ENVIRONMENTAL ASSESSMENT
FOR
NJDOT ROUTE 15 NORTHBOUND/PHIPPS ROAD INTERCHANGE IMPROVEMENT AND EASEMENT

ON PROPERTY OWNED BY PICATINNY ARSENAL
ROCKAWAY TOWNSHIP, MORRIS COUNTY, NEW JERSEY
OEA PROJECT NO. 100603

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11.4 Cultural Resource Consulting Group (CRCG) July 19, 2005 letter regarding the absence of Archeological and Historic Structures in the project area.

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11.6 Exhibit Proposed Signs plan dated May 28, 2009, prepared by Schoor DePalma.

1. PURPOSE AND NEED FOR THE ACTION

1.1 INTRODUCTION

The New Jersey Department of Transportation (NJDOT) is requiring certain improvements to the Route 15 north and south bound corridor in the area adjacent to lands owned by various parties including Picatinny Arsenal in Rockaway Township, Morris County, New Jersey, in connection with their approval of the Pondview Estates residential development being constructed on property to the west of Route 15 and the Union Turnpike. More specifically, proposed improvements to the Route 15 northbound interchange with Phipps Road at the Phipps Road/Picatinny Arsenal North (Truck) Entrance encroach beyond the limits of the existing NJDOT right-of-way causing NJDOT to request an easement from Picatinny Arsenal to encompass a portion of the proposed interchange improvements. (See Figure 10.1 USGS Site Location Map)

1.2 PURPOSE AND NEED FOR ACTION

The purpose of the proposed interchange improvements is to increase the capacity and safety of, and to expand the turning movements available at, the existing Route 15 northbound/Phipps Road interchange. All existing interchange turning movements will be improved thus eliminating the inadequacies of the existing interchange for current and future traffic, and a Route 15 northbound far side jug handle will be added at the Phipps Road interchange to accommodate u-turn and westbound Phipps Road traffic including future traffic from the partially constructed Pondview Estates development. That portion of the existing Phipps Road, north of its intersection with northbound Route 15, is located beyond the limits of NJDOT right of way, and is located within Picatinny Arsenal property and is, therefore, currently maintained by the Arsenal. (See Figure 10.2 "Picatinny Arsenal Easement Stakeout plan") The far side jug handle movement that is proposed as part of the Proposed Action is to be located along Phipps Road, approximately 375 feet north of the existing NJDOT right of way limit, thus causing NJDOT to request an easement (shown in grey shading on the cited exhibit) to accommodate the proposed jug handle and its approach roadway so that those portions of the proposed public Route 15 road system can be maintained by NJDOT. Thus, to accommodate construction of the proposed public road improvements and to accommodate the required NJDOT maintenance, the area containing that portion of the proposed interchange which is not within the current limits of NJDOT right-of-way, is the subject of the NJDOT request for an easement from Picatinny Arsenal. The requested easement and the proposed Phipps Road / Route 15 northbound interchange improvements within the easement constitute the Proposed Action.

1.3 SCOPE OF ENVIRONMENTAL ASSESSMENT

The scope of this Environmental Assessment is limited to assessing specific environmental and cultural effects, identified during a meeting with representatives of Picatinny Arsenal held on February 4, 2010, that will result from the implementation of the Proposed Action and its alternatives. (See Figure 10.2 "Picatinny Arsenal Easement Stakeout" plan). For the purpose of this Environmental Assessment (EA), the Proposed Action is defined as the granting of the requested easement by Picatinny Arsenal to the NJDOT to allow the construction and maintenance of the Phipps Road / Route 15 northbound interchange improvements, and the construction of the proposed Phipps Road interchange improvements within that easement area. The proposed improvements would be implemented in conjunction with proposed Route 15 corridor improvements whose construction schedule will be as required by NJDOT. Based on information available at the time of the preparation if this EA, proposed road improvements will be constructed by the beginning of 2013.

1.4 PERMITS AND SURVEYS POTENTIALLY REQUIRED FOR THE ACTION

A variety of permits would be required for the cited interchange improvements and for the granting of the requested easement. These permits would include the following:

1.4.1 An Individual Freshwater Wetland Permit No. 1400-05-0013.1 FWIPW 050001 which was issued by NJDEP on January 28, 2008 and is valid through January 28, 2013.

1.4.2 A Stream Encroachment Permit No. 1400-05-0013.1 FHA 070001 which was issued by NJDEP on January 28, 2008 and is valid through January 28, 2013.

1.4.3 Morris County Soil Erosion and Sediment Control Plan Certification for Land Disturbance is required per NJAC 2:90.

1.4.4 Soil Clearance for Impacted Soils approval is required from the Picatinny Arsenal Environmental Affairs Division

1.4.5 During Construction a UXO avoidance survey and related requirements will need to be addressed prior to any excavation within the requested Picatinny Arsenal Easement area.

1.4.6 A Major Access Permit with Planning Review is required from NJDOT. At the time of preparation of this report, NJDOT had issued its initial Major Access Permit paperwork and necessary Developers Agreement and related paperwork was being finalized.

In addition to the above-listed permits, the Contractor will be required to notify NJDOT, Picatinny Arsenal, NJDEP, and the Morris County Soil Conservation District in advance of construction, and to comply with applicable rules and requirements of those agencies.

2. DESCRIPTION OF PROPOSED ACTION (See Exhibit Proposed Signs plan Appendix 11.6)

2.1.1 Existing Conditions

Phipps Road/Picatinny Arsenal North Truck Entrance currently intersects Route 15 at a signalized intersection. Currently, Route 15 southbound has a three lane travel section extending from just north of Berkshire Valley Road and ending as a lane drop to a nearside jug handle at Phipps Road. Two lanes continue on Route 15 southbound extending to Main Street where the three lane section picks up and continues onto I-80 eastbound and westbound. Northbound, Route 15 provides two through travel lanes until just opposite the NJDOT maintenance yard where it picks up a third northbound lane through the Phipps Road intersection. That lane is continuous to Berkshire Valley Road. The Phipps Road eastbound approach to the Picatinny Truck Entrance currently has a two lane approach which has undesignated movements and limited queuing area. The two lanes provide an unsafe condition in that there is only one receiving lane on the Truck Entrance side of the intersection and traffic must merge as it travels through the intersection to continue on to the one lane receiving lane on the east side of Route 15.

The westbound approach from the exit of the Picatinny Arsenal provides a designated left turn lane and a designated through/right turn lane. Northbound Route 15 provides a nearside jug handle at Phipps Road. The nearside jug handle has no deceleration lane and is directly accessed from the through travel lane on Route 15. The nearside jug handle meets Phipps Road approximately 75 feet to the east of Route 15 providing a very short stacking area for queuing for u-turn or for travel in a westerly direction onto Phipps Road.

Overall, the Phipps Road / Route 15 intersection is sub-standard with many unsafe design features including the southbound lane drop of Route 15 to the jug-handle, the discontinuity of the three lane section southbound on Route 15, the lack of a deceleration lane in the northbound direction to the Phipps Road truck entrance and u-turn maneuver, lack of queue distance availability on the westbound approach of the Picatinny Arsenal exit and the nearside jug handle, and the lack of lane designation and a single receiving lane on the east side of Phipps Road into the truck entrance.

A portion of the Route 15 northbound interchange with Phipps Road is contained within the existing NJDOT right-of way, and a proposed portion is contained within Picatinny Arsenal lands. (see Figure 10.2 "Picatinny Arsenal Easement Stakeout" plan) Since the Proposed Action involves the construction of improved interchange geometry with a far side jug handle movement proposed on the west side of Phipps Road approximately 375 feet north of the current limit of NJDOT right of way, the NJDOT is requiring that the Picatinny Arsenal land area containing that portion of Phipps Road leading northbound to the new jug handle, and the jug handle pavement itself, be included in an easement, in favor of NJDOT, to allow for the construction of the proposed improvements and to allow for perpetual maintenance of the contained improvements by NJDOT. The Proposed Action involves the requested easement by the Arsenal and the construction of the cited road and related improvements within the requested easement area.

2.2 Proposed Conditions: (See Exhibit Proposed Signs plan Appendix 11.6)

It is proposed to significantly enhance both the capacity and safety features of the Phipps Road/Picatinny Arsenal Truck Entrance intersection with Route 15. The proposed improvements will be part of more expansive Route 15 corridor improvements which will include:

2.2.1 Elimination of the current lane drop on southbound Route 15 and the discontinuity of the three lane section by widening Route 15 southbound to provide continuous three through travelled lanes southbound along Route 15 between Phipps Road and Main Street.

2.2.2 Widening of Route 15 Southbound in advance of the Phipps Road intersection to provide a dedicated deceleration lane and the relocation of the southbound jug handle to a point approximately 375 feet north of the intersection providing for improved queue area and stacking.

2.2.3 Widening and reorganization of the Phipps Road eastbound approach to the intersection to provide a separation of turning movements, providing a separate left turn lane, a separate designated through lane to the Picatinny Arsenal Truck Entrance and a separate right turn lane. Elimination of the current lane designation which will remove the current merge condition of the uncontrolled lanes that run through the intersection to the one receiving lane on the Picatinny Arsenal entrance, and which will provide for improved safety for passenger vehicles as well as for the trucks that regularly access the arsenal.

2.2.4 Widening of Route 15 northbound in advance of the intersection to provide an auxiliary lane which will provide a deceleration lane for turning movements into the nearside jug handle which would be redesigned to provide for separate entrance movements into the Picatinny Truck Entrance, and for a far-side jug handle to accommodate non-arsenal u-turn traffic and westbound traffic to Phipps Road separated from arsenal traffic. This reorganization will also provide enhanced ability for Picatinny Arsenal to segregate and to shut down the truck entrance, when need may arise, without impacting public traffic. That segregation would be possible by coning off or otherwise controlling the northbound Route 15 traffic ramp and by coning off the through crossing lane on the Phipps Road eastbound approach, while the public traffic can continue to make left and right turns from the separate left and right turn lanes that will be provided on that approach.

2.2.5 The provisions for north and southbound deceleration lanes will result in enhanced safety for truck and passenger vehicle movements into and out of Picatinny Arsenal and Phipps Road.

2.2.6 Updating of the traffic signal design and operation to accommodate the improved and expanded roadway capacity and geometry and to maximize the efficiency the operation of the signal.

2.2.7 Inclusion of the proposed Phipps Road interchange improvements to be constructed within Picatinny Arsenal property, within the requested Picatinny Arsenal easement to NJDOT, to facilitate the construction of the proposed improvements and the perpetual maintenance of the improvements by NJDOT.

3. ALTERNATIVES CONSIDERED

3.1 Alternatives Considered and Dismissed from Detailed Analysis

3.1.1 Alternate Location for Proposed Interchange

Under this alternative, the access into Picatinny Arsenal and the entire Phipps Road and Hawk Drive interchange with Route 15 north and southbound would be shifted to the north or south of the existing interchange location. Due to the fact that all but a small portion of the Proposed Action related interchange improvements will be located on lands already occupied by existing pavement and due to the fact that shifting the entire interchange north or south would dramatically increase the footprint of road improvements into undeveloped lands, and thus increase the related environmental impact, this alternative was rejected as an alternative, and same was therefore eliminated from further evaluation as part of this EA.

3.2 Alternatives Retained for Detailed Analysis

3.2.1 No Action Alternative

NEPA regulations (Title 32, Chapter V, Part 651.34(d)) require that this alternative be carried through the EA as a baseline for comparison to the Proposed Action. The "No Action" alternative is defined as the maintenance of the subject Phipps Road/Route 15 interchange in its existing condition.

4. AFFECTED ENVIRONMENT

4.1 Threatened and Endangered Species

The USFWS and the New Jersey Heritage Program were contacted in connection with the Individual Wetlands Permit and Stream Encroachment Application submitted to New Jersey Department of Environmental Protection (NJDEP) in connection with the highway improvements that include the Proposed Action. The USFWS indicated, as part of their review of the cited permit application, that portions of the Picatinny Arsenal property support Indiana Bat habitat. Per reference source 9.10 , the Indiana Bat is the only federally endangered species known to inhabit portions of Picatinny Arsenal and one federally threatened species, the bog turtle, is known to inhabit portions of the Arsenal. However, the area of the Proposed Action is not appropriate habitat for the Bog Turtle. There are two state listed endangered species, the timber rattle snake and the bobcat, that inhabit portions of the Arsenal property, however, the area of the Proposed Action, adjacent to Rt 15 including a minor area of undisturbed area between Rt 15 and Phipps Road and including portions of the paved Phipps Road/Rt 15 interchange is clearly not adequate habitat for either of those species. There are no known federally threatened or endangered plant species known to inhabit the Picatinny Arsenal property per a list prepared by the U.S. Army Environmental Center (INRMP 2001).

4.2 Environmental Justice

There are no Environmental Justice issues that exist relative to property of or in the vicinity of the Proposed Action, or that will be created by the Proposed Action.

4.3 Soil Contamination

Soil Contamination is not known to exist in the vicinity of the proposed action, except to the extent that runoff from adjacent roadway areas may be transporting typical petroleum products from the surface of the existing roadways and except that the area of the Proposed Action is within the area impacted by possible

unexploded ordinance from former operations at Picatinny Arsenal, which would need to be addressed during construction by required procedures.

4.4 Erosion

The topography in the immediate area of the Proposed Action is relatively gently sloping with portions of the road beds of Phipps Road and Route 15 elevated above the adjacent grade as a result of manmade fills. Fill slopes and areas in the vicinity of drainage inlets and outfalls are more susceptible to erosion than the balance of the area. Additional areas of impervious surface will generate additional runoff and related erosion potential unless same is uncontrolled.

4.5 Flood Plains

The Proposed Action involves road and drainage improvements in an area naturally tributary to the Green Pond Brook drainage basin. More specifically, the proposed Phipps Road/Route 15 interchange improvements that constitute the Proposed Action are traversed by an unnamed tributary of the Green Pond Brook. That unnamed tributary flows into Picatinny Arsenal fed primarily by an existing 48 inch culvert under Phipps Road. Approximately 300 feet downstream from the Phipps Road culvert another minor tributary feeds the cited unnamed tributary however the drainage area to this minor tributary will be unaffected by the Proposed Action or by the related Route 15 corridor improvements. Upstream drainage, mostly piped, conveys runoff from portions of the Route 15 corridor, from the Phipps Road/Route 15 interchange and from a drainage area west of Route 15. The area of the Proposed Action is located entirely above the 100 year floodplain of the Green Pond Brook, while it does impact the previously mentioned unnamed tributary to the Green Pond Brook.

