587.77	0.00
29.50	562.24	5.455	984.81	580.35	580.35	0.00
29.60	555.59	5.309	984.75	572.51	572.51	0.00
29.70	549.18	5.173	984.69	565.10	565.10	0.00
29.80	542.93	5.045	984.64	558.12	558.12	0.00
29.90	536.85	4.921	984.59	551.45	551.45	0.00
30.00	530.92	4.802	984.54	545.05	545.05	0.00
30.10	525.13	4.687	984.49	538.87	538.87	0.00
30.20	519.49	4.575	984.45	532.87	532.87	0.00
30.30	513.98	4.466	984.40	527.05	527.05	0.00
30.40	508.61	4.361	984.36	520.82	520.82	0.00
30.50	503.17	4.262	984.31	514.89	514.89	0.00
30.60	497.87	4.166	984.27	509.20	509.20	0.00
30.70	492.71	4.074	984.22	503.71	503.71	0.00
30.80	487.70	3.984	984.18	498.40	498.40	0.00
30.90	482.81	3.897	984.14	493.24	493.24	0.00
31.00	478.04	3.812	984.10	488.22	488.22	0.00
31.10	473.39	3.728	984.06	483.34	483.34	0.00
31.20	468.85	3.647	984.02	478.59	478.59	0.00
31.30	464.42	3.567	983.99	473.70	473.70	0.00
31.40	460.08	3.493	983.95	468.70	468.70	0.00
31.50	455.85	3.424	983.91	464.02	464.02	0.00
31.60	451.71	3.358	983.87	459.57	459.57	0.00
31.70	447.65	3.294	983.84	455.28	455.28	0.00

Hydrograph for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
31.80	443.69	3.231	983.80	451.12	451.12	0.00
31.90	439.83	3.171	983.77	447.08	447.08	0.00
32.00	436.02	3.111	983.74	443.14	443.14	0.00
32.10	432.21	3.053	983.71	439.26	439.26	0.00
32.20	428.52	2.995	983.68	435.45	435.45	0.00
32.30	424.94	2.938	983.65	431.72	431.72	0.00
32.40	421.46	2.883	983.62	428.08	428.08	0.00
32.50	418.08	2.829	983.58	424.23	424.23	0.00
32.60	414.78	2.780	983.55	420.40	420.40	0.00
32.70	411.56	2.735	983.52	416.86	416.86	0.00
32.80	408.42	2.692	983.49	413.50	413.50	0.00
32.90	405.35	2.651	983.47	410.28	410.28	0.00
33.00	402.36	2.611	983.44	407.15	407.15	0.00
33.10	399.43	2.572	983.42	404.11	404.11	0.00
33.20	396.56	2.533	983.39	401.14	401.14	0.00
33.30	393.77	2.496	983.37	398.25	398.25	0.00
33.40	391.03	2.459	983.34	395.42	395.42	0.00
33.50	388.34	2.423	983.32	392.65	392.65	0.00
33.60	385.72	2.388	983.30	389.94	389.94	0.00
33.70	383.15	2.353	983.27	387.30	387.30	0.00
33.80	380.65	2.319	983.25	384.71	384.71	0.00
33.90	378.21	2.286	983.23	382.18	382.18	0.00
34.00	375.83	2.254	983.21	379.71	379.71	0.00
34.10	373.51	2.222	983.19	377.03	377.03	0.00
34.20	371.25	2.195	983.16	374.45	374.45	0.00
34.30	369.05	2.169	983.14	372.06	372.06	0.00
34.40	366.90	2.145	983.12	369.79	369.79	0.00
34.50	364.80	2.121	983.10	367.61	367.61	0.00
34.60	362.76	2.098	983.09	365.50	365.50	0.00
34.70	360.77	2.076	983.07	363.44	363.44	0.00
34.80	358.82	2.054	983.05	361.43	361.43	0.00
34.90	356.92	2.033	983.03	359.47	359.47	0.00
35.00	355.05	2.012	983.02	357.55	357.55	0.00
35.10	353.21	1.991	983.00	355.67	355.67	0.00
35.20	351.41	1.971	982.98	353.83	353.83	0.00
35.30	349.65	1.951	982.97	352.02	352.02	0.00
35.40	347.91	1.932	982.95	350.25	350.25	0.00
35.50	346.21	1.912	982.94	348.51	348.51	0.00
35.60	344.54	1.894	982.92	346.80	346.80	0.00
35.70	342.91	1.875	982.91	345.12	345.12	0.00
35.80	341.30	1.857	982.89	343.48	343.48	0.00
35.90	339.73	1.839	982.88	341.87	341.87	0.00
36.00	0.00	1.822	982.86	340.28	340.28	0.00

Stage-Area-Storage for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

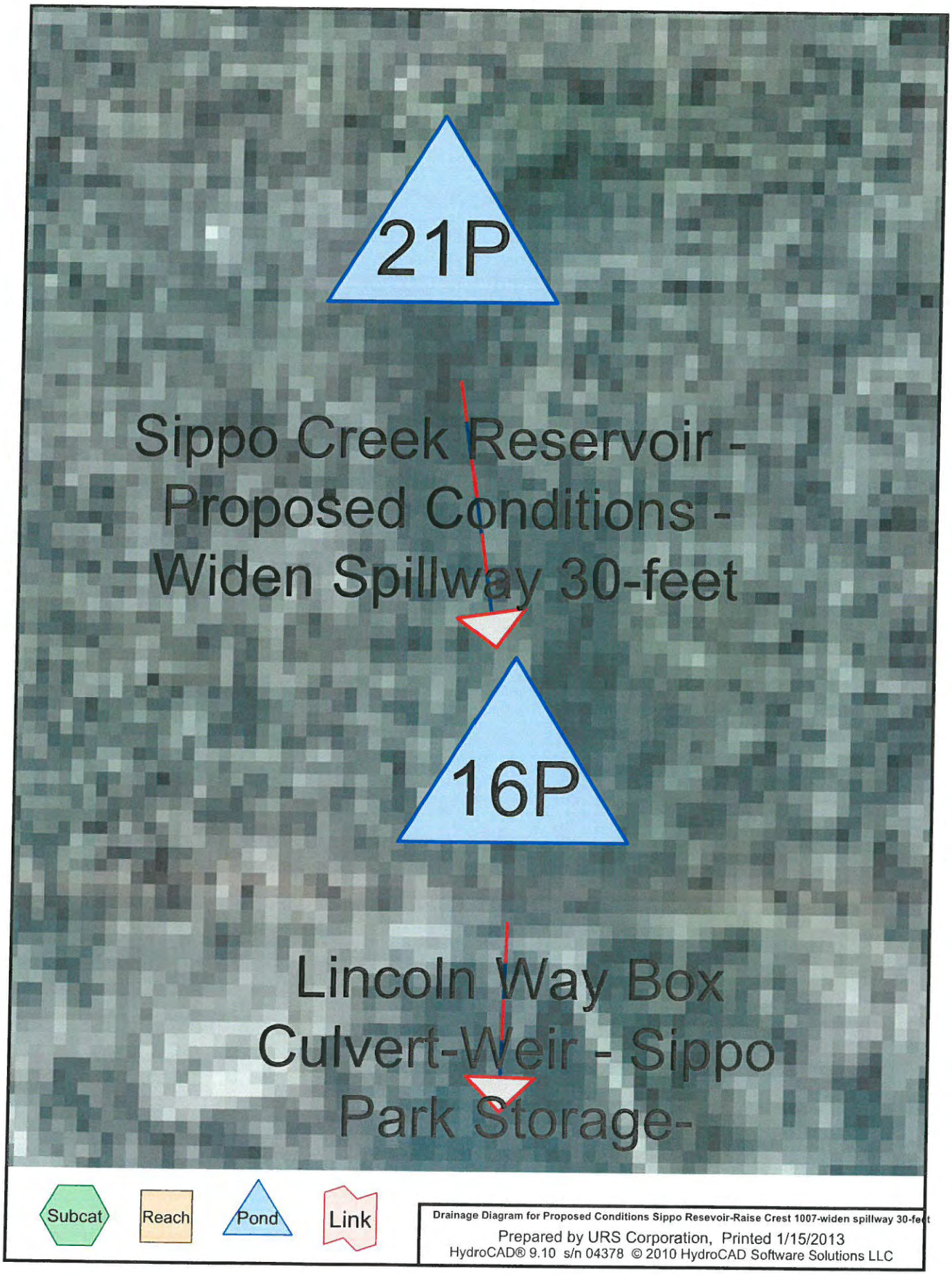
Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
978.00	0.100	0.000	986.48	3.904	10.919
978.16	0.108	0.017	986.64	4.014	11.552
978.32	0.116	0.035	986.80	4.125	12.203
978.48	0.125	0.054	986.96	4.237	12.872
978.64	0.134	0.075	987.12	4.352	13.559
978.80	0.143	0.097	987.28	4.467	14.265
978.96	0.152	0.120	987.44	4.585	14.989
979.12	0.162	0.145	987.60	4.703	15.732
979.28	0.172	0.172	987.76	4.824	16.494
979.44	0.183	0.201	987.92	4.946	17.275
979.60	0.193	0.231	988.08	5.049	18.076
979.76	0.204	0.262	988.24	5.134	18.890
979.92	0.216	0.296	988.40	5.219	19.719
980.08	0.227	0.331	988.56	5.305	20.561
980.24	0.239	0.369	988.72	5.392	21.416
980.40	0.251	0.408	988.88	5.479	22.286
980.56	0.264	0.449	989.04	5.567	23.170
980.72	0.277	0.492	989.20	5.656	24.068
980.88	0.290	0.538	989.36	5.746	24.980
981.04	0.312	0.585	989.52	5.836	25.906
981.20	0.361	0.639	989.68	5.927	26.847
981.36	0.413	0.701	989.84	6.019	27.803
981.52	0.469	0.772	990.00	6.111	28.773
981.68	0.529	0.851	990.16	6.163	29.755
981.84	0.592	0.941	990.32	6.215	30.745
982.00	0.659	1.041	990.48	6.267	31.744
982.16	0.740	1.153	990.64	6.319	32.751
982.32	0.827	1.278	990.80	6.372	33.766
982.48	0.918	1.418	990.96	6.425	34.790
982.64	1.013	1.572	991.12	6.478	35.822
982.80	1.114	1.742	991.28	6.531	36.862
982.96	1.219	1.929	991.44	6.584	37.912
983.12	1.329	2.133	991.60	6.638	38.969
983.28	1.443	2.354	991.76	6.692	40.036
983.44	1.563	2.595	991.92	6.746	41.111
983.60	1.687	2.855	992.08	6.798	42.194
983.76	1.816	3.135	992.24	6.848	43.286
983.92	1.949	3.436	992.40	6.898	44.386
984.08	2.072	3.758	992.56	6.949	45.494
984.24	2.182	4.098	992.72	6.999	46.609
984.40	2.295	4.457	992.88	7.050	47.733
984.56	2.411	4.833	993.04	7.101	48.865
984.72	2.530	5.228	993.20	7.152	50.006
984.88	2.652	5.643	993.36	7.204	51.154
985.04	2.777	6.077	993.52	7.255	52.311
985.20	2.904	6.532	993.68	7.307	53.476
985.36	3.034	7.007	993.84	7.359	54.649
985.52	3.167	7.503	994.00	7.411	55.831
985.68	3.303	8.020	994.16	7.466	57.021
985.84	3.442	8.560	994.32	7.521	58.220
986.00	3.584	9.122	994.48	7.576	59.428
986.16	3.689	9.704	994.64	7.631	60.644
986.32	3.796	10.303	994.80	7.687	61.870