4.6 Natural Resources

Natural resources in the area of the proposed action include surface water, groundwater, soils and plant and animal species. Surface water is tributary to the previously mentioned unnamed tributary to the Green Pond Brook and emanates mostly from drainage systems associated with development along the Route 15 corridor. Existing runoff from these areas is generally uncontrolled as it flows into the Picatinny Arsenal property. Existing runoff will be affected by the Proposed Action.

Groundwater in the area of the Proposed Action is far enough below grade that it will not be affected by the relatively shallow proposed improvements. See section 4.1 of this Environmental Assessment for a description of Threatened and Endangered Species.

4.7 Wetlands

Wetlands are located within close enough proximity to the Proposed Action that required Wetland Transition areas will be impacted by the proposed improvements. Wetland limits shown on the plans associated with the improvements proposed as part of the Proposed Action were delineated in the field by a CMX Engineering wetland expert, were survey located by CMX surveyors and were plotted on the maps for the Proposed Action by CMX Engineers, and were ultimately confirmed by the NJDEP in a Letter of Interpretation under file number 1400-03-002.1-030001. Wetlands, State Open Waters and additional Wetland Transition areas outside of property owned by the Arsenal are encroached upon by roadway and drainage improvements associated with the overall Route 15 corridor improvements that the Proposed Action is associated with.

4.8 Land Use

Land Use in the immediate area of the Proposed Action is predominantly previously improved roadways in the form of Route 15 and Phipps Road, with some undeveloped land in the area of proposed roadway and drainage piping improvements. Land Use related issues that are affected by the Proposed Action include floodplains, drainage, wetlands and stream encroachment, all three of which are addressed in more detail in the Floodplain and Wetland sections of this report.

4.9 Cultural Resources

In that the area of the Proposed Action is the area of an existing busy Route 15/Phipps Road interchange and a much smaller adjacent undeveloped fringe area, with no structures other than roadway pavement, curbing and drainage structures, with the exception of one plaque memorializing George Yaksis, Jr., a Picatinny Arsenal deceased employee, which plaque is located at the top of bank adjacent to Phipps Road just north of the Phipps Road ramp diverge from Route 15 north. No known Archeological or Historic artifacts or structures are affected by the Proposed Action. See Appendix for July 19, 2005 Cultural Resource Consulting Group letter describing the absence of Archeological sites or National or Federal Historic structures in the area of the overall Route 15 improvements which include, as a minor part, the improvements associated with the Proposed Action.

4.10 Traffic and Transportation

See Section 2 of this report for a detailed description of the existing and proposed Traffic Conditions associated with the Proposed Action and with the overall Route 15 corridor improvements slated to be implemented in concert with the Proposed Action related improvements. In general the all traffic utilizing the Phipps Road / Route 15 northbound interchange will be impacted by the Proposed Action. That includes Picatinny Arsenal Truck Entrance traffic, Pondview Estates traffic and Route 15 corridor traffic.

5. Environmental Consequences

5.1 Threatened and Endangered Species

5.1.1 Effects of the Proposed Action

The granting of the proposed easement itself obviously will not impact the Environment. The construction of the proposed improvements within the requested easement area will involve minimal disturbance of undeveloped land area, in that most of the proposed improvements, in the form of proposed pavement, curb and drainage facilities, will be constructed in areas already occupied by existing pavement and curb. Within property owned by the Arsenal, the Proposed Action will decrease existing impervious cover by 1230 square feet and will increase impervious cover by 7005 square feet, for a net increase of only 5775 square feet or 0.16 acres. The disturbance to wooded area by the Proposed Action would amount to only 1041 square feet. Thus the potential impact to habitat for any species of plants or animals by the Proposed Action is very small and any animal species that are affected will easily relocate to adjoining lands and any plant species affected are duplicated on the extensive nearby undeveloped lands. (See Figure 10.2 "Picatinny Arsenal Easement Stakeout plan"). Due to the potential for the presence of the Federally Endangered Indiana Bat on properties within lands owned by Picatinny Arsenal, the area to be cleared to accommodate the construction of the improvements associated with the Proposed Action will not be cleared between April 1 and November 15 unless the subject area contains no trees greater than 5 inches in diameter measured at a point 4 ½ feet above the ground (dbh), or unless 2 consecutive days of "tree sitting" by the Picatinny Arsenal Natural Resource Manager, immediately prior to tree clearing, confirms the absence of bats in the trees to be removed.

5.1.2 Effects of the No Action Alternative

The No Action Alternative would not affect plant and animal species; however, it would leave the Route 15 corridor traffic, including Picatinny traffic, without the benefit of the road improvements identified as the "Proposed Action"

5.2 Environmental Justice

5.2.1 Effects of the Proposed Action

Based on the small area of additional impervious cover associated with the Proposed Action, based on the nature of the Proposed Action and based on the lack of bias relative to the location of the Proposed Action, Environmental Justice will not be a factor relative to the proposed improvements or relative to the grant of the requested easement.

5.2.2 Effects of the No Action Alternative

There is no benefit to Environmental Justice if the Proposed Action does not move forward, since the Proposed Action will not affect Environmental Justice.

5.3 Soil Contamination

5.3.1 Effects of Proposed Action

The actual net area of additional pavement or impervious cover which would result from the construction of the proposed Route 15 northbound/Phipps Road interchange improvements to be constructed within the lands owned by Picatinny Arsenal is only 5775 square feet since much of the area of proposed pavement is already covered by existing pavement. Therefore any impact resulting from petroleum products dripping from passing vehicles on the completed roadway pavement will be extremely minimal. In addition, the nature of the proposed construction, including sediment control measures delineated in the Sediment Control Plan, is such that contaminants in the form of petroleum products dripping from construction vehicles will be minimal during construction, will be a minor factor only during construction and will not represent more than a very minimal temporary impact.

The impact on potential unexploded ordinance (UXO) from past operations at Picatinny Arsenal will be a possibility in all of the areas to be excavated within the limits of the proposed roadway and drainage improvements within property owned by Picatinny Arsenal and, therefore, prior to any construction, construction specifications will dictate that a UXO sweep be accomplished by an approved UXO Contractor so that any areas of excavation can be declared UXO free prior

to excavation by the roadway improvement contractor. The granting of the requested easement to NJDOT as part of the Proposed Action, will allow NJDOT to maintain that portion of the proposed interchange improvements located within the easement area, while Picatinny Arsenal will continue to own the land housing the easement. The limit of maintenance jurisdiction will be consistent with the public/arsenal limit existing prior to implementation of the Proposed Action, in that all public portions of the interchange will be maintained by NJDOT while all Phipps Road/Picatinny Arsenal Truck Entrance roadway facilities, beyond the easement limits, will be maintained by the Arsenal. It should be noted that the organization, segregation and safety of Truck traffic entering the Arsenal via the Phipps Road entrance will be improved as a result of the implementation of the Proposed Action.

5.3.2 Effects of the No Action Alternative

Implementing the No Action alternative would not impact Soil Contamination or potential UXO, however, due to the very minimal soil pollution impact and due to the UXO sweep to be accomplished prior to any excavation associated with the implementation of the Proposed Alternative; the No Action alternative does not constitute a significant improvement versus same.

5.4 Erosion

5.4.1 Effects of the Proposed Action

The construction of the proposed additional connection between Phipps Road and Route 15 north bound will be elevated above the existing grade and will involve fill slopes. Some degree of erosion of those slopes during construction will be unavoidable prior to slope stabilization when such slopes are exposed to rain or wind. Such impact will be minimized through the implementation of soil erosion and sediment control measures outlined in the sediment control documents (see Appendix 11.2 Soil and Sediment Control Design Report). Those measures will include silt fence placed at the toe of all proposed slopes in advance of any construction and same will be maintained through the life of the construction. Also all inlets will be protected with filter fabric during construction and until the non-pavement areas have been stabilized with vegetation. The additional pavement areas associated with the Proposed Action are minimal (less than 6000 square feet) and will therefore generate very little increase in runoff rate. However, Stormwater Management facilities to be constructed upstream of the area of the Proposed Action, as part of the overall Route 15 corridor improvements to be constructed in concert with the Proposed Action, will attenuate the existing rates of runoff tributary to such facilities to levels below the

existing levels such that the net effect of the minor areas of additional pavement associated with the Proposed Action will be compensated for by the cited storm water facilities, such that the rate of runoff entering Picatinny property subsequent to the Proposed Action will be less than the rate of runoff for the pre-Proposed Action condition. Since the runoff rate will be less than the existing runoff rate, the potential for stream bank erosion will not be increased as a result of the Proposed Action.

5.4.1 Effects of the No Action Alternatives

Implementation of the No Action Alternative would not impact erosion potential for the area of the Proposed Action.

5.5 Floodplains

5.5.2 Effects of the Proposed Action

As a result of the previously mentioned Stormwater Management facilities to be constructed as part of the overall Route 15 corridor improvements which would be implemented in concert with the Proposed Action, the rate of runoff tributary to the unnamed tributary of the Green Pond Brook that is impacted by the Proposed Action, will be no greater after implementation of the Proposed Action, than the rate of runoff existing prior to any construction associated with the Proposed Action. In fact, the rate of runoff will be reduced.

The unnamed tributary to the Green Pond Brook that is affected by the Proposed Action is fed by an existing pipe culvert flowing from west to east under that portion of Phipps Road which is the subject of the easement and road improvements constituting the Proposed Action. (See Figure 10.2 "Picatinny Arsenal Easement Staking plan"). As part of the design performed to obtain the NJDEP issued Stream Encroachment Permit which allows the proposed improvements to the Route 15 corridor, including the road and drainage improvements associated with the Proposed Action, Schoor DePalma performed HEC-RAS hydraulic analysis utilizing the Unites States Army Corps of Engineers Hydrologic Center River Analysis Software to confirm that the water surface profile for the unnamed tributary fed by the subject Phipps Road culvert would not be increased in elevation by the proposed improvements for the 2, 10 and 100 year storm events. In fact, the data confirms that the water surface profile, studied for 100 feet upstream and 550 feet downstream of the outfall of the Phipps Road culvert, actually drops in elevation along the entire 550 foot downstream reach for the 100 year storm. The lack if increase to that water surface profile for the broad range of storm events is a direct result of the reduction in runoff rate accomplished by the proposed storm water management

facilities that are part of the overall Route 15 corridor improvements of which the Proposed Action is a part.

A Regional Drainage Analysis was performed using the Soil Conservation Service technical Release 55 methodology in conjunction with the Pondpack Version 9.0 software program in order to determine the peak discharges of the drainage basin flowing to the unnamed tributary to the Green Pond Brook both upstream and downstream of the Phipps Road Culvert for the 2, 10 and 100 year storm events as required by NJDEP regulations. Points of study included the outfall for the subject Phipps Road culvert and the point of confluence (Downstream Confluence) of a smaller tributary with the previously cited unnamed tributary to the Green pond Brook, 300 feet downstream from the outlet of the Phipps Road Culvert. The rate of runoff analysis is summarized as follows:

Drainage Area	Storm Frequency	Existing Flow (CFS)	Proposed Flow (CFS)
Phipps Road Culvert Outlet	2	128	120
Phipps Road Culvert Outlet	10	226	212
Phipps Road Culvert Outlet	100	409	400
Phipps Road Culvert Outlet	100+25%	511	500
Downstream Confluence	2	153	150
Downstream Confluence	10	275	261
Downstream Confluence	100	502	492
Downstream Confluence	100+25%	628	615

As shown, the rate of runoff into the Arsenal from the unnamed tributary to the Green Pond Brook, fed by the Phipps Road Culvert will be reduced as a result of the implementation of roadway and drainage improvements proposed as part of the Proposed Action, and the overall Route 15 corridor improvement project that the Proposed Action is associated with. Relative to the flood plain for the Green Pond Brook, the Proposed Action is located entirely beyond the limits of the Green Pond Brook's 100 year flood plain, and because of that and because of the above described lack of increase to the water surface profile and rate of runoff for the unnamed tributary to the Green Pond Brook, the Proposed Action will have no negative impact on the 100 year flood plain for the Green pond Brook.

5.5.2 Effects of the No Action Alternative

Implementation of the No Action alternative would not impact floodplains or drainage, except that, since the cited storm water management facilities will only be constructed if the Proposed Action is implemented, the Picatinny Arsenal

property would not benefit from the slight reduction in the rate of runoff and the related water surface profile that would otherwise result from the implementation of the Proposed Action and the related Route 15 corridor improvements.

5.6 Natural Resources

5.6.1 Effects of the Proposed Action

Implementation of the improvements associated with the Proposed Action will be accomplished in concert with the previously mentioned Route 15 corridor improvements which will include the construction of two storm water management basins which will improve the quality of and reduce the rate of runoff of flows which are tributary to Picatinny Arsenal property carried by the unnamed tributary to the Green Pond Brook. See the "Floodplain" section of this report for a more detailed description of the drainage impact. The Proposed Action will not affect groundwater since it involves relatively shallow improvements above the water table. Relative to the impact on other natural resources, implementation of the Proposed Action will have minimal impact based on the relatively small net area (5775 square feet) of additional impervious surface associated with the Proposed Action, and based on the fact that the area to be impacted is located immediately adjacent to Phipps Road and Route 15 northbound. Animal species, if any, associated with the area to be impacted will easily relocate into vast adjacent or nearby undisturbed areas, and plant species affected are well represented in those adjacent or nearby areas. See separate "Threatened and Endangered Species" and "Erosion" and Floodplain" sections of this report.

5.6.2 Effects of the No Action Alternative

Implementation of the No Action alternative will have no impact on natural resources other than that described in the floodplain section of this report.