Stage-Area-Storage for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Elevation (feet)	Surface (acres)	Storage (acre-feet)
994.96	7.743	63.104
995.12	7.799	64.347
995.28	7.855	65.599
995.44	7.911	66.861
995.60	7.968	68.131
995.76	8.024	69.410
995.92	8.081	70.699
996.08	8.137	71.996
996.24	8.192	73.303
996.40	8.247	74.618
996.56	8.301	75.942
996.72	8.357	77.274
996.88	8.412	78.616
997.04	8.467	79.966
997.20	8.523	81.325
997.36	8.579	82.693
997.52	8.635	84.071
997.68	8.691	85.457
997.84	8.747	86.852
998.00	8.804	88.256
998.16	8.854	89.668
998.32	8.904	91.089
998.48	8.955	92.518
998.64	9.005	93.955
998.80	9.056	95.400
998.96	9.107	96.853
999.12	9.158	98.314
999.28	9.209	99.783
999.44	9.260	101.261
999.60	9.312	102.747
999.76	9.363	104.241
999.92	9.415	105.743
1,000.08	9.470	107.254
1,000.24	9.528	108.773
1,000.40	9.587	110.303
1,000.56	9.645	111.841
1,000.72	9.704	113.389
1,000.88	9.763	114.947
1,001.04	9.822	116.513
1,001.20	9.882	118.090
1,001.36	9.941	119.675
1,001.52	10.001	121.271
1,001.68	10.061	122.876
1,001.84	10.121	124.490
1,002.00	10.181	126.114
1,002.16	10.254	127.749
1,002.32	10.327	129.396
1,002.48	10.400	131.054
1,002.64	10.474	132.724
1,002.80	10.547	134.405
1,002.96	10.621	136.099
1,003.12	10.696	137.804
1,003.28	10.770	139.521
1,003.44	10.845	141.251
1,003.60	10.920	142.992
1,003.76	10.996	144.745
1,003.92	11.071	146.510
1,004.08	11.165	148.289
1,004.24	11.276	150.084
1,004.40	11.388	151.897
1,004.56	11.500	153.728
1,004.72	11.613	155.577
1,004.88	11.727	157.444
1,005.04	11.841	159.330
1,005.20	11.956	161.234
1,005.36	12.071	163.156
1,005.52	12.187	165.096
1,005.68	12.304	167.056
1,005.84	12.420	169.034
1,006.00	12.538	171.030
1,006.16	12.611	173.042
1,006.32	12.684	175.066
1,006.48	12.757	177.101
1,006.64	12.831	179.148
1,006.80	12.905	181.207
1,006.96	12.979	183.278
1,007.12	13.053	185.360
1,007.28	13.127	187.455
1,007.44	13.202	189.561
1,007.60	13.277	191.679
1,007.76	13.352	193.810
1,007.92	13.427	195.952
1,008.08	13.499	198.106
1,008.24	13.567	200.272
1,008.40	13.635	202.448
1,008.56	13.703	204.635
1,008.72	13.772	206.833
1,008.88	13.841	209.042
1,009.04	13.909	211.262
1,009.20	13.978	213.493
1,009.36	14.048	215.735
1,009.52	14.117	217.988
1,009.68	14.186	220.252
1,009.84	14.256	222.528
1,010.00	14.326	224.814
1,010.16	14.428	227.115
1,010.32	14.531	229.431
1,010.48	14.634	231.765
1,010.64	14.738	234.114
1,010.80	14.842	236.481
1,010.96	14.946	238.864
1,011.12	15.051	241.264
1,011.28	15.156	243.680
1,011.44	15.261	246.114
1,011.60	15.367	248.564
1,011.76	15.473	251.031

Stage-Area-Storage for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage- (continued)

Elevation (feet)	Surface (acres)	Storage (acre-feet)
1,011.92	15.580	253.515
1,012.08	15.709	256.017
1,012.24	15.860	258.543
1,012.40	16.012	261.093
1,012.56	16.166	263.667
1,012.72	16.319	266.266
1,012.88	16.474	268.889
1,013.04	16.629	271.537
1,013.20	16.785	274.211
1,013.36	16.942	276.909
1,013.52	17.099	279.632
1,013.68	17.257	282.381
1,013.84	17.416	285.154
1,014.00	17.576	287.954
1,014.16	17.803	290.784
1,014.32	18.032	293.651
1,014.48	18.262	296.554
1,014.64	18.494	299.495
1,014.80	18.727	302.472
1,014.96	18.961	305.487
1,015.12	19.197	308.540
1,015.28	19.435	311.631
1,015.44	19.673	314.759
1,015.60	19.914	317.926
1,015.76	20.156	321.132
1,015.92	20.399	324.376
1,016.08	20.688	327.661
1,016.24	21.025	330.998
1,016.40	21.364	334.389
1,016.56	21.706	337.835
1,016.72	22.050	341.335
1,016.88	22.398	344.891
1,017.04	22.748	348.503
1,017.20	23.101	352.170
1,017.36	23.456	355.895
1,017.52	23.814	359.677
1,017.68	24.175	363.516
1,017.84	24.539	367.413
1,018.00	**24.905**	**371.368**


21P
Sippo Creek Reservoir - Proposed Conditions - Widen Spillway 30-feet
16P
Lincoln Way Box Culvert-Weir - Sippo Park Storage-
Subcat
Reach
Pond
Link
Drainage Diagram for Proposed Conditions Sippo Resevoir-Raise Crest 1007-widen spillway 30-feet
Prepared by URS Corporation, Printed 1/15/2013
HydroCAD® 9.10 s/n 04378 © 2010 HydroCAD Software Solutions LLC

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Pond 16P: Lincoln Way Box Peak Elev=1,013.96' Storage=287.326 af Inflow=26,146.86 cfs 14,807.372 af
Primary=2,927.06 cfs 4,197.282 af Secondary=23,416.73 cfs 10,608.697 af Outflow=26,144.72 cfs 14,805.979 af

Pond 21P: Sippo Creek Peak Elev=1,016.89' Storage=556.526 af Inflow=31,590.46 cfs 16,996.776 af
83 af Secondary=16,546.76 cfs 7,865.556 af Tertiary=5,281.05 cfs 2,179.382 af Outflow=31,427.76 cfs 16,987.020 af

Summary for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 18.78" for 6 hr PMF TR-60 event
Inflow = 26,146.86 cfs @ 6.18 hrs, Volume= 14,807.372 af
Outflow = 26,144.72 cfs @ 6.21 hrs, Volume= 14,805.979 af, Atten= 0%, Lag= 1.7 min
Primary = 2,927.06 cfs @ 3.39 hrs, Volume= 4,197.282 af
Secondary = 23,416.73 cfs @ 6.21 hrs, Volume= 10,608.697 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 1,013.96' @ 6.21 hrs Surf.Area= 17.540 ac Storage= 287.326 af
Flood Elev= 1,008.00' Surf.Area= 13.465 ac Storage= 197.028 af

Plug-Flow detention time= 13.5 min calculated for 14,801.868 af (100% of inflow)
Center-of-Mass det. time= 13.3 min (527.2 - 513.9)

Volume	Invert	Avail.Storage	Storage Description
#1	978.00'	371.368 af	**Stage Storage in Sippo Park (Irregular)** Listed below (Recalc)

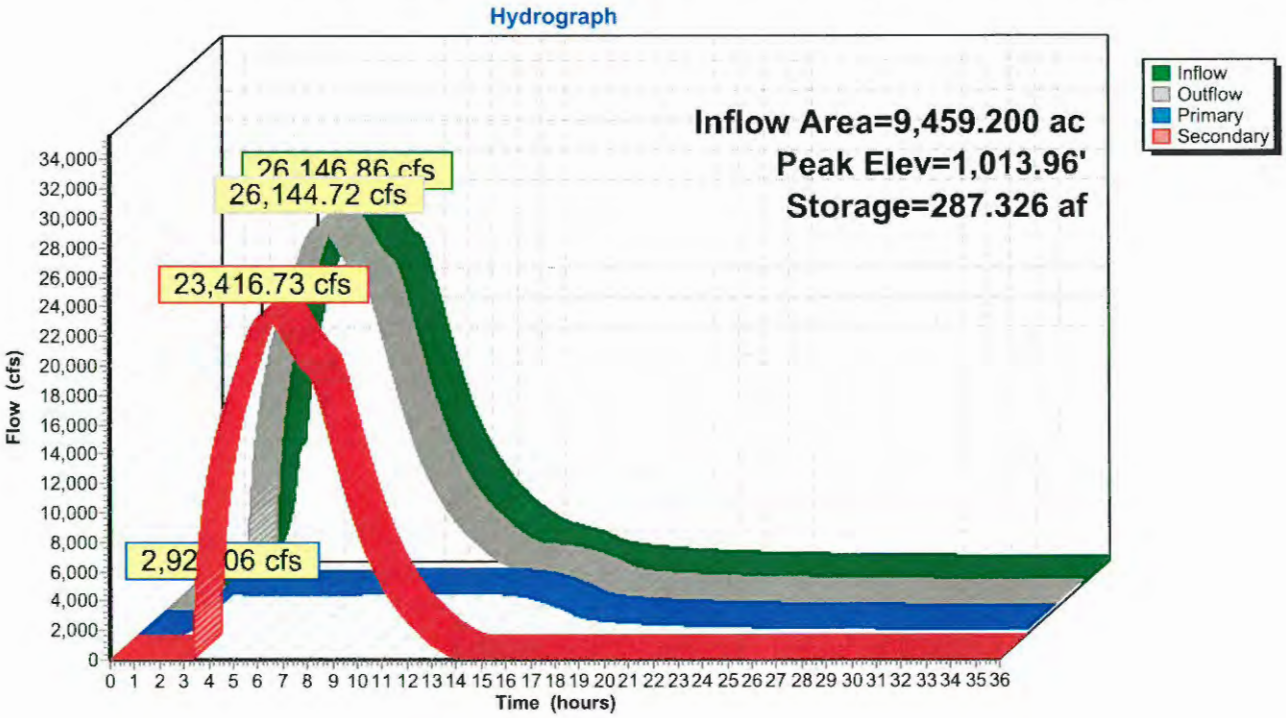
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
978.00	0.100	200.0	0.000	0.000	0.100
981.00	0.300	500.0	0.573	0.573	0.484
982.00	0.659	1,392.9	0.468	1.041	3.572
984.00	2.018	2,470.7	2.553	3.595	11.180
986.00	3.584	3,300.7	5.528	9.122	19.932
988.00	5.007	3,247.5	8.551	17.674	20.586
990.00	6.111	3,143.9	11.100	28.773	21.805
992.00	6.773	3,217.1	12.878	41.652	22.668
994.00	7.411	3,271.9	14.179	55.831	23.334
996.00	8.110	3,253.8	15.516	71.347	23.597
998.00	8.804	3,273.8	16.909	88.256	23.878
1,000.00	9.441	3,318.6	18.241	106.497	24.439
1,002.00	10.181	3,437.0	19.617	126.114	25.908
1,004.00	11.109	3,548.6	21.283	147.398	27.341
1,006.00	12.538	3,553.4	23.633	171.030	27.516
1,008.00	13.465	3,829.8	25.997	197.028	31.248
1,010.00	14.326	4,085.3	27.787	224.814	34.947
1,012.00	15.633	4,329.5	29.949	254.764	38.706
1,014.00	17.576	4,742.6	33.190	287.954	45.555
1,016.00	20.521	5,940.5	38.059	326.013	68.935
1,018.00	24.905	6,310.6	45.355	371.368	77.223

Device	Routing	Invert	Outlet Devices
#1	Primary	978.25'	**168.0" W x 98.0" H Box Box Culvert** L= 121.8' Ke= 0.400 Inlet / Outlet Invert= 978.25' / 978.13' S= 0.0010 '/' Cc= 0.900 n= 0.015 Brickwork
#2	Secondary	1,008.00'	**Linclon Way (172), Cv= 2.63 (C= 3.29)** Head (feet) 0.00 1.00 2.00 4.00 6.00 8.00 10.00 Width (feet) 233.00 373.00 475.00 630.00 790.00 940.00 1,090.00

Primary OutFlow Max=2,913.12 cfs @ 3.39 hrs HW=1,009.44' TW=984.90' (Dynamic Tailwater)
└─**1=Box Culvert** (Inlet Controls 2,913.12 cfs @ 25.48 fps)

Secondary OutFlow Max=23,416.67 cfs @ 6.21 hrs HW=1,013.96' TW=992.57' (Dynamic Tailwater)
└─**2=Linclon Way (172)** (Weir Controls 23,416.67 cfs @ 7.26 fps)

Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-



Summary for Pond 21P: Sippo Creek Reservoir - Proposed Conditions - Widen Spillway 30-feet

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 21.56" for 6 hr PMF TR-60 event
Inflow = 31,590.46 cfs @ 6.02 hrs, Volume= 16,996.776 af
Outflow = 31,427.76 cfs @ 6.19 hrs, Volume= 16,987.020 af, Atten= 1%, Lag= 10.2 min
Primary = 9,600.11 cfs @ 6.18 hrs, Volume= 6,942.083 af
Secondary = 16,546.76 cfs @ 6.18 hrs, Volume= 7,865.556 af
Tertiary = 5,281.05 cfs @ 6.20 hrs, Volume= 2,179.382 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,001.64' Surf.Area= 6.730 ac Storage= 37.975 af
Peak Elev= 1,016.89' @ 6.20 hrs Surf.Area= 76.328 ac Storage= 556.526 af (518.552 af above start)
Flood Elev= 1,005.00' Surf.Area= 12.657 ac Storage= 68.385 af (30.411 af above start)

Plug-Flow detention time= 18.0 min calculated for 16,949.045 af (100% of inflow)
Center-of-Mass det. time= 12.6 min (502.1 - 489.6)

Volume	Invert	Avail.Storage	Storage Description
#1	987.68'	1,269.498 af	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
987.68	0.500	500.0	0.000	0.000	0.500
990.00	1.200	1,000.0	1.914	1.914	1.871
994.00	2.000	2,500.0	6.332	8.246	11.463
998.00	3.060	2,611.0	10.045	18.291	12.526
1,000.00	6.204	3,251.0	9.081	27.372	19.381
1,001.64	6.730	4,770.0	10.603	37.975	41.639
1,002.00	7.243	5,147.0	2.515	40.489	48.470
1,004.00	9.610	10,274.0	16.797	57.287	192.907
1,006.00	16.124	11,202.9	25.455	82.741	229.356
1,008.00	21.577	15,736.9	37.569	120.310	452.497
1,010.00	29.674	20,301.4	51.036	171.347	753.009
1,012.00	39.539	22,845.5	68.977	240.324	953.544
1,014.00	68.669	34,370.5	106.876	347.201	2,158.194
1,025.00	100.000	50,000.0	922.298	1,269.498	4,567.224

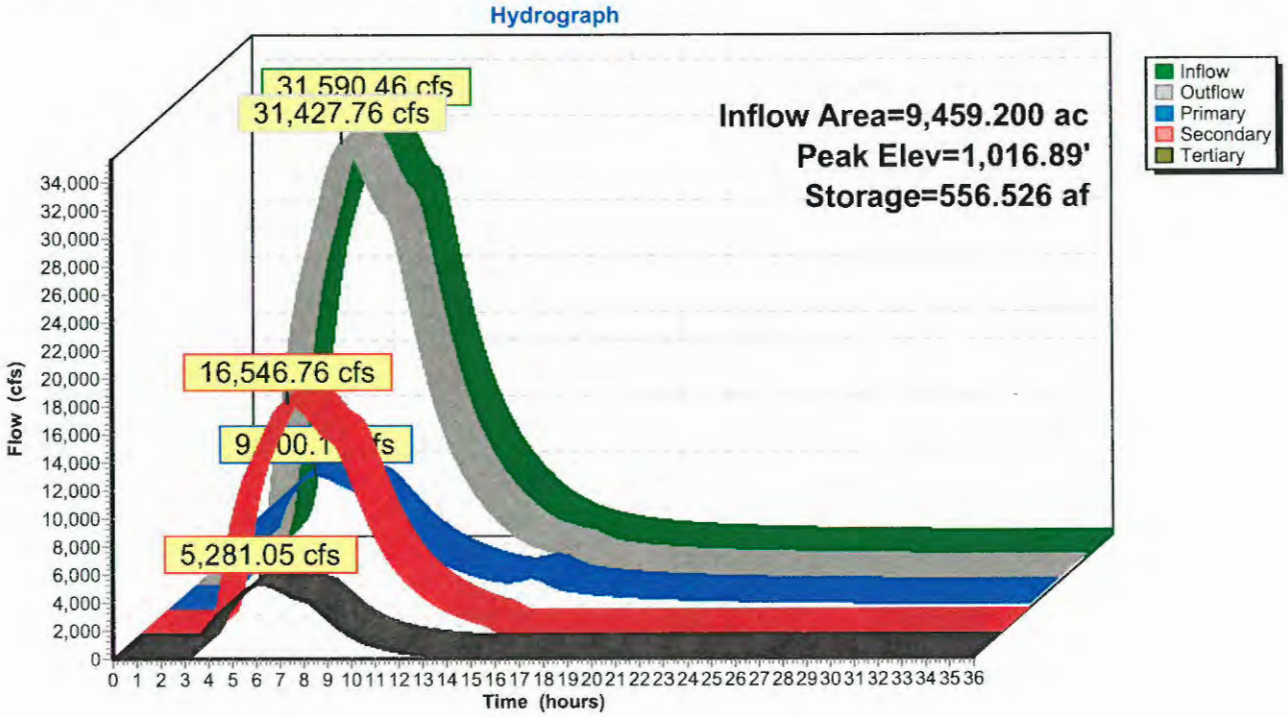
Device	Routing	Invert	Outlet Devices
#1	Primary	1,001.64'	**80.0' long x 2.9' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.45 2.58 2.66 2.66 2.65 2.64 2.65 2.69 2.69 2.73 2.83 2.95 3.01 3.12 3.32
#2	Secondary	1,007.00'	**Right Embankment Weir - Building side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 3.00 4.00 22.00 Width (feet) 63.00 63.00 63.00 63.00
#3	Secondary	1,007.00'	**Left Embankment Weir - Playground side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 3.00 13.00 15.00 Width (feet) 100.00 115.00 165.00 190.00 210.00
#4	Tertiary	1,008.00'	**Weir Flow around Bldg. X 0.50, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 2.00 4.00 6.00 8.00 10.00 12.00 Width (feet) 50.00 90.00 122.00 166.00 240.00 334.00 420.00

Primary OutFlow Max=9,599.63 cfs @ 6.18 hrs HW=1,016.89' TW=1,013.96' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 9,599.63 cfs @ 7.87 fps)

Secondary OutFlow Max=16,545.93 cfs @ 6.18 hrs HW=1,016.89' TW=1,013.96' (Dynamic Tailwater)
├─**2=Right Embankment Weir - Building side** (Weir Controls 4,717.77 cfs @ 7.57 fps)
└─**3=Left Embankment Weir - Playground side** (Weir Controls 11,828.16 cfs @ 7.47 fps)

Tertiary OutFlow Max=5,281.02 cfs @ 6.20 hrs HW=1,016.89' (Free Discharge)
└─**4=Weir Flow around Bldg.** (Weir Controls 5,281.02 cfs @ 4.13 fps)

Pond 21P: Sippo Creek Reservoir - Proposed Conditions - Widen Spillway 30-feet



Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Pond 16P: Lincoln Way Box Peak Elev=994.32' Storage=58.209 af Inflow=1,975.59 cfs 1,724.889 af
Primary=1,904.49 cfs 1,723.823 af Secondary=0.00 cfs 0.000 af Outflow=1,904.49 cfs 1,723.823 af

Pond 21P: Sippo Creek Reservoir Peak Elev=1,005.62' Storage=76.818 af Inflow=1,980.05 cfs 1,734.015 af
y=1,975.59 cfs 1,725.123 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=1,975.59 cfs 1,725.123 af

Summary for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 2.19" for 100 year-FEMA event
Inflow = 1,975.59 cfs @ 14.83 hrs, Volume= 1,724.889 af
Outflow = 1,904.49 cfs @ 15.54 hrs, Volume= 1,723.823 af, Atten= 4%, Lag= 42.7 min
Primary = 1,904.49 cfs @ 15.54 hrs, Volume= 1,723.823 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 994.32' @ 15.54 hrs Surf.Area= 7.520 ac Storage= 58.209 af
Flood Elev= 1,008.00' Surf.Area= 13.465 ac Storage= 197.028 af