5.7 Wetlands

5.7.1 Effects of the Proposed Action

Per confirmation contained in the previously cited NJDEP issued Individual Wetlands Permit, wetlands do exist in the area between Route 15 north bound and the parallel portion of Phipps Road, just north of the existing interchange of those two roadways. Those wetlands, however, are intermittent and do not extend across the area to be traversed by the proposed far side jug handle ramp to connect Route 15 northbound and Phipps Road to the north of the existing interchange, and do not extend into the area of the proposed west edge widening

of the Phipps Road entrance into the Arsenal in the area of the requested easement, all as shown in blue on the "Picatinny Arsenal Easement Stakeout plan" included in this report as Figure 10.2. Those two areas represent the majority of the proposed pavement associated with the Proposed Action. Wetlands will not be encroached upon by the Proposed Action and existing drainage discharge points into Picatinny Arsenal lands will not be altered by the Proposed Action. While State imposed Wetland Transition areas will be encroached upon by the Proposed Action, the net impact on same would be represented by only slightly more than the 5775 square feet of net additional pavement associated with the proposed improvements since much of the area of the Proposed Action is represented by existing pavement and since only the additional paved roadway area and the adjacent slope area will represent encroachment into wetland transition areas, and since some areas of existing pavement (shown in red on the cited Plan) is slated to be removed as part of the Proposed Action. Since the proposed wetland transition area encroachment and its related Individual Permit were included in an application to the NJDEP by the NJDOT, and since the subject encroachment is contained within the requested easement area, the proposed transitional area encroachment will not be counted as transitional area encroachment within the Arsenal property by NJDEP and will, therefore, not impact the tabulation of such transition area and wetland encroachment area associated with wetland permit tabulation within the Picatinny Arsenal property. The proposed encroachment will, therefore, have no impact on pending or future wetland related permit applications which may be sought for the Picatinny Arsenal property. Lastly, the proposed transition area encroachment associated with the Proposed Action involves transition areas tied to wetlands contained in narrow areas immediately adjacent to Route 15 northbound and Phipps Road pavement in a high traffic area, where the actual quality and importance of the wetland areas, and therefore their transition areas, are considered by some to be lower than that of other larger wetland areas in the immediate area which are much further from the cited roadways.

The Transition Area encroachment cited above has been approved by NJDEP as part of an Individual Wetlands Permit issued by NJDEP for the Proposed Action impact and the impact of other Route 15 corridor improvements proposed beyond the limits of the Proposed Action. As a requirement of the issued Individual Permit, NJDEP has required that a Wetland Mitigation area be created. That area will be created on Pondview Estates property on the west side of Route 15 and will constitute just under 0.6 acres of proposed Forested Wetlands.

The bottom line from an impact perspective is that while wetland transition area will be impacted by the Proposed Action, the area of that impact and therefore

the impact itself would be minimal, the impact has been approved as part of a very rigorous NJDEP Individual Wetland Permit process, the impact will not affect pending or future wetland permits which may be applied for within the Arsenal property, and the impact will be compensated for by offsite wetland mitigation area creation.

Granting of the requested Easement by Picatinny Arsenal to NJDOT will not change the impact on wetland transition areas.

5.7.2 Effects of the No Action Alternative

Implementation of the No Action alternative would eliminate the proposed encroachment into 6000+/- sf of wetland transition area.

5.8 Land Use

5.8.1 Effects of the Proposed Action

Since the majority of the area of the Proposed Action is currently functioning as an interchange between Phipps Road and Route 15 northbound, and since the net area of additional pavement is only 5775 square feet, and since the area of that additional pavement is adjacent to and in close proximity to the existing Phipps Road and Route 15 northbound pavement where no other land use can take practically take place, the Proposed Action will not negatively impact physical Land Use. See Floodplain, Wetland and Natural Resource Sections of this report for impact on Land Use related issues including floodplains, drainage, wetlands and stream encroachment.

5.8.2 Effects of the No Action Alternative

Implementation of the No Action alternative will have no impact on Land Use issues cited in the prior paragraph except as described in the Floodplain section of this report.

5.9 Cultural Resources

5.9.1 Effects of the Proposed Action

The implementation of the Proposed Action will not impact Cultural, Archeological or Historic Resources in that the area of disturbance associated with the Proposed Action is relatively small and in that there are no known structures or artifacts that will be affected in the area to be disturbed by the Proposed Action. The existing, small deceased Picatinny employee plaque located at the top of the earth berm area to the east of the east curb of existing Phipps Road just north of the existing NJDOT/Picatinny Arsenal limit line (see

Appendix 11.4 Cultural Resource Consulting Group letter) has no recorded historical significance, and same will not be relocated as a result of the Proposed Action. The majority of the area to be disturbed, associated with the Proposed Action, would be existing paved roadway area associated with the existing Phips Road / Route 15 northbound interchange, and the net additional impervious cover proposed as part of the Proposed Action amounts to only 5775 square feet. During Construction of improvements associated with the Proposed Action, any archeological artifacts encountered during construction shall be immediately reported to the Picatinny Arsenal Cultural Resources Coordinator.

5.9.2 Effects of the No Action Alternative

Implementation of the No Action alternative will not impact Cultural or Historic Resources.

5.10 Traffic and Transportation

5.10.1 Effects of the Proposed Action

In general, the implementation of the Proposed Action will improve roadway conditions and capacities and safety at the Phipps Road / Route 15 northbound interchange, and within the limits of the associated Route 15 corridor and related intersection improvements. A detailed description of the proposed road improvements is included in Section 2 of this report, "Description of Proposed Action". That section also describes the positive impact of the various improvements identified. To better quantify the benefits of such improvements in accommodating the traffic anticipated from the Pondview Estates development in addition to the traffic anticipated from Picatinny and from the public roadway system, roadway capacity analyses were necessary.

Capacity analyses were conducted for the morning and evening peak street hours at the study location. The methodology utilized in the capacity analyses is described in the 2000 Highway Capacity Manual, published by the Transportation Research Board. The following table summarizes the results of the capacity analyses with regards to the Phipps Road and truck access approaches for the "No Action" and for the "Proposed Action" alternatives:

TABLE 1 INTERSECTION LEVELS OF SERVICE

			"NO BUILD"				"BUILD" WITH IMPROVEMENTS			
			AM PSH		PM PSH		AM PSH		PM PSH	
Intersection	Movement		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Route 15 (N/S) and Phipps Road/Hawk Drive (E/W)	EB	Left	-	-	-	-	D	40.3	E	74.4
	EB	(Left/)Thru(/Right)	F	123.3	E	56.4	E	64.2	D	45.1
	EB	Right	-	-	-	-	D	53.0	D	50.5
	WB	Left	E	73.8	E	60.0	D	41.0	D	35.5
	WB	Thru(/Right)	E	64.9	E	67.3	D	54.0	E	63.6
	WB	Right	-	-	-	-	D	51.5	D	54.7

With the addition of the future Pondview Estates and other development traffic and the proposed geometric improvements, the eastbound and westbound approach movements will operate with levels of service "D" during both peak hours studied with the exception of the eastbound through movement during the morning peak hour and the eastbound left turn movement and westbound through movement during the evening peak hour, which operate with acceptable levels of service "E". It should be noted that with the construction of the proposed improvements, the operation of all of the eastbound and westbound movements will improve and proper geometry and queue areas will be provided. Overall, the intersection will be safer and more convenient to motorists and trucks.

The proposed intersection improvements conform to the standards as established by NJOT for current geometric design of roadways and intersections. All lane widths and turning radii are designed to accommodate heavy vehicles common to the Picatinny Arsenal truck entrance.

The Arsenal is designated as a "Safe Haven". The improvements to the intersection will enhance this designation by providing improved capacity and geometry at the Truck Entrance for the flow of heavy vehicles to and from the Arsenal. The project provides for enhanced capacity and safety for the truck

access to the Picatinny Arsenal with increased capacity and separation of public movements from Picatinny Arsenal entering traffic.

The actual net area of additional pavement or impervious cover which would result from the construction of the proposed Route 15 northbound/Phipps Road interchange improvements to be constructed within the lands owned by Picatinny Arsenal is only 5775 square feet since much of the area of proposed pavement is currently paved. The area of the actual far side jug handle connection represents the most significant area of proposed pavement (shaded blue on the cited exhibit) and its area is partially compensated for by removal of minor areas of pavement in other portions of the subject interchange as shown on the cited exhibit in red. (See Figure 10.2 "Picatinny Arsenal Easement Stakeout plan").

In summary, the Proposed Action will be a positive impact to the Phipps Road / Route 15 northbound interchange in that safety and capacity will be improved and in that levels of service will be improved or not deteriorated while the additional traffic is accommodated.

5.10.2 Effects of the No Action Alternative

If the No Action alternative is implemented the Phipps Road / Route 15 northbound interchange deficiencies identified in section 2.1 of this report will not be eliminated.

6 Cumulative Effects Summary and Mitigating measures

6.1 Based on the very limited size (5775 square feet) of the net proposed increase in impervious surface associated with the implementation of the Proposed Action, based on the location of the proposed improvements, adjacent to existing heavily travelled roadways, and based on the positive traffic and drainage impacts associated with implementation of the Proposed Action, the cumulative effects of the Proposed Action do not constitute a significant negative impact to the environment. In fact, with the implementation of the proposed mitigating measures, the net effect of the Proposed Action, on many environmental factors, will represent a positive impact on the environment. Mitigating measures associated with the impacts of the implementation of the Proposed Action and the implementation of the related Route 15 corridor improvements include the following:

6.1.1 Soil Erosion and Sediment control measures will be implemented prior to and during construction to prevent erosion and sediment damage which would otherwise result from land disturbance. Such measures will be as indicated on Sediment and Erosion Control plans and details which will be required to be

certified by the Morris County Soil Conservation District in advance of any construction. (See Soil Erosion and Sediment Control Design Report in Appendix 11.2)

6.1.2 Stormwater Management facilities whose net result is to improve water quality and to reduce rates of runoff in waters tributary to the Picatinny Arsenal property as part of the implementation of the Proposed Action constitute mitigation for impacts associated with the proposed additional disturbance and impervious cover.

6.1.3 Creation of 0.558 acres of forested wetlands will be accomplished as mitigation for the proposed encroachment into 0.214 acres of intermediate value wetlands, 0.065 acres of State Open Waters, and 1.278 acres of Wetlands Transition area by the previously mentioned Route 15 corridor improvements being constructed in concert with the Proposed Action related improvements. The Proposed Action accounts for less than 0.2 acres of that encroachment.(see NJDEP Individual Wetland and Stream Encroachment Permit in Appendix 11.1)

6.1.4 In order to protect potential Indiana bats, the wooded area to be cleared to accommodate the Proposed Action will not be cleared between April 1 and November 15 if the area contains any trees greater than 5 inches in diameter (dbh), unless two consecutive days of "tree sitting" by the Picatinny Arsenal Natural Resource Manager, immediately prior to the clearing of trees, confirms the absence of bats in the area to be cleared.

6.1.5 As part of the overall Route 15 corridor improvement project, a "No Net Loss Reforestation Plan" approval was sought from and issued by NJDEP, such that there will be no net loss in forested area as a result of the proposed tree plantings associated with the overall project of which the Proposed Action is a part. (see Approval letter and No Net Loss Reforestation Plan approval document in Appendix 11.3).

6.1.6 Per the Traffic data included as part of this report, the proposed roadway improvements will improve traffic safety and roadway capacity and level of service for the affected motoring public. Thus the traffic improvements themselves represent mitigation for any impacts associated with the implementation of the Proposed Action.

6.1.7 UXO clearance and Construction Support will be required to occur concurrently with the construction of the improvements associated with the Proposed Action.

6.1.8 The orientation of the proposed far side jug handle at the Phipps Road / Route 15 northbound interchange, 375 feet north of the existing Phipps Road / Route 15 northbound intersection, coupled with improved signage discussed in Section 2.2 of this report will provide significant additional guidance to, and opportunity for, easy exit back to the public roadway system, for any trucks that inadvertently enter Phipps Road north from Route 15 north or southbound lanes, thus reducing the number of trucks that would otherwise need to make a u-turn within the confines of the Phipps Road pavement. Since that issue is a common occurrence and therefore a concern of the Arsenal today, prior to implementation of the Proposed Action, the Proposed Action represents a significant improvement or corrective/mitigating measure relative to this issue.

6.1.9 Granting of the Requested Easement to NJDOT by Picatinny Arsenal will reduce the road improvements and related drainage improvements requiring maintenance by the Arsenal, since NJDOT will take on that maintenance responsibility as a result of the easement grant.

6.1.10 In the event that any Archeological Artifacts are encountered during the excavation associated with the implementation of the Proposed Action, same shall be immediately reported to the Picatinny Arsenal Cultural Resource Coordinator.

7 Conclusion Regarding the Impacts of the Proposed Action

Department of Defense NEPA guidelines require that the cumulative effects of a Proposed Action be addressed in the Environmental Assessment. Cumulative effects are impacts to the environment resulting from the incremental impact of the Proposed Action when added to other past, present and reasonably foreseeable future actions. Based on the existing and proposed roadway conditions described in Section 2 of this report, the alternatives described in Section 3 of this report, the effects of the Proposed Action described in Section 5 of this report, the Mitigating Measures described in Section 6 of this report, and the Individual Wetland and Stream Encroachment Permit issued by the NJDEP after careful scrutiny, this EA indicates that the impacts of the Proposed Action will be minimal and that the benefits of the proposed action far outweigh any minor negative impacts.

8 List of Preparers, Agencies and Persons Consulted

The following individuals were responsible for preparing this Environmental Assessment:

Individual	Title	Organization
Mr. Theodore Cassera	Project Manager	Omland Engineering Assoc.
Mr. Anthony DiLodovico	NJDEP Permit Expert	Birdsall Group
Mr. Karl Pehnke	Traffic Consultant	Langan Engineering

The following individuals were contacted during the preparation of this Assessment:

Individual	Title	Organization
Mr. Wesley Myers	NEPA Manager	Picatinny Arsenal
Mr. Christian Urbiola	Master Plans & Programs Chief	Picatinny Arsenal
Mr. Carl Applequest	Land Use Manager	Picatinny Arsenal
Mr. Jon Van DeVenter	Natural Resource Manager	Picatinny Arsenal
Mr. Jason Huggan	Cultural Resource Coordinator	Picatinny Arsenal
Mr. Brian Hobbs	Environmental Consultant	Matrix New World Engineering
Mr. Karl Pehnke	Traffic Consultant	Langan Engineering
Mr. Dan Frank	Highway Design Consultant	Langan Engineering
Mr. Peter Primavera	Cultural & Historic Consultant	Cultural Resource Consulting Group
Ms. Donna McCormack	Environmental Consultant	Formerly Schoor DePalma

9. References:

9.1 Environmental Report for Improvements for Pondview Estates New Jersey State Highway Route 15, Prepared by Donna McCormack of Schoor DePalma dated September 20, 2007.