Plug-Flow detention time= 12.2 min calculated for 1,723.345 af (100% of inflow)
Center-of-Mass det. time= 11.6 min (1,170.3 - 1,158.7)

Volume	Invert	Avail.Storage	Storage Description
#1	978.00'	371.368 af	**Stage Storage in Sippo Park (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
978.00	0.100	200.0	0.000	0.000	0.100
981.00	0.300	500.0	0.573	0.573	0.484
982.00	0.659	1,392.9	0.468	1.041	3.572
984.00	2.018	2,470.7	2.553	3.595	11.180
986.00	3.584	3,300.7	5.528	9.122	19.932
988.00	5.007	3,247.5	8.551	17.674	20.586
990.00	6.111	3,143.9	11.100	28.773	21.805
992.00	6.773	3,217.1	12.878	41.652	22.668
994.00	7.411	3,271.9	14.179	55.831	23.334
996.00	8.110	3,253.8	15.516	71.347	23.597
998.00	8.804	3,273.8	16.909	88.256	23.878
1,000.00	9.441	3,318.6	18.241	106.497	24.439
1,002.00	10.181	3,437.0	19.617	126.114	25.908
1,004.00	11.109	3,548.6	21.283	147.398	27.341
1,006.00	12.538	3,553.4	23.633	171.030	27.516
1,008.00	13.465	3,829.8	25.997	197.028	31.248
1,010.00	14.326	4,085.3	27.787	224.814	34.947
1,012.00	15.633	4,329.5	29.949	254.764	38.706
1,014.00	17.576	4,742.6	33.190	287.954	45.555
1,016.00	20.521	5,940.5	38.059	326.013	68.935
1,018.00	24.905	6,310.6	45.355	371.368	77.223

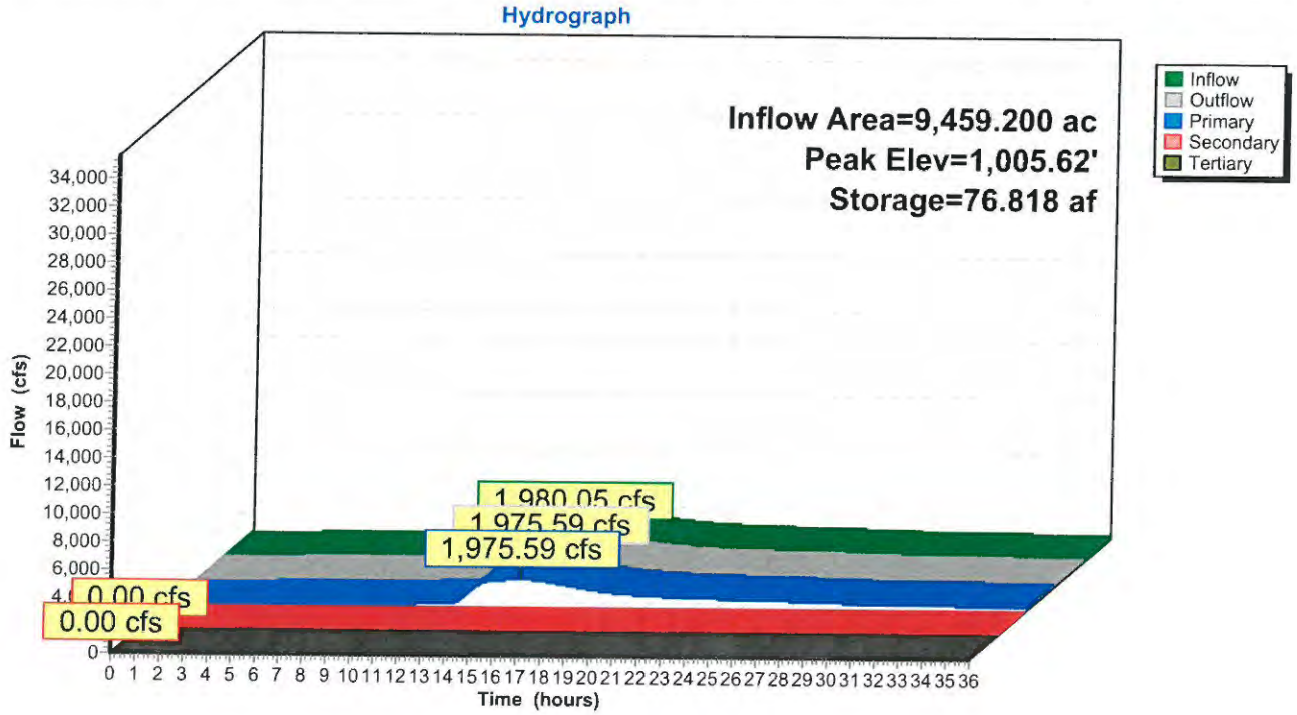
Device	Routing	Invert	Outlet Devices
#1	Primary	978.25'	**168.0" W x 98.0" H Box Box Culvert** L= 121.8' Ke= 0.400 Inlet / Outlet Invert= 978.25' / 978.13' S= 0.0010 '/' Cc= 0.900 n= 0.015 Brickwork
#2	Secondary	1,008.00'	**Linclon Way (172), Cv= 2.63 (C= 3.29)** Head (feet) 0.00 1.00 2.00 4.00 6.00 8.00 10.00 Width (feet) 233.00 373.00 475.00 630.00 790.00 940.00 1,090.00

Primary OutFlow Max=1,975.59 cfs @ 14.83 hrs HW=1,005.62' TW=993.82' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 1,975.59 cfs @ 6.21 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,001.64' TW=978.00' (Dynamic Tailwater)
└─**2=Right Embankment Weir - Building side** (Controls 0.00 cfs)
└─**3=Left Embankment Weir - Playground side** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,001.64' (Free Discharge)
└─**4=Weir Flow around Bldg.** (Controls 0.00 cfs)

Pond 21P: Sippo Creek Reservoir - Proposed Conditions - Widen Spillway 30-feet



Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Pond 16P: Lincoln Way Box Peak Elev=1,001.05' Storage=116.649 af Inflow=2,641.87 cfs 2,251.603 af
Primary=2,423.75 cfs 2,250.262 af Secondary=0.00 cfs 0.000 af Outflow=2,423.75 cfs 2,250.262 af

Pond 21P: Sippo Creek Reservoir Peak Elev=1,006.27' Storage=87.106 af Inflow=2,649.63 cfs 2,261.486 af
2,641.87 cfs 2,251.864 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=2,641.87 cfs 2,251.864 af

Summary for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 2.86" for 500 year-FEMA event
Inflow = 2,641.87 cfs @ 14.70 hrs, Volume= 2,251.603 af
Outflow = 2,423.75 cfs @ 15.73 hrs, Volume= 2,250.262 af, Atten= 8%, Lag= 61.8 min
Primary = 2,423.75 cfs @ 15.73 hrs, Volume= 2,250.262 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 1,001.05' @ 15.73 hrs Surf.Area= 9.827 ac Storage= 116.649 af
Flood Elev= 1,008.00' Surf.Area= 13.465 ac Storage= 197.028 af

Plug-Flow detention time= 18.0 min calculated for 2,250.262 af (100% of inflow)
Center-of-Mass det. time= 17.4 min (1,181.8 - 1,164.3)

Volume	Invert	Avail.Storage	Storage Description
#1	978.00'	371.368 af	**Stage Storage in Sippo Park (Irregular)** Listed below (Recalc)

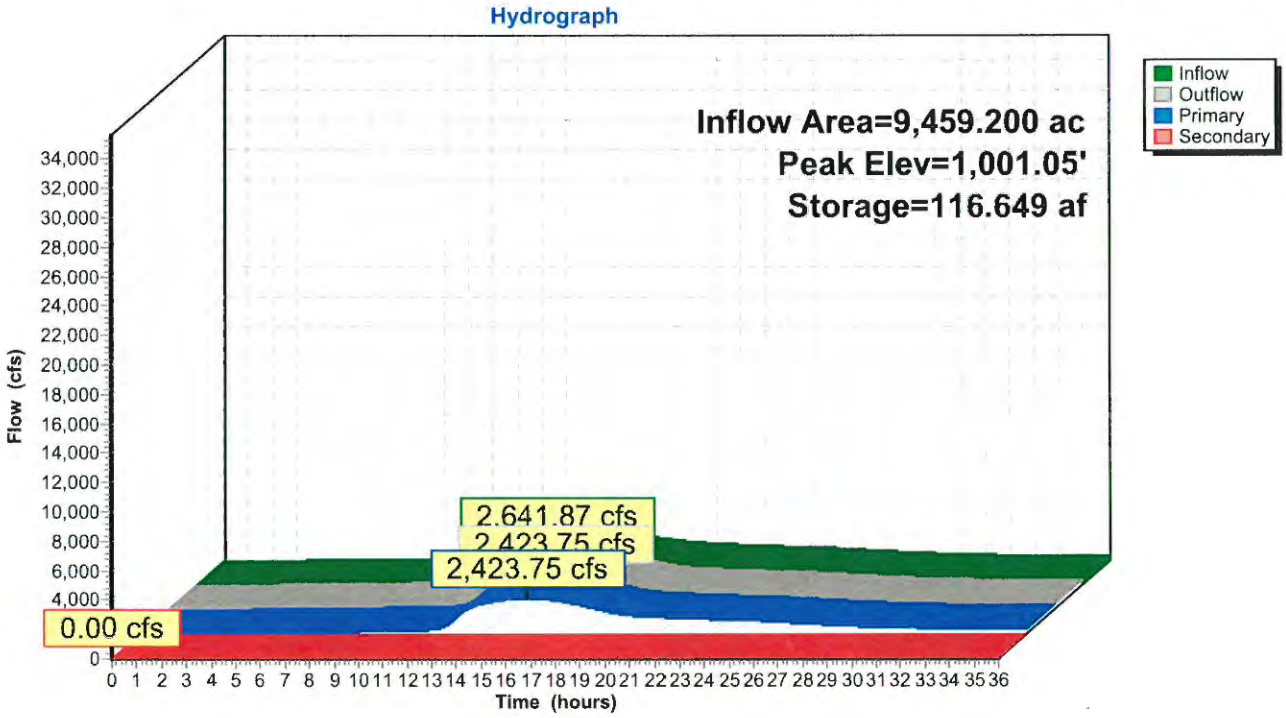
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
978.00	0.100	200.0	0.000	0.000	0.100
981.00	0.300	500.0	0.573	0.573	0.484
982.00	0.659	1,392.9	0.468	1.041	3.572
984.00	2.018	2,470.7	2.553	3.595	11.180
986.00	3.584	3,300.7	5.528	9.122	19.932
988.00	5.007	3,247.5	8.551	17.674	20.586
990.00	6.111	3,143.9	11.100	28.773	21.805
992.00	6.773	3,217.1	12.878	41.652	22.668
994.00	7.411	3,271.9	14.179	55.831	23.334
996.00	8.110	3,253.8	15.516	71.347	23.597
998.00	8.804	3,273.8	16.909	88.256	23.878
1,000.00	9.441	3,318.6	18.241	106.497	24.439
1,002.00	10.181	3,437.0	19.617	126.114	25.908
1,004.00	11.109	3,548.6	21.283	147.398	27.341
1,006.00	12.538	3,553.4	23.633	171.030	27.516
1,008.00	13.465	3,829.8	25.997	197.028	31.248
1,010.00	14.326	4,085.3	27.787	224.814	34.947
1,012.00	15.633	4,329.5	29.949	254.764	38.706
1,014.00	17.576	4,742.6	33.190	287.954	45.555
1,016.00	20.521	5,940.5	38.059	326.013	68.935
1,018.00	24.905	6,310.6	45.355	371.368	77.223

Device	Routing	Invert	Outlet Devices
#1	Primary	978.25'	**168.0" W x 98.0" H Box Box Culvert** L= 121.8' Ke= 0.400 Inlet / Outlet Invert= 978.25' / 978.13' S= 0.0010 '/' Cc= 0.900 n= 0.015 Brickwork
#2	Secondary	1,008.00'	**Linclon Way (172), Cv= 2.63 (C= 3.29)** Head (feet) 0.00 1.00 2.00 4.00 6.00 8.00 10.00 Width (feet) 233.00 373.00 475.00 630.00 790.00 940.00 1,090.00

Primary OutFlow Max=2,423.75 cfs @ 15.73 hrs HW=1,001.05' TW=983.71' (Dynamic Tailwater)
↑—**1=Box Culvert** (Inlet Controls 2,423.75 cfs @ 21.20 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=978.00' TW=978.13' (Dynamic Tailwater)
↑—**2=Linclon Way (172)** (Controls 0.00 cfs)

Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-



Summary for Pond 21P: Sippo Creek Reservoir - Proposed Conditions - Widen Spillway 30-feet

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 2.87" for 500 year-FEMA event
Inflow = 2,649.63 cfs @ 14.49 hrs, Volume= 2,261.486 af
Outflow = 2,641.87 cfs @ 14.70 hrs, Volume= 2,251.864 af, Atten= 0%, Lag= 12.6 min
Primary = 2,641.87 cfs @ 14.70 hrs, Volume= 2,251.864 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,001.64' Surf.Area= 6.730 ac Storage= 37.975 af
Peak Elev= 1,006.27' @ 14.70 hrs Surf.Area= 16.801 ac Storage= 87.106 af (49.131 af above start)
Flood Elev= 1,005.00' Surf.Area= 12.657 ac Storage= 68.385 af (30.411 af above start)

Plug-Flow detention time= 47.3 min calculated for 2,213.889 af (98% of inflow)
Center-of-Mass det. time= 12.1 min (1,164.5 - 1,152.4)

Volume	Invert	Avail.Storage	Storage Description
#1	987.68'	1,269.498 af	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
987.68	0.500	500.0	0.000	0.000	0.500
990.00	1.200	1,000.0	1.914	1.914	1.871
994.00	2.000	2,500.0	6.332	8.246	11.463
998.00	3.060	2,611.0	10.045	18.291	12.526
1,000.00	6.204	3,251.0	9.081	27.372	19.381
1,001.64	6.730	4,770.0	10.603	37.975	41.639
1,002.00	7.243	5,147.0	2.515	40.489	48.470
1,004.00	9.610	10,274.0	16.797	57.287	192.907
1,006.00	16.124	11,202.9	25.455	82.741	229.356
1,008.00	21.577	15,736.9	37.569	120.310	452.497
1,010.00	29.674	20,301.4	51.036	171.347	753.009
1,012.00	39.539	22,845.5	68.977	240.324	953.544
1,014.00	68.669	34,370.5	106.876	347.201	2,158.194
1,025.00	100.000	50,000.0	922.298	1,269.498	4,567.224

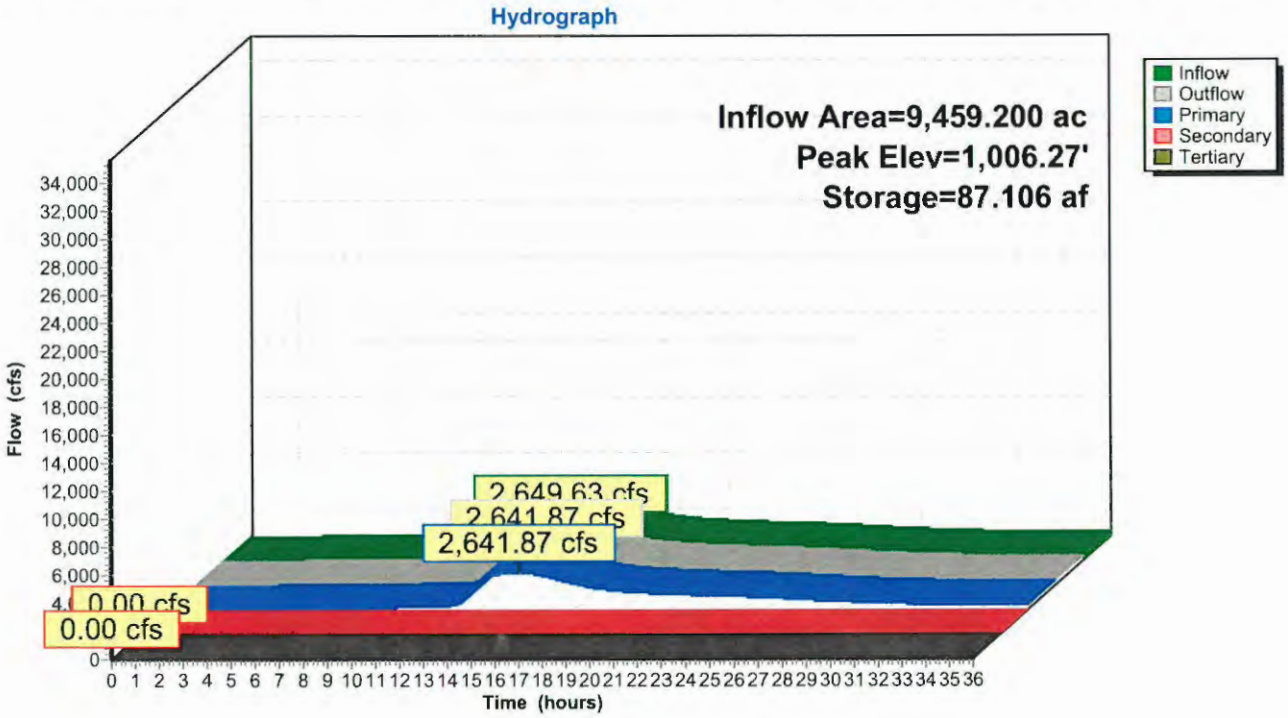
Device	Routing	Invert	Outlet Devices
#1	Primary	1,001.64'	**80.0' long x 2.9' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.45 2.58 2.66 2.66 2.65 2.64 2.65 2.69 2.69 2.73 2.83 2.95 3.01 3.12 3.32
#2	Secondary	1,007.00'	**Right Embankment Weir - Building side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 3.00 4.00 22.00 Width (feet) 63.00 63.00 63.00 63.00
#3	Secondary	1,007.00'	**Left Embankment Weir - Playground side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 3.00 13.00 15.00 Width (feet) 100.00 115.00 165.00 190.00 210.00
#4	Tertiary	1,008.00'	**Weir Flow around Bldg. X 0.50, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 2.00 4.00 6.00 8.00 10.00 12.00 Width (feet) 50.00 90.00 122.00 166.00 240.00 334.00 420.00

Primary OutFlow Max=2,641.87 cfs @ 14.70 hrs HW=1,006.27' TW=999.36' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 2,641.87 cfs @ 7.14 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,001.64' TW=978.00' (Dynamic Tailwater)
├─**2=Right Embankment Weir - Building side** (Controls 0.00 cfs)
└─**3=Left Embankment Weir - Playground side** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,001.64' (Free Discharge)
└─**4=Weir Flow around Bldg.** (Controls 0.00 cfs)

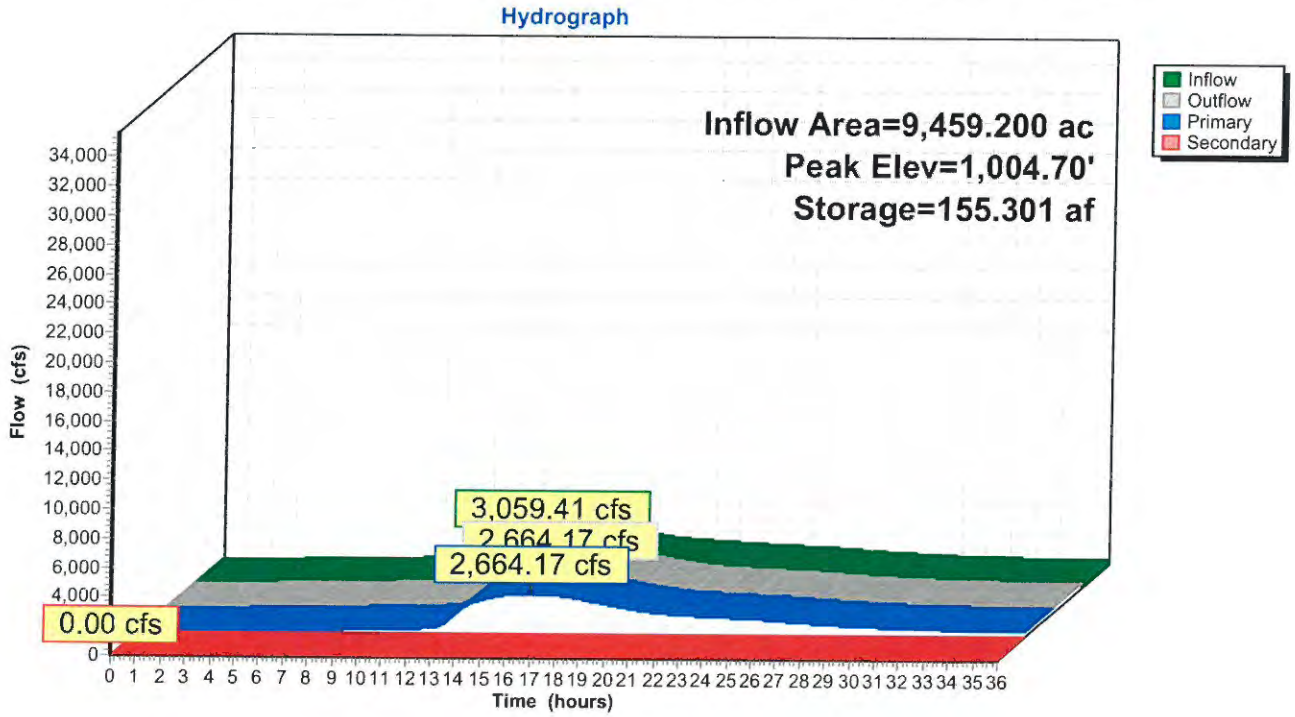
Pond 21P: Sippo Creek Reservoir - Proposed Conditions - Widen Spillway 30-feet