9.2 New Jersey Department of Environmental Protection Division of Land Use Regulation Permit Number 1400-05-0013.1 FWIPW 050001 and FHA 070001 dated January 28, 2008.

9.3 Soil and Sediment Control Design Report for Offsite Roadway Improvements for Pondview Estates NJSH Route 15 prepared by Schoor DePalma, July 5, 2005.

9.4 Hydrologic and Hydraulic Analysis Report, revised through September 17, 2007 prepared by Schoor DePalma.

9.5 New Jersey Department of Environmental Protection, David L. Johnson letter to Steve Cohen NJDOT dated November 9, 2006 indicating that the No Net Loss Reforestation Act for the Route 15 has been approved.

9.6 No Net Loss Reforestation Plan Approval to Proceed issued by James S. Barresi of NJDEP dated 11-29-06.

9.7 Environmental Plans for Route 15 Improvements prepared by Schoor DePalma revised through January 9, 2008, as submitted to the NJDEP in connection with wetland and stream encroachment permits issued in connection with improvements which are the subject of this Environmental Assessment.

9.8 Traffic Control and Staging Plans dated October 7, 2007 prepared by Schoor DePalma.

9.9 Striping and Signage Plans SS-1 and SS-2 dated October 7, 2007 prepared by Schoor DePalma.

9.10 Environmental Assessment and Draft Findings of No Significant Impact – Picatinny Lake Dam and Kake Denmark Dam Safety Upgrades as prepared by O'Brien & Gere for Picatinny Arsenal in June 2009.

9.11 Cultural Resource Consulting Group (CRCG) July 19, 2005 letter regarding the absence of Archeological and Historic Structures in the project area.

9.12 Striping and Signage Plans revised through June 22, 2009 prepared by Schoor DePalma/CMX Engineering.

9.13 Traffic Control and Staging Plans revised through June 22, 2009 prepared by Schoor DePalma/CMX Engineering.

9.14 Construction Plans for proposed roadway improvements, revised through June 22, 2009, prepared by Schoor DePalma/CMX Engineering.

9.15 Wetland Mitigation Plans and Report for Forested Wetlands being created as a condition of the Individual Permit issued by NJDEP in connection with Route 15 Roadway and drainage improvements, prepared by Schoor DePalma.

LIST OF FIGURES

FIGURE 10.1

OMLAND
ENGINEERING ASSOCIATES, INC.

54 Horsehill Road
Cedar Knolls, NJ 07927
Phone: 973-359-8400
Fax: 973 359-8455
E-mail: oea@omland.com

FIGURE 10.1

BOROUGH OF WHARTON, Morris County.
USGS DOVER Quad

North

STATE HIGHWAY ROUTE 15 IMPROVEMENTS
APPROXIMATE SITE LOCATION MAP

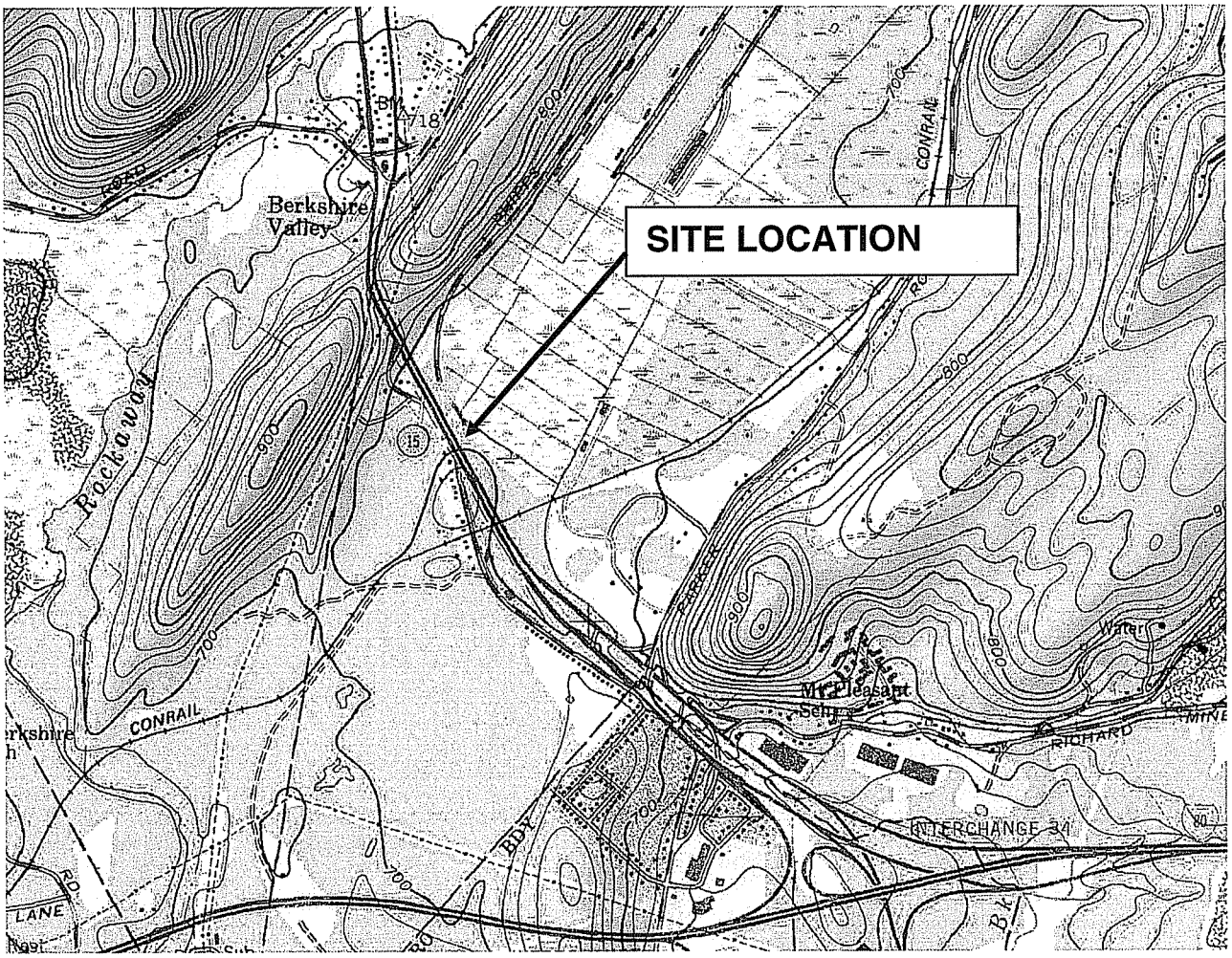

FIGURE 10.2

TOWNSHIP OF ROCKAWAY
BOROUGH OF WHARTON

COUNTY OF MORRIS

CONSTRUCTION & MAINTENANCE EASEMENT LINE

EXISTING PAVEMENT TO BE REMOVED (TYP.)

PROPOSED PAVED RELOCATED TURN AROUND AREA

PICATINNY ARSENAL

EXISTING PHIPPS ROAD PAVEMENT WITHIN PICATINNY PROPERTY. EASEMENT REQUIRED BY NJDOT TO FACILITATE NJDOT IMPROVEMENT AND MAINTENANCE OF THIS PAVEMENT SECTION

PROPOSED FENCE RELOCATION (TYP.)

EXISTING NJDOT R.O.W. LINE

PROPOSED GUIDERAIL (TYP.)

PHIPPS ROAD

EXISTING NJDOT R.O.W. LINE

PROPOSED ACCESS EASEMENT AREA

PROPOSED PAVEMENT (TYP.)

ROUTE 15 NORTHBOUND

NJDOT R.O.W.

ROUTE 15 SOUTHBOUND

N.J. PLANE COORDINATE SYSTEM

REVISION NO.	DATE	REVISION
1	5/29/09	REVISED TO SHOW FENCE RELOCATION AND GUIDERAIL

M:\P\0207212\R-STAKE

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P.O. BOX 900
MANALAPAN, NJ 07726-0900
TEL. (732)577-9000
FAX. (732)577-9888

PICATINNY ARSENAL EASEMENT STAKEOUT
IMPROVEMENTS FOR PONDVIEW ESTATES
NEW JERSEY STATE HIGHWAY ROUTE 15

TOWNSHIP OF ROCKAWAY
BOROUGH OF WHARTON
MORRIS COUNTY
NEW JERSEY

PROJECT NO	0207212
DATE	3/12/2009
DRAWN BY	DGA/GJL
DESIGNED BY	
SCALE	1"=30'
FIELD BOOK	
	SCHOOR DEPALMA
SHEET NO.	1 of 1

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FIGURE 10.3

FIGURE 10.3

Table ES.2 Alternative Analysis Matrix

Valued Environmental Component	Alternative 1	Alternative 2	Alternative 3	
Airspace	○	○	○	
Energy	○	○	○	
Noise	○	○	○	
Threatened & Endangered Species	○	○	○	✓
Socioeconomics	○	○	○	
Environmental Justice	○	○	○	✓
Soil Contamination Explosions	○	○	○	
Erosion	○	○	○	✓
Floodplains	○	○	○	✓ DISCUSS
Hazardous Material & Hazardous Waste	○	⊘	⊘	
Natural Resources	○	○	○	✓
Infrastructure	○	○	○	
Water Resources	○	○	○	
Wetlands	○	⊘	⊘	✓
Land Use	⊘	⊘	+	✓
Cultural Resources	○	⊘	⊘	✓
Air Quality	○	⊘	⊘	
Traffic and Transportation	○	⊘	⊘	✓

Symbol Key:

Significant Impact	⊗	Beneficial impact	+
Moderate Impact	⊘	Not Applicable	N/A
Minor or no Impact	○		

- NO ACTION
- ALTERNATIVE

LIST OF APPENDICES

APPENDIX 11.1

11.1

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

(See Issuing Division below)

PERMIT*

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to the further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit.

Permit No.1400-05-0013.1 FWIPW 050001; FHA 070001	Application No. 1400-05-0013.1 FWIPW 050001; FHA 070001

Issuance Date JAN 28 2008	Effective Date JAN 28 2008	Expiration Date JAN 28 2013

Name and Address of Applicant Pondview Estates 260 Union Turnpike Wharton, New Jersey 07885	**Name and Address of Owner** New Jersey Department of Transportation PO Box 600 Trenton, New Jersey 08625	**Name and Address of Operator** New Jersey Department of Transportation PO Box 600 Trenton, New Jersey 08625
Location of Activity/Facility ***(Street Address)*** NJ Route 15 and Phipps Road Waterway: Green Pond Brook	**Issuing Division** Division of Land Use Regulation	**Statute(s)** NJSA 58:10-1 NJSA 7:13-1.1 NJAC 7:7A

Type of Permit: Stream Encroachment, Individual Freshwater Wetlands Permit & Water Quality Certificate	Maximum Approved Capacity, if applicable

This permit(s) grants permission to: conduct activities associated with the widening of Route 15 in both directions to provide a minimum of three through lanes, jughandle modifications with ramp connections to local streets, construction of two new streets as well as floodplain delineation and modification to an existing culvert.

The proposed project will result in the disturbance of a maximum of 1.56-acres of jurisdictional area, which include 0.065-acre (2,980 square feet) of State open water, 0.214-acre (9,104 square feet) of freshwater wetlands and 1.278-acres (55,700 square feet) of freshwater wetlands transition area. The project area is located along Route 15 within the vicinity of Phipps Road.

The authorized work is shown on :

Thirty seven (37) plan sheets entitled "ENVIRONMENTAL PLAN IMPROVEMENTS FOR PONDVIEW ESTATES NEW JERSEY STATE HIGHWAY ROUTE 15", PREPARED BY SCHOOR DEPALMA dated 07/05/05 and last revised 9/20/07.

See page 2 for list of approved drawings.

The permittee shall allow an authorized representative of the Department of Environmental Protection the right to inspect construction pursuant to N.J.A.C. 7:7-1.5(b)4.

Prepared by: Judith V. Burton
Judith V. Burton, Project Manager

Revised Date	Approved by the Department of Environmental Protection Name (Print or Type) _____ Title _____ Signature SEE FINAL PAGE Date _____

**The word permit means "approval, certification, registration, etc."*

(General Conditions are on Page Two)

Drawings:

The drawings hereby approved are twenty (20) sheets, prepared by Schoor DePalma, dated July 5, 2005, last revised September 9, 2007, unless otherwise noted, entitled:

"IMPROVEMETS FOR PONDVIEW ESTATES NEW JERSEY STATE HIGHWAY ROUTE 15 TOWNSHIP OF ROCKAWAY BOROUGH OF WHARTON MORRIS COUNTY NEW JERSEY"

"ENVIRONMENT PLAN", sheet nos. 1 & 2 of 37,

"ENVIRONMENT PLAN", sheet no. 3 of 37, unrevised,

"ENVIRONMENT PLAN", sheet nos. 4 & 5 of 37, last revised April 5, 2006,

"ENVIRONMENT PLAN", sheet nos. 6, 7, 8, 9, & 10 of 37, unrevised,

"STREAM CROSS SECTION LOCATIONS", sheet no. 26 of 37,unrevised,

"STREAM CROSS SECTION LOCATIONS", sheet nos. 27, 28, 29, 30, 31, & 32 of 37,unrevised,

"STREAM PROFILE", sheet no. 33 of 37,

"CONSTRUCTION DETAILS", sheet no. 34 of 37, unrevised, and

"CROSS SECTIONS THROUGH BASIN", sheet no. 37A of 37, last revised April 11, 2006.