Primary OutFlow Max=2,664.17 cfs @ 15.89 hrs HW=1,004.70' TW=983.90' (Dynamic Tailwater)
└─**1=Box Culvert** (Inlet Controls 2,664.17 cfs @ 23.30 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=978.00' TW=978.13' (Dynamic Tailwater)
└─**2=Linclon Way (172)** (Controls 0.00 cfs)

Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-



Summary for Pond 21P: Sippo Creek Reservoir - Proposed Conditions - Widen Spillway 30-feet

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 3.30" for 1000 year-FEMA event
Inflow = 3,077.78 cfs @ 14.44 hrs, Volume= 2,602.956 af
Outflow = 3,059.41 cfs @ 14.43 hrs, Volume= 2,592.889 af, Atten= 1%, Lag= 0.0 min
Primary = 3,059.41 cfs @ 14.43 hrs, Volume= 2,592.632 af
Secondary = 7.36 cfs @ 15.57 hrs, Volume= 0.257 af
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,001.64' Surf.Area= 6.730 ac Storage= 37.975 af
Peak Elev= 1,007.06' @ 15.57 hrs Surf.Area= 18.908 ac Storage= 101.244 af (63.269 af above start)
Flood Elev= 1,005.00' Surf.Area= 12.657 ac Storage= 68.385 af (30.411 af above start)

Plug-Flow detention time= 43.3 min calculated for 2,554.914 af (98% of inflow)
Center-of-Mass det. time= 12.5 min (1,163.8 - 1,151.2)

Volume	Invert	Avail.Storage	Storage Description
#1	987.68'	1,269.498 af	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
987.68	0.500	500.0	0.000	0.000	0.500
990.00	1.200	1,000.0	1.914	1.914	1.871
994.00	2.000	2,500.0	6.332	8.246	11.463
998.00	3.060	2,611.0	10.045	18.291	12.526
1,000.00	6.204	3,251.0	9.081	27.372	19.381
1,001.64	6.730	4,770.0	10.603	37.975	41.639
1,002.00	7.243	5,147.0	2.515	40.489	48.470
1,004.00	9.610	10,274.0	16.797	57.287	192.907
1,006.00	16.124	11,202.9	25.455	82.741	229.356
1,008.00	21.577	15,736.9	37.569	120.310	452.497
1,010.00	29.674	20,301.4	51.036	171.347	753.009
1,012.00	39.539	22,845.5	68.977	240.324	953.544
1,014.00	68.669	34,370.5	106.876	347.201	2,158.194
1,025.00	100.000	50,000.0	922.298	1,269.498	4,567.224

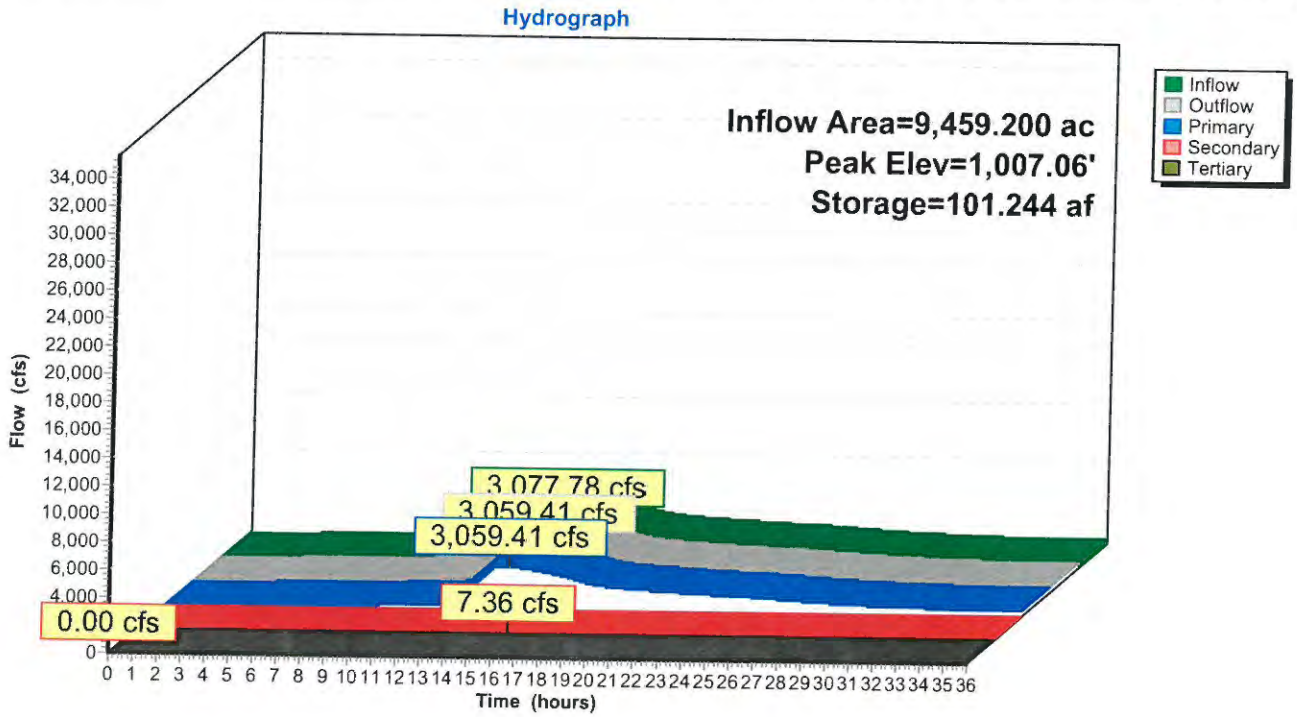
Device	Routing	Invert	Outlet Devices
#1	Primary	1,001.64'	**80.0' long x 2.9' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.45 2.58 2.66 2.66 2.65 2.64 2.65 2.69 2.69 2.73 2.83 2.95 3.01 3.12 3.32
#2	Secondary	1,007.00'	**Right Embankment Weir - Building side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 3.00 4.00 22.00 Width (feet) 63.00 63.00 63.00 63.00
#3	Secondary	1,007.00'	**Left Embankment Weir - Playground side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 3.00 13.00 15.00 Width (feet) 100.00 115.00 165.00 190.00 210.00
#4	Tertiary	1,008.00'	**Weir Flow around Bldg. X 0.50, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 2.00 4.00 6.00 8.00 10.00 12.00 Width (feet) 50.00 90.00 122.00 166.00 240.00 334.00 420.00

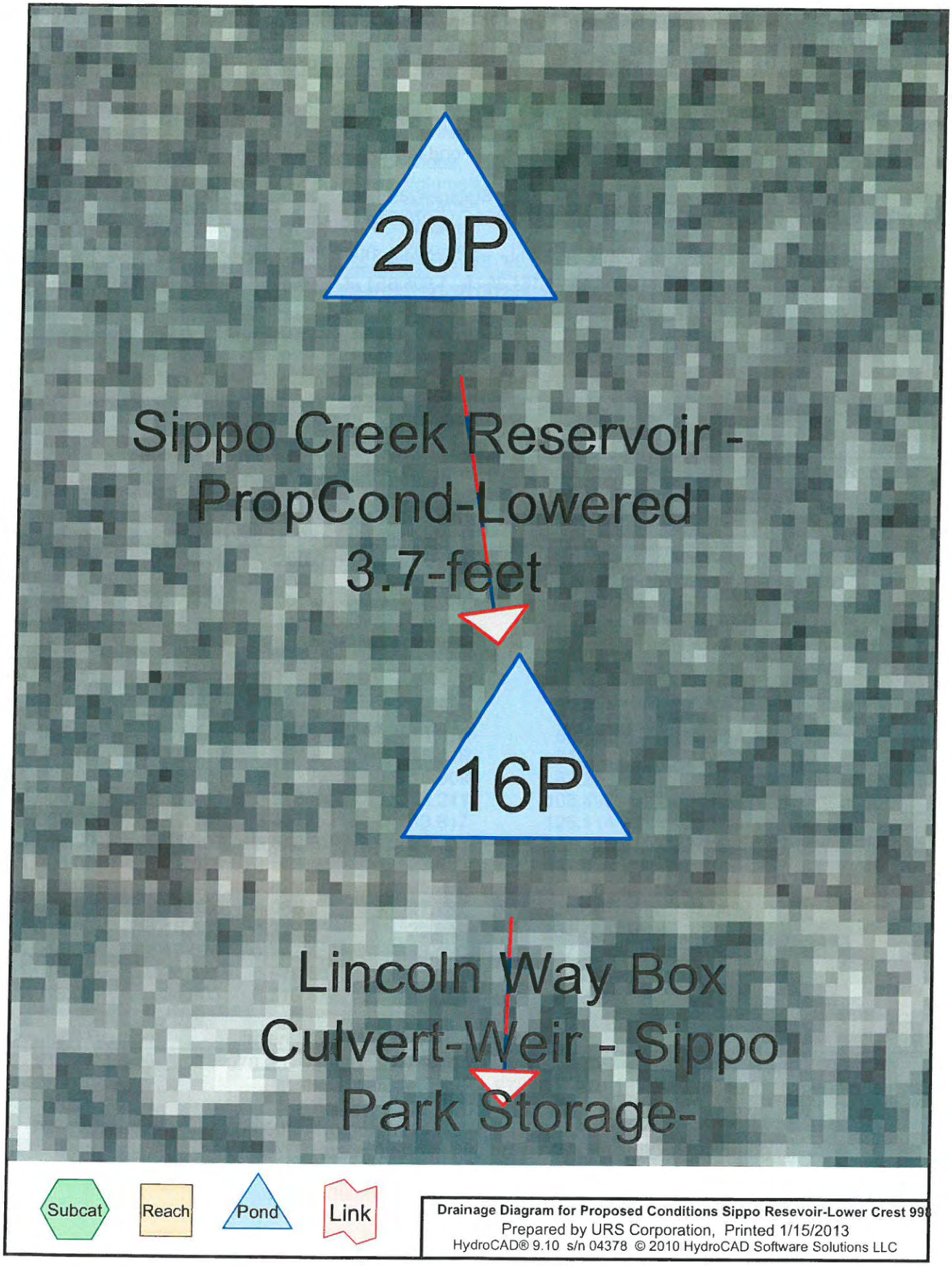
Primary OutFlow Max=3,058.06 cfs @ 14.43 hrs HW=1,006.74' TW=1,001.70' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 3,058.06 cfs @ 7.49 fps)