CONDITIONS OF THE INDIVIDUAL FRESHWATER WETLANDS PERMIT

This permit authorizes disturbance to 0.68-acre of State open water, 0.209-acre of freshwater wetlands, and 1.278-acres of freshwater wetland transition areas for activities associated with the proposed improvements for NJ State Route 15 within the vicinity of Phipps Road.

STANDARD CONDITIONS

1. This permit is revocable, or subject to modification or change at any time, pursuant to the applicable regulations, when in the judgement of the Department of Environmental Protection of the State of New Jersey such revocation, modification or change shall be necessary.

2. The issuance of the permit shall not be deemed to affect in any way action by the Department of Environmental Protection of the State of New Jersey on any future application.

3. The works, facilities, and/or activities shown by plans and/or other engineering data, which are this day approved, subject to the conditions herewith established, shall be constructed and/or executed in conformity with such plans and/or engineering data and the said conditions.

4. No change in plans or specifications shall be made except with the prior written permission of the Department of Environmental Protection of the State of New Jersey.

5. The granting of this permit shall not be construed to in any was affect the title or ownership of property, and shall not make the Department of Environmental Protection or the State a party in any suit or question of ownership.

6. This permit does not waive the obtaining of Federal or other State or local government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained.

7. The permittee shall allow the Program the right to inspect the construction site and also shall provide written notification 7 days prior to the start of the authorized work to the:

   Bureau of Coastal and Land Use Enforcement, NJDEP 401 East State Street, 4th Floor, PO Box 422, Trenton, NJ 08625-0422.

8. A copy of this permit shall be kept at the work site, and shall be exhibited upon request of any person.

9. In cases of conflict, the conditions of this permit shall supersede the plans and/or engineering data.

10. This authorization is valid for five years from the date of this letter unless more stringent standards are adopted by rule prior to this date.

ADMINISTRATIVE CONDITIONS

1. This permit shall be RECORDED in the office of the County Clerk (the REGISTRAR OF DEEDS AND MORTGAGES in the applicable counties) in the county wherein the lands included in the permit are located within (10) days after receipt of the permit by the applicant and verified notice shall be forwarded to the Land use Regulation program immediately thereafter.

2. This permit is NOT VALID until the permit acceptance form has been signed by the applicant, accepting and agreeing to adhere to all permit conditions, and returned to the Division of Land Use Regulation at P.O. Box 439, Trenton, NJ 08625.

3. Prior to any construction activities, the permittee must receive authorization from the ~~Union~~ Morris County Soil Conservation District.

4. This authorization is valid for five years from the date of this letter unless more stringent standards are adopted by rule prior to this date.

SPECIAL CONDITIONS

1. Soil and erosion controls shall be installed in accordance with the approved plans prior to any earth moving activity and maintained for the duration of the disturbance until the soils are stabilized. The permittee shall monitor all erosion and sediment controls daily and repair as needed to maintain compliance with the approved plans and conditions contained in this permit.

2. Construction vehicle traffic shall be minimized in wetlands and wetlands transition areas to be temporarily disturbed. No storage of chemicals, oil, fuel or refueling of equipment shall occur within 50 feet of the wetlands along the project route.

3. Materials excavated from within the project limits shall only be temporarily stockpiled within an approved area.

4. All seeded areas shall achieve 85% aerial coverage by the end of the first growing season following the end of construction activities. Planted trees and shrubs shall achieve 85% survival by the end of the second growing season.

5. The amount of rip-rap placed shall be limited to that shown on the approved plans unless a larger amount is required in order to comply with the Standards for Soil Erosion and Sediment Control in New Jersey at N.J.A.C. 2:90.

6. All dredged/excavated material temporarily stockpiled shall be analyzed for determination of waste classification and disposal option in accordance with applicable rules and regulations. Manifest of materials showing both characterization and disposition shall be submitted to the NJDEP.

7. Any discharge of dredged or fill material shall consist of clean, suitable material free from toxic pollutants (see 40 CFR 401) in toxic amounts, and shall comply with all applicable Department rules and specifications regarding use of dredged or fill materials.

8. In order to protect general fisheries resource within Green Pond Brook, a timining restriction of **May 1 thru June 30** of each year is imposed and sediments resulting from grading or construction activities must be contained on-site. In addition, any activity within the 100-year floodplain or flood hazard area draining to this watercourse which could introduce sediment into said stream(s) or which could cause an increase in the natural level of turbidity is also prohibited during this period. The Department reserves the right to suspend all regulated activities on site should it be determined that the applicant has not taken proper precautions to ensure continuous compliance with this condition.

9. In order to protect migrating Indiana bats (*Myotis sodalis*), tree clearing activities on the project site shall be prohibited from **April 1 to September 30** of each year. If clearing of trees cannot be avoided during this period, futher consultation will be required with the U.S. Fish and Wildlife Service.

10. Areas of temporary excavation must be restored with native, indigenous species. The stream bank must be restored with native vegetation and stabilized with the use of bioengineering materials, such as biologs, fiber matting, etc., except where rip-rap is required.

11. The uppermost 18 inches of any excavation shall be backfilled with the original topsoil material.

12. The permittee shall ensure the various regulated activities do not create pathways to drain the wetlands.

13. Any intake structure shall have an intake velocity no greater than 0.5 feet of water per second.

Stream Encroachment Authorization

14. The applicant must make specific arrangements to ensure the continuous maintenance and efficient operation of all proposed water quality measures on this site in accordance with the Department's Best Management Practices Manual. This includes, but is not limited to the cleaning and inspection of all water quality inlets, devices and stormwater management basins at least 4 times a year and after every major storm, and the continuos implementation of appropriate soil conservation practices within any basins, grassed swales, stormwater outfall structures and other similar appurtenances throughout the site in order to limit soil erosion and sediment discharge into adjacent waterways.

15. All excavated material and dredged spoils must be disposed of in a lawful manner outside of any regulated flood plain, open water, freshwater wetlands or adjacent transition areas, and in such a way as to not interfere with the positive drainage of the receiving area.

MITIGATION CONDITIONS FOR IMPACTS TO REGULATED AREAS:

Failure to comply with the standards herein constitutes a violation of the Freshwater Wetlands Protection Act and subjects the permittee to appropriate enforcement action and/or suspension or revocation of the permit. **This permit is not effective for the purpose of conducting regulated activities authorized by this permit until the following special conditions are satisfied:**

1. Mitigation must be done prior to or concurrent with regulated activity. Concurrent means that at any given time, the mitigation must track at the same or greater percentage of completion as the project as a whole. For example, when the project is 50 percent completed, the mitigation project cannot be less than 50 percent completed.

2. The mitigation proposal must be submitted to the Division **prior to the initiation of regulated activities authorized by this permit.** Mitigate for the loss of 0.214 acres of intermediate resource value wetlands and 0.065 acres of State open waters through either an on-site or off-site creation, restoration or enhancement project as detailed in condition numbers 4 through 19.

3. Purchase credits from the Mitigation Bank as detailed below.

   a. **Prior to the initiation of regulated activities authorized by this permit,** the permittee must submit proof of the purchase of 0.558 mitigation credits to Jill Aspinwall, from the Division of Land Use Regulation (Division) at (609) 777-045. At this time there are no credits available from a bank servicing this area. For more information or to determine if credits have become available please contact the above number.

4. **Within 30 days of the issuance of this permit,** for an on-site or off-site individual mitigation project, the permittee must submit a mitigation proposal to the Division of Land Use Regulation (Division) for review and approval. The mitigation proposal must include the creation, restoration and/or enhancement of an area of freshwater wetlands of equal ecological value to those that will be lost by the authorized activity. This proposal must include a proposed construction schedule for the mitigation project. **Prior to commencement of regulated activities authorized by this permit, the Division must approve of the proposed mitigation project in writing.** Failure to comply with Items a. and b. below will subject the permittee to appropriate enforcement action.

   a. **Within 30 days of the issuance of this permit** submit for review and approval a **conceptual** plan showing the location and proposed hydrology of the mitigation site.

   b. **Within 30 days of receiving Division approval of the conceptual mitigation proposal,** the permittee must submit a **final design** of the mitigation project and include all the items listed on the checklist entitled Checklist for Completeness: Creation, Restoration or Enhancement for a Freshwater Wetland Mitigation Proposal located on the Internet at http://www.nj.gov/dep/landuse/forms/index.html.

5. If the permittee is proposing to construct a wetland creation or restoration project, two acres of creation or restoration must be performed for each acre disturbed and the mitigation area must, in addition to this, include a 50 foot transition area. The slope of the created transition area must be fairly flat and therefore have a slope no greater than 10:1. If the permittee is proposing to construct a wetland enhancement project, the ratio of wetlands enhanced to wetlands disturbed shall be sufficient to replace loss of ecological value from the permitted project and shall be approved by the Division.

6. In the event that there is a conflict between the permit conditions and the approved mitigation plans and proposal, the permit conditions take precedent.

7. Within 30 days of final design plan approval pursuant to 4b. above and in accordance with N.J.A.C. 7:7A-15.13, obtain a secured bond, or other financial surety acceptable to the Division including an irrevocable letter of credit or money in escrow, that shall be sufficient to hire an independent contractor to complete and maintain the proposed mitigation should the permittee default. The financial surety for the construction of the mitigation project shall be posted in an amount equal to 115 percent of the estimated cost of the construction. In addition, financial surety to assure the success and maintenance of the mitigation project shall be posted in an amount equal to 30 percent of the estimated cost of construction. The Division will review the financial surety annually and the permittee shall adjust the surety to reflect current economic factors. If a governmental body is performing the mitigation the need for financial assurance is waived.

8. This permit is not effective until the permittee has completed, signed and filed with the County Clerk (the Registrar of Deeds and Mortgages in some counties), the Division approved conservation restriction for the mitigation site. An example copy of the Wetlands Mitigation Area Model Deed/Conservation Restriction is located on the Internet at http://www.nj.gov/dep/landuse/forms/index.html). A draft copy of the deed restriction must be submitted to the Department for review and approval **prior** to filing the conservation restriction in the office of the County Clerk. The restriction shall be included on the deed, and recorded in the office of the County Clerk (the Registrar of Deeds and Mortgages in some counties), in the county wherein the lands of the mitigation project are located, within 10 days of approval of the final wetland mitigation proposal. Within 10 days of filing the conservation restriction, the permittee must send a copy of the conservation restriction to the Division for verification.

9. At least thirty (30) days in advance of the start of construction of the wetland mitigation project, the permittee shall notify the Division, in writing, for an on-site pre-construction meeting between the permittee, the contractor, the consultant and the Division.

10. The mitigation designer must be present on-site during critical stages of construction of the mitigation project. This includes but is not limited to herbicide applications, sub-grade inspection, final grade inspection, and planting inspection to ensure the intent of the mitigation design and its predicted wetland hydrology is realized in the landscape.

11. Mitigation designs are not static documents and changes may be necessary to ensure success of the project. Should the mitigation designer determine that the mitigation plan as designed and approved by the Division will not achieve the proposed wetland condition due to the actual conditions encountered during construction, the mitigation designer must immediately notify the Division. The mitigation designer must propose an alternative plan to achieve the proposed wetland condition that must be approved by the Division in writing. If the Division provides the mitigation designer with comments on the alternative plan, the mitigation designer shall revise the plan to conform to the Division's comments. Solely the Division shall make the determination as to whether or not the alternative plan as submitted conforms to the Divisions comments. Any modifications to the plan that are approved by the Division must be shown on a signed and sealed revised plan. The As-Built plans required as a part of the Construction Completion Report may serve as the signed and sealed revised plans required to be submitted as part of the construction modification process described above if time constraints warrant such action and have been approved by the Division in writing.

12. The permittee shall assume all liability for accomplishing corrective work should the Division determine that the compensatory mitigation has not been 100% successful. Remedial work may include re-grading and/or replanting the mitigation site. This responsibility is incumbent upon the permittee until such time that the Division makes the finding that the mitigation project is successful.

13. Within 5 days following final grading of the site, a disc must be run over the site to eliminate compaction. The mitigation designer must be present to oversee this phase of the project and confirm with the Division this activity has occurred prior to planting of the site.

14. Following the final grading of the mitigation site and prior to planting, the permittee shall notify the Division for a post-grading construction meeting between the permittee, contractor, consultant and the Division. The permittee must give the Division at least thirty (30) days notice prior to the date of this meeting.

15. Within 30 days following the final planting of the mitigation project, the permittee shall submit a Construction Completion Report to the Division detailing as-built conditions (see below) and any changes to the approved mitigation plan that were made during construction. The Construction Completion Report shall contain, at a minimum, the following information:

    a. A completed Wetland Mitigation Project Completion of Construction Form. This form is located on the Internet at http://www.nj.gov/dep/landuse/forms/index.html and certifies that the mitigation project has been constructed as designed and that the proposed area of wetland creation, restoration or enhancement has been accomplished;

    b. As-Built plans which depict final grade elevations at one foot contours and include a table of the species and quantities of vegetation that were planted including any grasses that may have been used for soil stabilization purposes;

    c. Show on the as-built plans that the boundaries of the wetland mitigation area have been visibly marked with 3 inch white PVC pipe extending 4 feet above the ground surface. The stakes must remain on the site for the entire monitoring period;

    d. Photos of the constructed wetland mitigation project with a photo location map as well as the GPS waypoints in NJ state plane coordinates NAD 1983;

    e. To document that the required amount of soil has been placed/replaced over the entire area of the mitigation site, provide a minimum of 6 soil profile descriptions to a depth of 20 inches. The location of each soil profile description should be depicted on the as built plan as well as provide the GPS waypoints in NJ state plane coordinates NAD 1983;

f. Submit soil test results demonstrating at least 8% organic carbon content (by weight) was incorporated into the A-horizon for sandy soil and for all other soil types 12% organic content or if manmade top soil was used it consisted of equal volumes of organic and mineral materials;

g. The permittee shall post the mitigation area with several permanent signs as shown on the approved mitigation plan which identify the site as a wetland mitigation project and that development mowing, cutting, dumping and draining of the property is prohibited; and

h. The signs must also state the name of the permittee, Department's permit number along with a contact name and phone number.

16. If the Division determines that the mitigation project is not constructed in conformance with the approved plan, the permittee will be notified in writing and will have 60 days to submit a proposal to indicate how the project will be corrected. No financial surety will be released by the Division until the permittee demonstrates that the mitigation project is constructed in conformance with the approved plan, all soil has been stabilized and there is no active erosion.