Secondary OutFlow Max=7.36 cfs @ 15.57 hrs HW=1,007.06' TW=1,004.57' (Dynamic Tailwater)
├─**2=Right Embankment Weir - Building side** (Weir Controls 2.84 cfs @ 0.78 fps)
└─**3=Left Embankment Weir - Playground side** (Weir Controls 4.52 cfs @ 0.78 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,001.64' (Free Discharge)
└─**4=Weir Flow around Bldg.** (Controls 0.00 cfs)

Pond 21P: Sippo Creek Reservoir - Proposed Conditions - Widen Spillway 30-feet





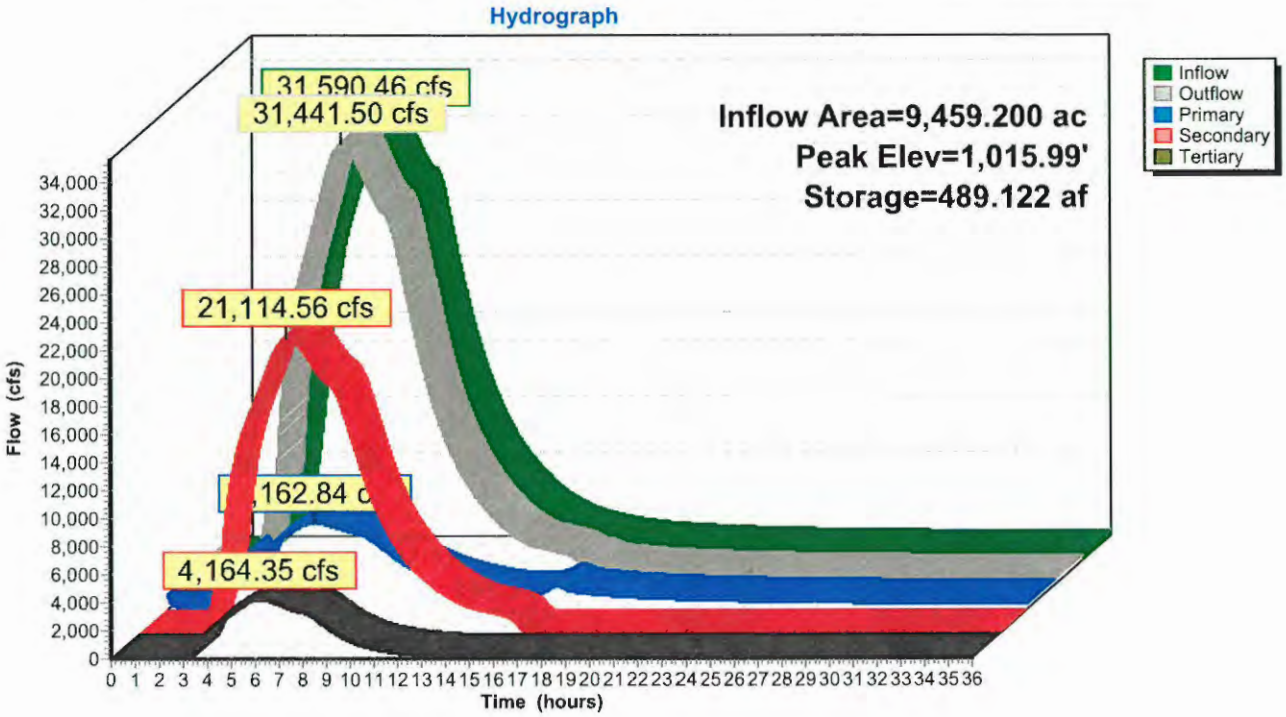
Drainage Diagram for Proposed Conditions Sippo Resevoir-Lower Crest 998
Prepared by URS Corporation, Printed 1/15/2013

Primary OutFlow Max=6,162.36 cfs @ 6.17 hrs HW=1,015.99' TW=1,014.11' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 6,162.36 cfs @ 6.83 fps)

Secondary OutFlow Max=21,112.68 cfs @ 6.17 hrs HW=1,015.99' TW=1,014.11' (Dynamic Tailwater)
├─**2=Right Embankment Weir - Building side** (Weir Controls 6,387.19 cfs @ 6.40 fps)
└─**3=Left Embankment Weir - Playground side** (Weir Controls 14,725.48 cfs @ 6.36 fps)

Tertiary OutFlow Max=4,164.33 cfs @ 6.19 hrs HW=1,015.99' (Free Discharge)
└─**4=Weir Flow around Bldg.** (Weir Controls 4,164.33 cfs @ 3.99 fps)

Pond 20P: Sippo Creek Reservoir - PropCond-Lowered 3.7-feet



Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Pond 16P: Lincoln Way Box Peak Elev=994.34' Storage=58.385 af Inflow=1,976.45 cfs 1,747.046 af
Primary=1,906.53 cfs 1,745.981 af Secondary=0.00 cfs 0.000 af Outflow=1,906.53 cfs 1,745.981 af

Pond 20P: Sippo Creek Reservoir Peak Elev=1,003.15' Storage=49.603 af Inflow=1,980.05 cfs 1,734.015 af
y=1,976.45 cfs 1,747.279 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=1,976.45 cfs 1,747.279 af

Summary for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 2.22" for 100 year-FEMA event
Inflow = 1,976.45 cfs @ 14.81 hrs, Volume= 1,747.046 af
Outflow = 1,906.53 cfs @ 15.51 hrs, Volume= 1,745.981 af, Atten= 4%, Lag= 42.0 min
Primary = 1,906.53 cfs @ 15.51 hrs, Volume= 1,745.981 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 994.34' @ 15.51 hrs Surf.Area= 7.528 ac Storage= 58.385 af
Flood Elev= 1,008.00' Surf.Area= 13.465 ac Storage= 197.028 af

Plug-Flow detention time= 12.2 min calculated for 1,745.497 af (100% of inflow)
Center-of-Mass det. time= 11.5 min (1,155.0 - 1,143.5)

Volume	Invert	Avail.Storage	Storage Description
#1	978.00'	371.368 af	**Stage Storage in Sippo Park (Irregular)** Listed below (Recalc)

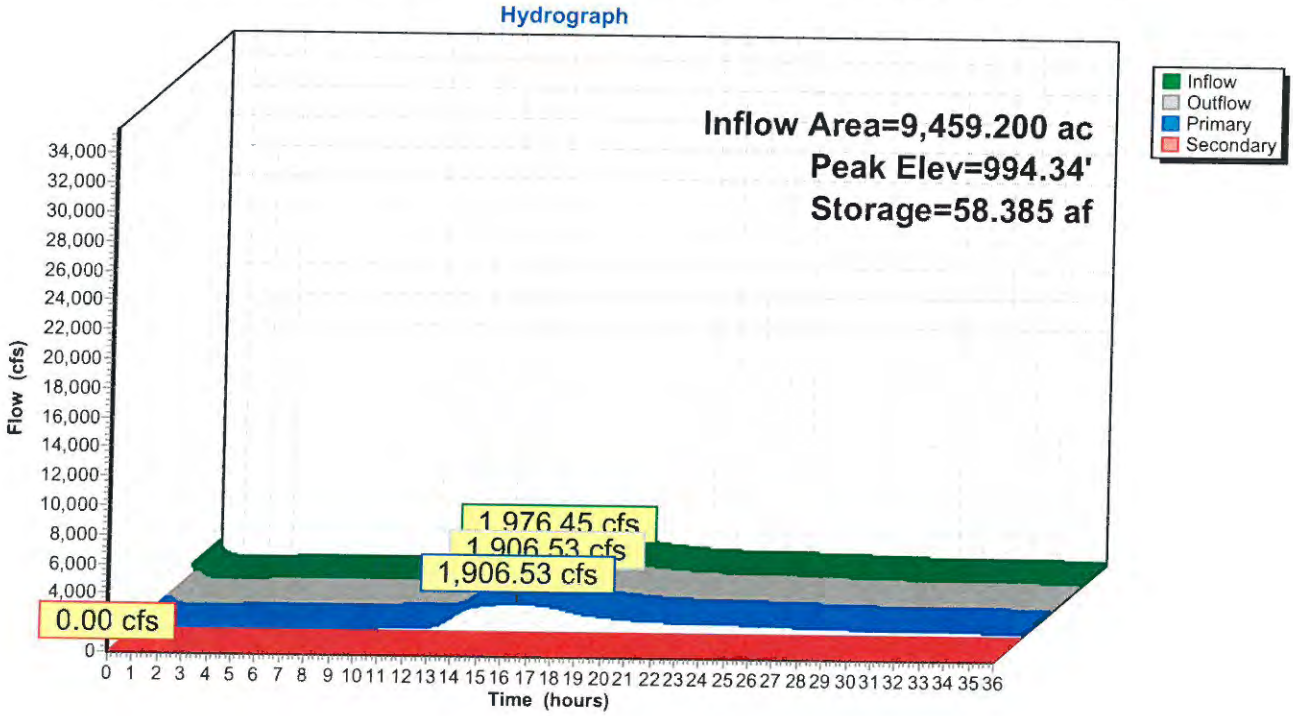
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
978.00	0.100	200.0	0.000	0.000	0.100
981.00	0.300	500.0	0.573	0.573	0.484
982.00	0.659	1,392.9	0.468	1.041	3.572
984.00	2.018	2,470.7	2.553	3.595	11.180
986.00	3.584	3,300.7	5.528	9.122	19.932
988.00	5.007	3,247.5	8.551	17.674	20.586
990.00	6.111	3,143.9	11.100	28.773	21.805
992.00	6.773	3,217.1	12.878	41.652	22.668
994.00	7.411	3,271.9	14.179	55.831	23.334
996.00	8.110	3,253.8	15.516	71.347	23.597
998.00	8.804	3,273.8	16.909	88.256	23.878
1,000.00	9.441	3,318.6	18.241	106.497	24.439
1,002.00	10.181	3,437.0	19.617	126.114	25.908
1,004.00	11.109	3,548.6	21.283	147.398	27.341
1,006.00	12.538	3,553.4	23.633	171.030	27.516
1,008.00	13.465	3,829.8	25.997	197.028	31.248
1,010.00	14.326	4,085.3	27.787	224.814	34.947
1,012.00	15.633	4,329.5	29.949	254.764	38.706
1,014.00	17.576	4,742.6	33.190	287.954	45.555
1,016.00	20.521	5,940.5	38.059	326.013	68.935
1,018.00	24.905	6,310.6	45.355	371.368	77.223