17. The permittee shall monitor the mitigation project for 5 full growing seasons if it is a proposed forested or scrub/shrub wetland and 3 full growing seasons for an emergent wetland or State open water beginning the year after the mitigation project has been completed. The permittee shall submit monitoring reports to the Division of Land Use Regulation no later than December 31st of each full monitoring year. All monitoring reports must include the standard items identified in the checklists entitled Wetland Mitigation Monitoring Project Checklist and Tidal Wetland Mitigation Monitoring Checklist and the information requested below. The Wetland Mitigation Monitoring Project Checklist and Tidal Wetland Mitigation Monitoring Checklist are located on the Internet at http://www.nj.gov/dep/landuse/forms/index.html.

18. All monitoring reports must include all of the following information:

a. All monitoring reports except the final one must include documentation that it is anticipated, based on field data, that the goals of the wetland mitigation project including the transition area, as stated in the approved wetland mitigation proposal and the permit will be satisfied. If the permittee is finding problems with the mitigation project and does not anticipate the site will be a full success then recommendations on how to rectify the problems must be included in the report with a time frame in which they will be completed;

b. All monitoring reports except the final one must include field data to document that the site is progressing towards 85 percent survival and 85 percent area coverage of mitigation plantings or target hydrophytes (Target hydrophytes are non-invasive native species to the area and similar to ones identified on the mitigation planting plan). If the proposed plant community is a scrub/shrub or a forested wetland the permittee must also demonstrate each year with data that the woody species are thriving, increasing in stem density and height each year. If the field data shows that the mitigation project is failing to meet the vegetation survival, coverage and health goals, the monitoring report should contain a discussion of steps that will be taken to rectify the problem, including a schedule of implementation;

c. All monitoring reports except the final one must include documentation of any invasive or noxious species (see below for list of species) colonizing the site and how they are being eliminated. The permittee is required to eliminate either through hand-pulling, application of a pesticide or other Department approved method any occurrence of an invasive/noxious species on the mitigation site during the monitoring period;

d. All monitoring reports except the final one must include documentation that demonstrates the proposed hydrologic regime as specified in the mitigation proposal appears to be met. If the permittee is finding problems with the mitigation project and does not anticipate the proposed hydrologic regime will be or has not been met then recommendations on how to rectify the problem must be included in the report along with a time frame within which it will be completed;

e. The final monitoring report must include documentation to demonstrate that the goals of the wetland mitigation project including the required transition area, as stated in the approved wetland mitigation proposal and the

permit, has been satisfied. Documentation for this report will also include a field wetland delineation of the wetland mitigation project based on techniques as specified in the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1989);

f. The final monitoring report must include documentation the site has an 85 percent survival and 85 percent area coverage of the mitigation plantings or target hydrophytes. The permittee must also document that all plant species are healthy and thriving and if the proposed plant community contains trees demonstrate that the trees are at least five feet in height;

g. The final monitoring report must include documentation demonstrating the site is less than 10 percent occupied by invasive or noxious species such as but not limited to (Source: Snyder, David and Sylvan R. Kaufman. 2004. An overview of nonindigenous plant species in New Jersey. New Jersey Department of Environmental Protection, Division of Parks and Forestry, Office of Natural Lands Management, Natural Heritage Program, Trenton, New Jersey. 107 pages.): *Acer platanoides* (Norway Maple), *Ailanthus altissima,* (Tree of Heaven), *Allaria petiole* (Garlic mustard), *Ampelopsis brevipedunculata* (Porecelain berry), *Berberis thunbergii* (Japanese barberry), *Carex kobomugi* (Japanese sedge), *Celastrus orbiculatus* (Asian Bittersweet), *Centaurea biebersteiniior maculosa* (Spotted knapweed), *Cirsium arvense* (Canadian thistle), *Dipsacus fillonum* (Wild teasel), *Dipsacus laciniatus* (Cut-leaf teasel), *Elaegnus umbellata* (Autumn olive), *Euonymus alata* (Winged spindletree), *Lespedeza cuneata* (Chinese bush-clover), *Lonicera japonica* (Japanese honeysuckle), *Lonicera morrowii* (Morrow's bush honeysuckle), *Lonicera tartarica* (Tartarian honeysuckle), *Lythrum salicaria* (Purple loosestrife), *Meliotus officinalis* (Yellow sweetclover), *Microstegium vimineum* (Japanese stiltgrass), *Myriophyllum spicatum* (Eurasian water-milfoil), *Polygonum cuspidatum* (Japanese knotweed), *Polygonum perfoliatum* (Mile-a-minute), *Potamogeton crispus* (Curly leaf pondweed), *Ranunculus ficaria* (Lesser celandine), *Rhamnus cathartica* (Common buckthorn), *Robinia pseudoacacia* (Black locust), *Rosa multiflora* (Multiflora rose), *Rubus phoeniocolasius* (Wineberry).

h. The final monitoring report must include documentation that demonstrates that the proposed hydrologic regime as specified in the mitigation proposal, which proves the mitigation site is a wetland has been satisfied. The documentation shall include when appropriate monitoring well data, stream gauge data, photographs and field observation notes collected throughout the monitoring period; and

i. The final monitoring report must include documentation that the site contains hydric soils or there is evidence of reduction occurring in the soil throughout the delineated wetlands.

19. Once the required monitoring period has expired and the permittee has submitted the final monitoring report, the Division will make the finding that the mitigation project is either a success or a failure. This mitigation project will be considered successful if the permittee demonstrates all of the following:

a. That the goals of the wetland mitigation project including acreage and the required transition area, as stated in the approved wetland mitigation proposal and the permit, has been satisfied. The permittee must submit a field wetland delineation of the wetland mitigation project based on the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1989) which shows the exact acreage of State open waters, emergent, scrub/shrub and/or forested wetlands in the mitigation area;

b. The site has an 85 percent survival and 85 percent area coverage of the mitigation plantings or target hydrophytes which are species native to the area and similar to ones identified on the mitigation planting plan. All plant species in the mitigation area are healthy and thriving. All trees are at least five feet in height;

c. The final monitoring report must include documentation demonstrating the site is less than 10 percent occupied by invasive or noxious species such as but not limited to (Source: Snyder, David and Sylvan R. Kaufman. 2004. An overview of nonindigenous plant species in New Jersey. New Jersey Department of Environmental Protection, Division of Parks and Forestry, Office of Natural Lands Management, Natural Heritage Program, Trenton, New Jersey. 107 pages.): *Acer platanoides* (Norway Maple), *Ailanthus altissima,* (Tree of Heaven), *Allaria petiole* (Garlic mustard), *Ampelopsis brevipedunculata* (Porecelain berry), *Berberis thunbergii* (Japanese barberry), *Carex kobomugi* (Japanese sedge), *Celastrus orbiculatus* (Asian Bittersweet), *Centaurea biebersteiniior maculosa* (Spotted knapweed), *Cirsium arvense* (Canadian thistle), *Dipsacus fillonum* (Wild

teasel), *Dipsacus laciniatus* (Cut-leaf teasel), *Elaegnus umbellata* (Autumn olive), *Euonymus alata* (Winged spindletree), *Lespedeza cuneata* (Chinese bush-clover), *Lonicera japonica* (Japanese honeysuckle), *Lonicera morrowii* (Morrow's bush honeysuckle), *Lonicera tartarica* (Tartarian honeysuckle), *Lythrum salicaria* (Purple loosestrife), *Meliotus officinalis* (Yellow sweetclover), *Microstegium vimineum* (Japanese stiltgrass), *Myriophyllum spicatum* (Eurasian water-milfoil), *Polygonum cuspidatum* (Japanese knotweed), *Polygonum perfoliatum* (Mile-a-minute), *Potamogeton crispus* (Curly leaf pondweed), *Ranunculus ficaria* (Lesser celandine), *Rhamnus cathartica* (Common buckthorn), *Robinia pseudoacacia* (Black locust), *Rosa multiflora* (Multiflora rose), *Rubus phoeniocolasius* (Wineberry).

d. The site contains hydric soils or there is evidence of reduction occurring in the soil; and,

e. The proposed hydrologic regime as specified in the mitigation proposal has been satisfied. This criteria must be satisfied to prove the mitigation site is a wetland.

20. All remaining financial surety, if required, will be released concurrent with the Division notifying the permittee that the mitigation project is a success.

21. If the mitigation project is considered a failure, the permittee is required to submit a revised mitigation plan in order to meet the success criteria identified in Condition No. 19 above. The plan shall be submitted within 30 days of receipt of the letter from the Division indicating the wetland mitigation project was a failure. The financial surety, if required, will not be released by the Division until such time that the permittee satisfies the success criteria as stipulated in condition number 19.

22. If the permittee fails to perform mitigation within the applicable time period the acreage of mitigation required shall be increased by 20% each year after the date mitigation was to begin.

Charles Welch, Supervisor
Roadways and Infrastructure Unit
Division of Land Use Regulation

1/28/08
Date

C: Township of Rockaway and Borough of Wharton Municipal Clerk
Township of Rockaway and Borough of Wharton Construction Official

MITIGATION REVIEW

DATE Received.: **DATE SENT:** **90TH/180TH DAY:**

PERMIT TYPE: SE/IP **PROJECT MANAGER:**

Program Interest #: 1400-05-0013.1 **Class Code/Activity Code:**

APPLICANT: Pondview Estates

BLOCK(S): **LOT(S):**

MUNICIPALITY: **COUNTY:**

___ Please provide additional information (see comments below).

After review of this project area, it has been determined that:

____ Plan O.K. as proposed.

__X_ Conditional approval (see comments below)

____Plan disapproved (see comments below).

COMMENTS:

Applicant will impact 0.214 acres of intermediate resource value wetlands and 0.065 acres of State Open waters. No mitigation has been proposed. Standard conditions apply and will be placed in NJEMS upon date of last signature below.

Reviewed by: Jill Aparnwall Date: 12/21/07

Approved by: [signature] Date: 1/7/08

FRESHWATER MITIGATION PERMIT CONDITIONS:

Failure to comply with the standards herein constitutes a violation of the Freshwater Wetlands Protection Act and subjects the permittee to appropriate enforcement action and/or suspension or revocation of the permit. **This permit is not effective for the purpose of conducting regulated activities authorized by this permit until the following special conditions are satisfied:**

1. Mitigation must be done prior to or concurrent with regulated activity. Concurrent means that at any given time, the mitigation must track at the same or greater percentage of completion as the project as a whole. For example, when the project is 50 percent completed, the mitigation project cannot be less than 50 percent completed.

2. The mitigation proposal must be submitted to the Division **prior to the initiation of regulated activities authorized by this permit**. Mitigate for the loss of 0.214 acres of intermediate resource value wetlands and 0.065 acres of State open waters through either an on-site or off-site creation, restoration or enhancement project as detailed in condition numbers 4 through 19.

3. Purchase credits from the Mitigation Bank as detailed below.

a) **Prior to the initiation of regulated activities authorized by this permit**, the permittee must submit proof of the purchase of 0.558 mitigation credits to Jill Aspinwall, from the Division of Land Use Regulation (Division) at (609) 777-045. At this time there are no credits available from a bank servicing this area. For more information or to determine if credits have become available please contact the above number.

4. **Within 30 days of the issuance of this permit**, for an on-site or off-site individual mitigation project, the permittee must submit a mitigation proposal to the Division of Land Use Regulation (Division) for review and approval. The mitigation proposal must include the creation, restoration and/or enhancement of an area of freshwater wetlands of equal ecological value to those that will be lost by the authorized activity. This proposal must include a proposed construction schedule for the mitigation project. **Prior to commencement of regulated activities authorized by this permit, the Division must approve of the proposed mitigation project in writing.** Failure to comply with Items a. and b. below will subject the permittee to appropriate enforcement action.

   a. **Within 30 days of the issuance of this permit** submit for review and approval a **conceptual** plan showing the location and proposed hydrology of the mitigation site.

   b. **Within 30 days of receiving Division approval of the conceptual mitigation proposal**, the permittee must submit a **final design** of the mitigation project and include all the items listed on the checklist entitled Checklist for Completeness: Creation, Restoration or Enhancement for a Freshwater Wetland Mitigation Proposal located on the Internet at http://www.nj.gov/dep/landuse/forms/index.html.

5. If the permittee is proposing to construct a wetland creation or restoration project, two acres of creation or restoration must be performed for each acre disturbed and the mitigation area must, in addition to this, include a 50 foot transition area. The slope of the created transition area must be fairly flat and therefore have a slope no greater than 10:1. If the permittee is proposing to construct a wetland enhancement project, the ratio of wetlands enhanced to wetlands disturbed shall be sufficient to replace loss of ecological value from the permitted project and shall be approved by the Division.

6. In the event that there is a conflict between the permit conditions and the approved mitigation plans and proposal, the permit conditions take precedent.

7. Within 30 days of final design plan approval pursuant to 4b. above and in accordance with N.J.A.C. 7:7A-15.13, obtain a secured bond, or other financial surety acceptable to the Division including an irrevocable letter of credit or money in escrow, that shall be sufficient to hire an independent contractor to complete and maintain the proposed mitigation should the permittee default. The financial surety for the construction of the mitigation project shall be posted in an amount equal to 115 percent of the estimated cost of the construction. In addition, financial surety to assure the success and maintenance of the mitigation project shall be posted in an amount equal to 30 percent of the estimated cost of construction. The Division will review the financial surety annually and the permittee shall adjust the surety to reflect current economic factors. If a governmental body is performing the mitigation the need for financial assurance is waived.

8. This permit is not effective until the permittee has completed, signed and filed with the County Clerk (the Registrar of Deeds and Mortgages in some counties), the Division approved conservation restriction for the mitigation site. An example copy of the Wetlands Mitigation Area Model Deed/Conservation Restriction is located on the Internet at http://www.nj.gov/dep/landuse/forms/index.html). A draft copy of the deed restriction must be submitted to the Department for review and approval **prior** to filing the conservation restriction in the office of the County Clerk. The restriction shall be included on the deed, and recorded in the office of the County Clerk (the Registrar of Deeds and Mortgages in some counties), in the county wherein the lands of the mitigation project are located, within 10 days of approval of the final wetland mitigation proposal. Within 10 days of filing the conservation restriction, the permittee must send a copy of the conservation restriction to the Division for verification.

9. At least thirty (30) days in advance of the start of construction of the wetland mitigation project, the permittee shall notify the Division, in writing, for an on-site pre-construction meeting between the permittee, the contractor, the consultant and the Division.

10. The mitigation designer must be present on-site during critical stages of construction of the mitigation project. This includes but is not limited to herbicide applications, sub-grade inspection, final grade inspection, and planting inspection to ensure the intent of the mitigation design and its predicted wetland hydrology is realized in the landscape.

11. Mitigation designs are not static documents and changes may be necessary to ensure success of the project. Should the mitigation designer determine that the mitigation plan as designed and approved by the Division will not achieve the proposed wetland condition due to the actual conditions encountered during construction, the mitigation designer must immediately notify the Division. The mitigation designer must propose an alternative plan to achieve the proposed wetland condition that must be approved by the Division in writing. If the Division provides the mitigation designer with comments on the alternative plan, the mitigation designer shall revise the plan to conform to the Division's comments. Solely the Division shall make the determination as to whether or not the alternative plan as submitted conforms to the Divisions comments. Any modifications to the plan that are approved by the Division must be shown on a signed and sealed revised plan. The As-Built plans required as a part of the Construction Completion Report may serve as the signed and sealed revised plans required to be submitted as part of the construction modification process described above if time constraints warrant such action and have been approved by the Division in writing.

12. The permittee shall assume all liability for accomplishing corrective work should the Division determine that the compensatory mitigation has not been 100% successful.

Remedial work may include re-grading and/or replanting the mitigation site. This responsibility is incumbent upon the permittee until such time that the Division makes the finding that the mitigation project is successful.

13. Within 5 days following final grading of the site, a disc must be run over the site to eliminate compaction. The mitigation designer must be present to oversee this phase of the project and confirm with the Division this activity has occurred prior to planting of the site.

14. Following the final grading of the mitigation site and prior to planting, the permittee shall notify the Division for a post-grading construction meeting between the permittee, contractor, consultant and the Division. The permittee must give the Division at least thirty (30) days notice prior to the date of this meeting.

15. Within 30 days following the final planting of the mitigation project, the permittee shall submit a Construction Completion Report to the Division detailing as-built conditions (see below) and any changes to the approved mitigation plan that were made during construction. The Construction Completion Report shall contain, at a minimum, the following information:

    a. A completed Wetland Mitigation Project Completion of Construction Form. This form is located on the Internet at http://www.nj.gov/dep/landuse/forms/index.html and certifies that the mitigation project has been constructed as designed and that the proposed area of wetland creation, restoration or enhancement has been accomplished;

    b. As-Built plans which depict final grade elevations at one foot contours and include a table of the species and quantities of vegetation that were planted including any grasses that may have been used for soil stabilization purposes;

    c. Show on the as-built plans that the boundaries of the wetland mitigation area have been visibly marked with 3 inch white PVC pipe extending 4 feet above the ground surface. The stakes must remain on the site for the entire monitoring period;

    d. Photos of the constructed wetland mitigation project with a photo location map as well as the GPS waypoints in NJ state plane coordinates NAD 1983;

    e. To document that the required amount of soil has been placed/replaced over the entire area of the mitigation site, provide a minimum of 6 soil profile descriptions to a depth of 20 inches. The location of each soil profile description should be depicted on the as built plan as well as provide the GPS waypoints in NJ state plane coordinates NAD 1983;

    f. Submit soil test results demonstrating at least 8% organic carbon content (by weight) was incorporated into the A-horizon for sandy soil and for all other soil types 12% organic content or if manmade top soil was used it consisted of equal volumes of organic and mineral materials;

    g. The permittee shall post the mitigation area with several permanent signs as shown on the approved mitigation plan which identify the site as a wetland mitigation project and that development mowing, cutting, dumping and draining of the property is prohibited; and

    h. The signs must also state the name of the permittee, Department's permit number along with a contact name and phone number.

16. If the Division determines that the mitigation project is not constructed in conformance with the approved plan, the permittee will be notified in writing and will have 60 days to submit a proposal to indicate how the project will be corrected. No financial surety will be released by the Division until the permittee demonstrates that the mitigation project is constructed in conformance with the approved plan, all soil has been stabilized and there is no active erosion.

17. The permittee shall monitor the mitigation project for 5 full growing seasons if it is a proposed forested or scrub/shrub wetland and 3 full growing seasons for an emergent wetland or State open water beginning the year after the mitigation project has been completed. The permittee shall submit monitoring reports to the Division of Land Use Regulation no later than December 31st of each full monitoring year. All monitoring reports must include the standard items identified in the checklists entitled Wetland Mitigation Monitoring Project Checklist and Tidal Wetland Mitigation Monitoring Checklist and the information requested below. The Wetland Mitigation Monitoring Project Checklist and Tidal Wetland Mitigation Monitoring Checklist are located on the Internet at http://www.nj.gov/dep/landuse/forms/index.html.

18. All monitoring reports must include all of the following information:

    a. All monitoring reports except the final one must include documentation that it is anticipated, based on field data, that the goals of the wetland mitigation project including the transition area, as stated in the approved wetland mitigation proposal and the permit will be satisfied. If the permittee is finding problems with the mitigation project and does not anticipate the site will be a full success then recommendations on how to rectify the problems must be included in the report with a time frame in which they will be completed;

    b. All monitoring reports except the final one must include field data to document that the site is progressing towards 85 percent survival and 85 percent area coverage of mitigation plantings or target hydrophytes (Target hydrophytes are non-invasive native species to the area and similar to ones identified on the mitigation planting plan). If the proposed plant community is a scrub/shrub or a forested wetland the permittee must also demonstrate each year with data that the woody species are thriving, increasing in stem density and height each year. If the field data shows that the mitigation project is failing to meet the vegetation survival, coverage and health goals, the monitoring report should contain a discussion of steps that will be taken to rectify the problem, including a schedule of implementation;

    c. All monitoring reports except the final one must include documentation of any invasive or noxious species (see below for list of species) colonizing the site and how they are being eliminated. The permittee is required to eliminate either through hand-pulling, application of a pesticide or other Department approved method any occurrence of an invasive/noxious species on the mitigation site during the monitoring period;

    d. All monitoring reports except the final one must include documentation that demonstrates the proposed hydrologic regime as specified in the mitigation proposal appears to be met. If the permittee is finding problems with the mitigation project and does not anticipate the proposed hydrologic regime will be or has not been met then recommendations on how to rectify the problem must be included in the report along with a time frame within which it will be completed;

    e. The final monitoring report must include documentation to demonstrate that the goals of the wetland mitigation project including the required transition area, as stated in the

approved wetland mitigation proposal and the permit, has been satisfied. Documentation for this report will also include a field wetland delineation of the wetland mitigation project based on techniques as specified in the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1989);

f. The final monitoring report must include documentation the site has an 85 percent survival and 85 percent area coverage of the mitigation plantings or target hydrophytes. The permittee must also document that all plant species are healthy and thriving and if the proposed plant community contains trees demonstrate that the trees are at least five feet in height;

g. The final monitoring report must include documentation demonstrating the site is less than 10 percent occupied by invasive or noxious species such as but not limited to (Source: Snyder, David and Sylvan R. Kaufman. 2004. An overview of nonindigenous plant species in New Jersey. New Jersey Department of Environmental Protection, Division of Parks and Forestry, Office of Natural Lands Management, Natural Heritage Program, Trenton, New Jersey. 107 pages.): *Acer platanoides* (Norway Maple), *Ailanthus altissima,* (Tree of Heaven), *Allaria petiole* (Garlic mustard), *Ampelopsis brevipedunculata* (Porecelain berry), *Berberis thunbergii* (Japanese barberry), *Carex kobomugi* (Japanese sedge), *Celastrus orbiculatus* (Asian Bittersweet), *Centaurea biebersteiniior maculosa* (Spotted knapweed), *Cirsium arvense* (Canadian thistle), *Dipsacus fillonum* (Wild teasel), *Dipsacus laciniatus* (Cut-leaf teasel), *Elaegnus umbellata* (Autumn olive), *Euonymus alata* (Winged spindletree), *Lespedeza cuneata* (Chinese bush-clover), *Lonicera japonica* (Japanese honeysuckle), *Lonicera morrowii* (Morrow's bush honeysuckle), *Lonicera tartarica* (Tartarian honeysuckle), *Lythrum salicaria* (Purple loosestrife), *Meliotus officinalis* (Yellow sweetclover), *Microstegium vimineum* (Japanese stiltgrass), *Myriophyllum spicatum* (Eurasian water-milfoil), *Polygonum cuspidatum* (Japanese knotweed), *Polygonum perfoliatum* (Mile-a-minute), *Potamogeton crispus* (Curly leaf pondweed), *Ranunculus ficaria* (Lesser celandine), *Rhamnus cathartica* (Common buckthorn), *Robinia pseudoacacia* (Black locust), *Rosa multiflora* (Multiflora rose), *Rubus phoeniocolasius* (Wineberry).

h. The final monitoring report must include documentation that demonstrates that the proposed hydrologic regime as specified in the mitigation proposal, which proves the mitigation site is a wetland has been satisfied. The documentation shall include when appropriate monitoring well data, stream gauge data, photographs and field observation notes collected throughout the monitoring period; and

i. The final monitoring report must include documentation that the site contains hydric soils or there is evidence of reduction occurring in the soil throughout the delineated wetlands.

19. Once the required monitoring period has expired and the permittee has submitted the final monitoring report, the Division will make the finding that the mitigation project is either a success or a failure. This mitigation project will be considered successful if the permittee demonstrates all of the following:

a. That the goals of the wetland mitigation project including acreage and the required transition area, as stated in the approved wetland mitigation proposal and the permit, has been satisfied. The permittee must submit a field wetland delineation of the wetland mitigation project based on the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1989) which shows the exact acreage of State open waters, emergent, scrub/shrub and/or forested wetlands in the mitigation area;

b. The site has an 85 percent survival and 85 percent area coverage of the mitigation plantings or target hydrophytes which are species native to the area and similar to ones identified on the mitigation planting plan. All plant species in the mitigation area are healthy and thriving. All trees are at least five feet in height;

c. The final monitoring report must include documentation demonstrating the site is less than 10 percent occupied by invasive or noxious species such as but not limited to (Source: Snyder, David and Sylvan R. Kaufman. 2004. An overview of nonindigenous plant species in New Jersey. New Jersey Department of Environmental Protection, Division of Parks and Forestry, Office of Natural Lands Management, Natural Heritage Program, Trenton, New Jersey. 107 pages.): *Acer platanoides* (Norway Maple), *Ailanthus altissima*, (Tree of Heaven), *Allaria petiole* (Garlic mustard), *Ampelopsis brevipedunculata* (Porecelain berry), *Berberis thunbergii* (Japanese barberry), *Carex kobomugi* (Japanese sedge), *Celastrus orbiculatus* (Asian Bittersweet), *Centaurea biebersteiniior maculosa* (Spotted knapweed), *Cirsium arvense* (Canadian thistle), *Dipsacus fillonum* (Wild teasel), *Dipsacus laciniatus* (Cut-leaf teasel), *Elaegnus umbellata* (Autumn olive); *Euonymus alata* (Winged spindletree), *Lespedeza cuneata* (Chinese bush-clover), *Lonicera japonica* (Japanese honeysuckle), *Lonicera morrowii* (Morrow's bush honeysuckle), *Lonicera tartarica* (Tartarian honeysuckle), *Lythrum salicaria* (Purple loosestrife), *Meliotus officinalis* (Yellow sweetclover), *Microstegium vimineum* (Japanese stiltgrass), *Myriophyllum spicatum* (Eurasian water-milfoil), *Polygonum cuspidatum* (Japanese knotweed), *Polygonum perfoliatum* (Mile-a-minute), *Potamogeton crispus* (Curly leaf pondweed), *Ranunculus ficaria* (Lesser celandine), *Rhamnus cathartica* (Common buckthorn), *Robinia pseudoacacia* (Black locust), *Rosa multiflora* (Multiflora rose), *Rubus phoeniocolasius* (Wineberry).

d. The site contains hydric soils or there is evidence of reduction occurring in the soil; and,

e. The proposed hydrologic regime as specified in the mitigation proposal has been satisfied. This criteria must be satisfied to prove the mitigation site is a wetland.

20. All remaining financial surety, if required, will be released concurrent with the Division notifying the permittee that the mitigation project is a success.

21. If the mitigation project is considered a failure, the permittee is required to submit a revised mitigation plan in order to meet the success criteria identified in Condition No. 19 above. The plan shall be submitted within 30 days of receipt of the letter from the Division indicating the wetland mitigation project was a failure. The financial surety, if required, will not be released by the Division until such time that the permittee satisfies the success criteria as stipulated in condition number 19.

22. If the permittee fails to perform mitigation within the applicable time period the acreage of mitigation required shall be increased by 20% each year after the date mitigation was to begin.

Adjudicatory Hearing Request Checklist and Tracking Form

I. Permit Decision or Other Department Decision Being Appealed:

Issuance Date of Decision Document | Document Number (If any)

II. Please provide Name, Address and Phone No. of:

Person Requesting Hearing | Name of Attorney (If applicable)

Address | Address

Phone No. | Phone No.