Device	Routing	Invert	Outlet Devices
#1	Primary	978.25'	**168.0" W x 98.0" H Box Box Culvert** L= 121.8' Ke= 0.400 Inlet / Outlet Invert= 978.25' / 978.13' S= 0.0010 '/' Cc= 0.900 n= 0.015 Brickwork
#2	Secondary	1,008.00'	**Linclon Way (172), Cv= 2.63 (C= 3.29)** Head (feet) 0.00 1.00 2.00 4.00 6.00 8.00 10.00 Width (feet) 233.00 373.00 475.00 630.00 790.00 940.00 1,090.00

Primary OutFlow Max=1,906.53 cfs @ 15.51 hrs HW=994.34' TW=983.26' (Dynamic Tailwater)
└─**1=Box Culvert** (Inlet Controls 1,906.53 cfs @ 16.68 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=978.00' TW=978.13' (Dynamic Tailwater)
└─**2=Linclon Way (172)** (Controls 0.00 cfs)

Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-



Summary for Pond 20P: Sippo Creek Reservoir - PropCond-Lowered 3.7-feet

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 2.20" for 100 year-FEMA event
Inflow = 1,980.05 cfs @ 14.66 hrs, Volume= 1,734.015 af
Outflow = 1,976.45 cfs @ 14.81 hrs, Volume= 1,747.279 af, Atten= 0%, Lag= 9.4 min
Primary = 1,976.45 cfs @ 14.81 hrs, Volume= 1,747.279 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,001.64' Surf.Area= 6.730 ac Storage= 37.975 af
Peak Elev= 1,003.15' @ 14.81 hrs Surf.Area= 8.568 ac Storage= 49.603 af (11.628 af above start)
Flood Elev= 1,005.00' Surf.Area= 12.657 ac Storage= 68.385 af (30.411 af above start)

Plug-Flow detention time= 34.1 min calculated for 1,708.830 af (99% of inflow)
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	987.68'	1,269.498 af	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
987.68	0.500	500.0	0.000	0.000	0.500
990.00	1.200	1,000.0	1.914	1.914	1.871
994.00	2.000	2,500.0	6.332	8.246	11.463
998.00	3.060	2,611.0	10.045	18.291	12.526
1,000.00	6.204	3,251.0	9.081	27.372	19.381
1,001.64	6.730	4,770.0	10.603	37.975	41.639
1,002.00	7.243	5,147.0	2.515	40.489	48.470
1,004.00	9.610	10,274.0	16.797	57.287	192.907
1,006.00	16.124	11,202.9	25.455	82.741	229.356
1,008.00	21.577	15,736.9	37.569	120.310	452.497
1,010.00	29.674	20,301.4	51.036	171.347	753.009
1,012.00	39.539	22,845.5	68.977	240.324	953.544
1,014.00	68.669	34,370.5	106.876	347.201	2,158.194
1,025.00	100.000	50,000.0	922.298	1,269.498	4,567.224

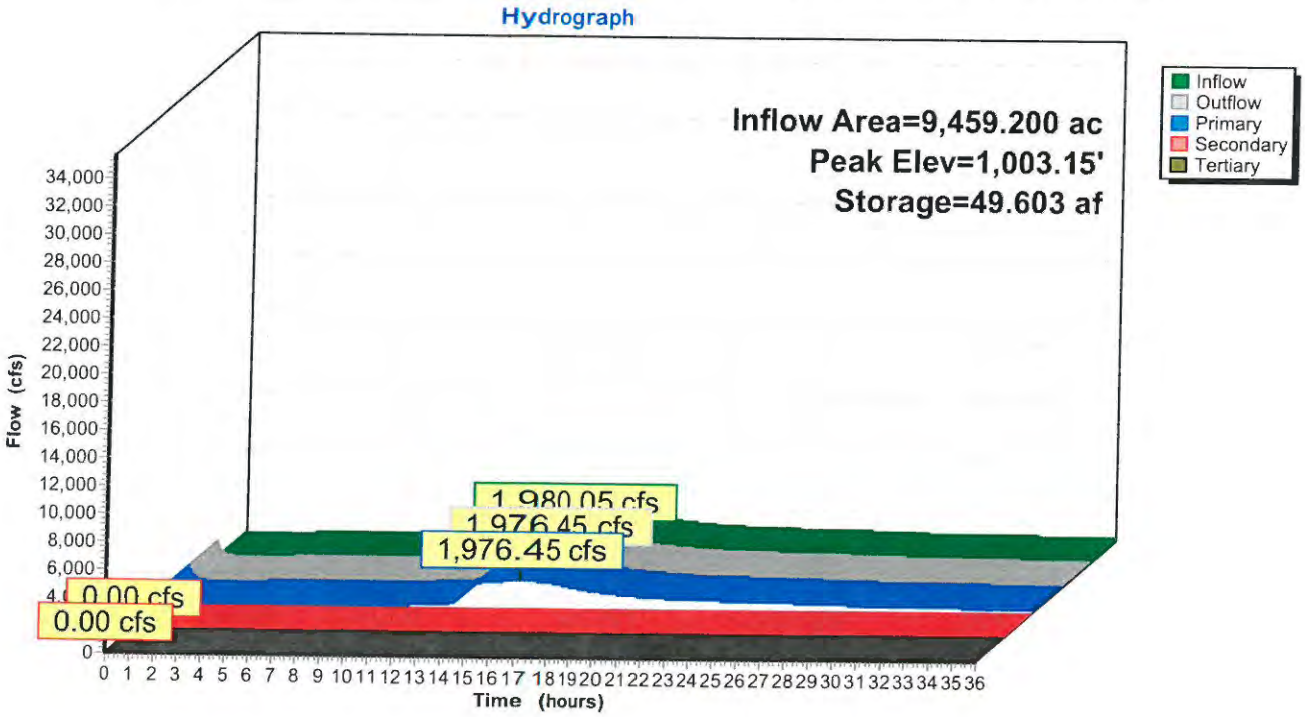
Device	Routing	Invert	Outlet Devices
#1	Primary	997.94'	**50.0' long x 2.9' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.45 2.58 2.66 2.66 2.65 2.64 2.65 2.69 2.69 2.73 2.83 2.95 3.01 3.12 3.32
#2	Secondary	1,003.20'	**Right Embankment Weir - Building side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 3.00 4.00 22.00 Width (feet) 78.00 78.00 78.00 78.00
#3	Secondary	1,003.20'	**Left Embankment Weir - Playground side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 3.00 13.00 15.00 Width (feet) 115.00 130.00 180.00 205.00 225.00
#4	Tertiary	1,008.00'	**Weir Flow around Bldg. X 0.50, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 2.00 4.00 6.00 8.00 10.00 12.00 Width (feet) 50.00 90.00 122.00 166.00 240.00 334.00 420.00

Primary OutFlow Max=1,976.45 cfs @ 14.81 hrs HW=1,003.15' TW=993.86' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 1,976.45 cfs @ 7.58 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,001.64' TW=978.00' (Dynamic Tailwater)
├─**2=Right Embankment Weir - Building side** (Controls 0.00 cfs)
└─**3=Left Embankment Weir - Playground side**(Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,001.64' (Free Discharge)
└─**4=Weir Flow around Bldg.** (Controls 0.00 cfs)

Pond 20P: Sippo Creek Reservoir - PropCond-Lowered 3.7-feet



Summary for Pond 20P: Sippo Creek Reservoir - PropCond-Lowered 3.7-feet

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 3.30" for 1000 year-FEMA event
Inflow = 3,077.78 cfs @ 14.44 hrs, Volume= 2,602.956 af
Outflow = 2,991.30 cfs @ 14.38 hrs, Volume= 2,615.150 af, Atten= 3%, Lag= 0.0 min
Primary = 2,493.20 cfs @ 13.70 hrs, Volume= 2,288.486 af
Secondary = 1,331.99 cfs @ 15.47 hrs, Volume= 326.664 af
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,001.64' Surf.Area= 6.730 ac Storage= 37.975 af
Peak Elev= 1,005.13' @ 15.74 hrs Surf.Area= 13.096 ac Storage= 70.104 af (32.129 af above start)
Flood Elev= 1,005.00' Surf.Area= 12.657 ac Storage= 68.385 af (30.411 af above start)

Plug-Flow detention time= 26.5 min calculated for 2,576.460 af (99% of inflow)
Center-of-Mass det. time= 1.5 min (1,152.8 - 1,151.2)

Volume	Invert	Avail.Storage	Storage Description
#1	987.68'	1,269.498 af	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
987.68	0.500	500.0	0.000	0.000	0.500
990.00	1.200	1,000.0	1.914	1.914	1.871
994.00	2.000	2,500.0	6.332	8.246	11.463
998.00	3.060	2,611.0	10.045	18.291	12.526
1,000.00	6.204	3,251.0	9.081	27.372	19.381
1,001.64	6.730	4,770.0	10.603	37.975	41.639
1,002.00	7.243	5,147.0	2.515	40.489	48.470
1,004.00	9.610	10,274.0	16.797	57.287	192.907
1,006.00	16.124	11,202.9	25.455	82.741	229.356
1,008.00	21.577	15,736.9	37.569	120.310	452.497
1,010.00	29.674	20,301.4	51.036	171.347	753.009
1,012.00	39.539	22,845.5	68.977	240.324	953.544
1,014.00	68.669	34,370.5	106.876	347.201	2,158.194
1,025.00	100.000	50,000.0	922.298	1,269.498	4,567.224

Device	Routing	Invert	Outlet Devices
#1	Primary	997.94'	**50.0' long x 2.9' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.45 2.58 2.66 2.66 2.65 2.64 2.65 2.69 2.69 2.73 2.83 2.95 3.01 3.12 3.32
#2	Secondary	1,003.20'	**Right Embankment Weir - Building side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 3.00 4.00 22.00 Width (feet) 78.00 78.00 78.00 78.00
#3	Secondary	1,003.20'	**Left Embankment Weir - Playground side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 3.00 13.00 15.00 Width (feet) 115.00 130.00 180.00 205.00 225.00
#4	Tertiary	1,008.00'	**Weir Flow around Bldg. X 0.50, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 2.00 4.00 6.00 8.00 10.00 12.00 Width (feet) 50.00 90.00 122.00 166.00 240.00 334.00 420.00

Primary OutFlow Max=2,491.65 cfs @ 13.70 hrs HW=1,004.03' TW=998.03' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 2,491.65 cfs @ 8.19 fps)

Secondary OutFlow Max=1,325.63 cfs @ 15.47 hrs HW=1,005.08' TW=1,004.48' (Dynamic Tailwater)
├─**2=Right Embankment Weir - Building side** (Weir Controls 499.06 cfs @ 3.41 fps)
└─**3=Left Embankment Weir - Playground side** (Weir Controls 826.57 cfs @ 3.36 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,001.64' (Free Discharge)
└─**4=Weir Flow around Bldg.** (Controls 0.00 cfs)

Pond 20P: Sippo Creek Reservoir - PropCond-Lowered 3.7-feet