III. If you are the applicant or permittee, please include the following information with your hearing request:

A. The date you received the permit decision or other decision which you are appealing;
B. A copy of the decision document;
C. The findings of fact and conclusions of law you are appealing;
D. A statement as to whether or not you raised each legal and factual issue during the permit application process;
E. Suggested revised or alternative permit conditions;
F. An estimate of the time required for the hearing;
G. A request, if necessary, for a barrier-free hearing location for physically disabled persons;
H. A clear indication of any willingness to negotiate a settlement with the Department prior to the Department's processing of our hearing request to the Office of Admini8strative Law; and
I. This form completed; signed and dated with all of the information listed above, including attachment to:

1. New Jersey Department of Environmental Protection Office of Legal Affairs
   Attention: Adjudicatory Hearing Requests
   401 East State Street
   P.O. Box 402
   Trenton, NJ 08625-0402:

With a copy to:

2. New Jersey Department of Environmental Protection
   Land Use Regulation Program
   Attention: Director
   P.O. Box 439
   Trenton, NJ 08625-0439

Signature: _____ Date: _____

IV. If you are a person other than the applicant or permittee, please include the following information with your hearing request:

A. The date you or your agent received notice of the permit decision, and a copy of the permit decision:
B. Evidence that a copy of your hearing request has been delivered to the applicant for the permit decision which is the subject of your hearing request (e.g., certified mail return receipt);
C. A detailed statement of which findings of fact and/or conclusion of law you are challenging;
D. A description of our participation in any public hearings held in connection with the permit application and copies of any written comments you submitted;
E. Whether you claim a statutory or constitutional right to a hearing, and, if you claim such a right, a reference to the applicable statue or an explanation of how your interests are affected by the permit decision;
F. Suggested revised or alternative permit conditions;
G. An estimate of the time required for the hearing;
H. A request, if necessary, for a barrier-free hearing location for physically disabled persons;
I. A clear indication of any willingness to negotiate a settlement with the Department prior to the Department's processing of the hearing request to the Office of Administrative Law; and
J. This form completed, signed and dated with all the information listed above, including attachments to

1. New Jersey Department of Environmental Protection Office of Legal Affairs
Attention: Adjudicatory Hearing Requests
401 East State Street
P.O. Box 402
Trenton, NJ 08625-0402:

With a copy to:

2. New Jersey Department of Environmental Protection
Land Use Regulation Program
Attention: Director
P.O. Box 439
Trenton, NJ 08625-0439

Signature: _____ Date: _____

APPENDIX 11.2

11.2

SCHOOR DEPALMA
Engineers and Consultants

SOIL EROSION AND SEDIMENT CONTROL DESIGN REPORT

FOR

OFFSITE ROADWAY IMPROVEMENTS
FOR PONDVIEW ESTATES
N.J. S.H. ROUTE 15

TOWNSHIP OF ROCKAWAY
BOROUGH OF WHARTON
IN
MORRIS COUNTY, NEW JERSEY

Prepared By:

SCHOOR DEPALMA
Justin Corporate Center
200 State Highway Nine
P.O. Box 900
Manalapan, New Jersey 07726-0900

020721201
July 5, 2005
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I. Project Description

It is proposed to improve NJSH Route 15, an urban principal arterial running in a north-south direction, in coordination with the development of the Pondview Estates which consists of a mixed use development, including retail and residential areas. This portion of Route 15 is located between Interstate Route I-80 and north of Phipps Road in Rockaway Township and Wharton Borough, Morris County, New Jersey. The majority of Route 15 in the project limits is divided with two 12-foot lanes in both directions.

The proposed improvements include widening of Route 15 in both directions to provide a minimum of three through lanes, reconfiguration of the Route 15/ Phipps Road intersection with addition of jughandle ramps, construction of two new streets (Road A and Morris Street) that connect Union Turnpike and Pondview Estates to Route 15. Furthermore, a new traffic signal is proposed at the Route 15/Morris Street intersection that serves as an access to Pondview Estates and the NJDOT maintenance yard just north of the intersection. The existing traffic signals at the intersections of Phipps Road, Main Street and Parker Road will also be upgraded for the new geometry. The existing Route 15 pavement area will be milled and resurfaced along with the widening.

The storm water management report will be reviewed as part of the New Jersey Department of Environmental Protection (NJDEP) permit process. In addition, Individual Wetland Permit and Stream Encroachment Permit applications will be submitted to the NJDEP for approval.

II. Proposed Soil Erosion Measures

A. Perimeter Control

Silt fencing will be installed around the perimeter of the proposed project at the toe of slope to ensure that no silt or debris generated from the construction activities will enter streams, wetlands, or other properties adjacent to the roadway and associated right-of-way. All silt fencing will be installed in accordance with the New Jersey *Standards for Soil Erosion and Sediment Control* to ensure that erosion in the form of sheet and rill erosion will not occur on or directed towards adjacent properties during grading of the proposed project site.

The silt fencing will be installed with fence posts spaced 8 feet center-to-center or closer. They will extend at least 2 feet into the ground and at least 2 feet above the ground. Posts will be constructed of hardwood with a minimum diameter thickness of 1.5 inches. A geotextile fabric will be buried at least 6 inches deep in the ground and shall extend 2 feet above the ground. The fabric must be securely fastened to the fence posts using a system consisting of metal fasteners and a high strength reinforcement material placed between the fastener and the fabric. The fabric will also incorporate a drawstring in the top portion of the fence for added strength.

The silt fencing will be maintained through removal of sediment buildup on the upstream face of the barrier when it has reached a depth of one-half the barrier height. In addition the barrier fabric and posts will be replaced or repaired when damaged through normal construction activities or due to natural causes. The silt fences will be inspected daily for signs of deterioration and sediment removal.

B. Construction Entrances

No construction entrances or stabilized pad will be required. The proposed Morris Street jughandle area will provide construction access.

C. Stream Crossings

No temporary stream crossings will be required for this project. No additional flow will be directed to the streams, no special stabilization measures will be installed.

D. Protection Of Adjacent Waterways And Wetlands

For the areas involving wetland disturbance, the project will install silt fencing in order to limit the amount of sediment and debris entering the wetland areas. In addition, for storm sewer networks discharging into the proposed basin and swales, inlet protection will be provided.

E. Stabilization Of Ditches And Swales

All drainage outfalls affected by the proposed improvements have been evaluated in accordance with the Standard for Conduit Outlet Protection and some will require outlet protection.

F. Slope Protection During Construction

No slope protection will be necessary during construction. No drainage patterns from areas adjacent to the existing roadway will be altered as a result of the proposed improvements.

G. Control Of Construction Runoff

Construction runoff will be uncontrolled for at least one construction stage as no detention is provided on the existing roadway. As soon as the proposed stormwater management basins are complete, the construction runoff will be collected and discharged into the basins through the proposed pavement storm system.

H. Inlet And Outlet Protection

Inlet protection will be provided in the form of temporary barriers and settling facilities installed at all existing storm sewer inlets that are to remain. This practice applies to all

areas of the existing roadway and will apply to each new inlet installed until the completion of all roadway improvements. This practice applies to all inlets where the contributory drainage area is less than 3 acres, traffic will not destroy or cause constant maintenance of the storm sewer inlet protection, a traffic hazard will not be created, and a flooding problem will not be created by the installation of inlet protection measures.

An alternative inlet protection measure involving the installation of geotextile fabric over wire mesh installed and fixed in place using a small 2x4 will be utilized at all inlets in sections of the roadway which will remain active during construction.

All drainage outfalls affected by the proposed improvements have been evaluated in accordance with the Standard for Conduit Outlet Protection and some will require outlet protection.

I. Storage Pile Stabilization.

The nature of this project does not lend itself to a soil storage stockpile.

J. Temporary Haul Roads Or Diversionary Roads Stabilization.

No temporary haul roads or diversionary roads will be utilized as part of the proposed construction.

K. Sequence Of Construction Of Sensitive Areas And Soil Erosion Control Items

The sequence of construction for soil erosion control items is as shown below:

1. Install silt fencing.
2. Install inlet protection measures.
3. Construct drainage improvements.
4. Complete roadway grading
5. Construct remainder of roadway improvements.
6. Construct final paving.
7. Remove all temporary soil erosion and stabilization measures.

L. Compliance With The Environmental Commitment Report For The Project.

Standard soil erosion and sedimentation control measures are included in the project plans and specifications in accordance with NJDOT's standard specifications. As indicated in the sequence of construction identified previously in this report, all erosion and sediment control measures will be left in place until construction is completed or the area is stabilized. In addition, there will be a note that the contractor is responsible to comply with all permit conditions included in the environmental permits.

The information presented therein is in accordance with New Jersey Department of Transportation Soil Erosion and Sediment Control Standards.

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APPENDIX 11.3

11.3

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DEC 04 2006

SCHOOR DEPALMA
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State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

JON S. CORZINE
Governor

LISA P. JACKSON
Commissioner

Division of Parks and Forestry
NJ Forest Service
PO Box 404
Trenton, NJ 08625-0404
Tel. 609/292-2532
Fax. 609/984-0378

November 29, 2006

Steve Cohen
Bureau of Major Access Permits
NJ Department of Transportation
P.O. Box 600
Trenton, NJ 08625-0600

Dear Mr. Cohen,

The reforestation plan submitted under the No Net Loss Reforestation Act for the Route 15 Improvements for Pondview Estates Project has been approved. Enclosed is the signed Approval to Proceed form. Please keep this office informed of the status of your reforestation efforts as the project progresses. If you have any questions, please contact me at (609) 292-2532.

Sincerely,

David L. Johnson

David L. Johnson
Regional Forester

Cc: Brian Hobbs, Schoor DePalma
Dave Byers, NJDOT Landscape and Urban Design

P.L. 1993, c.106 (C.13:1L-14.2)

No Net Loss Reforestation Plan
Approval to Proceed

State Entity: New Jersey Department of Transportation

Project Name: Route 15 Improvements for Pondview Estates

Project Location: MP 2.25-3.55, Rockaway Twp. & Wharton Boro., Morris County

The reforestation plan submitted for the above referenced project has been approved under the No Net Loss Reforestation Act , P.L. 1993, c. 106 (C.13:1L-14.2). Reforestation plantings undertaken by the state entity, its contractors or designees may be done during the project construction period as long as the ongoing construction work does not negatively impact the health of the plantings but shall be completed no later than 6 months after the final construction work. No modifications to the plan or time extensions are authorized unless specifically granted in writing by this office.

State Entity Responsibilities During and After the Project

Notification

As outlined in the No Net Loss Reforestation Act Program Guidelines, the state entity is responsible to notify this office at least one week prior to planting any trees identified in the reforestation plan and not exempted under the monetary compensation option.

Maintenance and Tree Care

Except for trees planted under the monetary compensation option, the state entity is responsible to maintain the planted reforestation stock in a healthy condition until the two-year inspection date. The Forest Service and a representative of the state entity shall inspect the reforestation project after two years to determine the health and vigor of the reforestation stock. Projects that do not meet the minimum survival rate percentages shall have all the unhealthy planting stock replaced within 120 days of receiving notification from the Forest Service. Inspections and replacement plantings shall continue with the same time frames until the minimum survival rate is achieved.

Final approval of the state entity's conformity to the No Net Loss Reforestation Act will be given when the actual tree survival rates, excluding those planted under the monetary compensation option, are within the acceptable percentages two years from their date of planting. Seedling reforestation stock shall have an 80% minimum survival rate. Whip or container reforestation stock shall have a 90% minimum survival rate. Balled and burlapped reforestation stock shall have a 95% minimum survival rate.

James S. Barresi
State Forester

11-29-06
Date

Department of Environmental Protection
Division of Parks and Forestry
State Forest Service

APPENDIX 11.4

11.4

SUBMITTED WITH
WETLAND INDIVIDUAL
PERMIT APPLICATION

CRCG
CULTURAL RESOURCE
CONSULTING GROUP
Historic Preservation & Archaeology

RECEIVED
JUL 20 2005
SCHOOR DEPALMA INC.
MANALAPAN

www.crcg.net

Brian Hobbs
Schoor DePalma
200 State Highway Nine, PO Box 900
Manalapan, New Jersey 07726-0900

Re: Historic / Archaeological Preliminary Background Research Results
State Highway Route 15 Improvement Project at Pond View Estates,
Township of Rockaway, Morris County, New Jersey

Schoor DePalma Project Reference # 020721201
CRCG Project Number: 05-123-01

July 19, 2005

Dear Mr. Hobbs,

Here are the results of our preliminary background search performed Monday, July 18, 2005 at the New Jersey State Museum (Trenton) and the New Jersey Department of Environmental Protection – Historic Preservation Office (Trenton) for the project site referenced as: State Highway Route 15 Improvement Project at Pond View Estates, Rockaway Twp., Morris County, New Jersey.

- There are no prehistoric or historic archaeological sites recorded on the subject property. There are two prehistoric (undetermined period) archaeological sites (designated 28-Mr-275 and 28-Mr-284) within a half mile east of the project site on high ground on either side of wetlands associated with Green Pond Brook. Both of these archaeological sites are small, contain few artifacts, and appear to represent limited-activity campsites.

- There are no structures listed (or determined eligible for listing) on either the State or National Registers of Historic Places on the subject property. However, nearly the entire east side of the alignment abuts lands associated with the Picatinny Arsenal, a munitions manufacturing site dating from the 18th century to the present, determined eligible for listing on both the National and New Jersey State Registers of Historic Places (see Acroterion 1986).

- Route 15 was originally part of the Union Turnpike, a road dating from at least the mid 19th-century, and perhaps even much earlier. There are approximately two dozen houses / miscellaneous structures of potential local historic significance immediately adjacent and within a quarter mile of the subject property (see Acroterion 1986). These historic resources are mentioned because of the possibility that the proposed project may have a visual effect on them.

- There have been two cultural resource studies previously conducted within and immediately adjacent to portions of the subject property (NJDOT 1978; Hunter Research 1989). At least four additional cultural resource studies were conducted within a mile of the subject property that identified various historic resources. The NJDOT study identified 42 historic sites and 6 areas of prehistoric archaeological sensitivity within a larger area from New Jersey Route 15 to New Jersey Route 23, some of which undoubtedly occur adjacent to the current project site. The Hunter report covers a large residential development located southeast of the proposed highway improvements and identified a number of historic sites and otherwise historically sensitive areas related to local iron mining relatively close to the subject property.

This information has been compiled from files available at the above-listed repositories. Additional cultural resources (i.e., archaeological sites and structures) could be present within the boundaries of the project area that do not appear in the files examined. An in-field survey by a qualified consultant would have to be performed for a more accurate assessment of historic resources on or adjacent to the project site.

Please do not hesitate to contact me if you have any questions or require further information.

References:

Acroterion
1986 Morris County Cultural Resources Survey.
Report On file, NJDEP-Historic Preservation Office, Trenton.

Hunter Research
1989 A Phase 1 Historical and Archaeological Study for the K. Hovnanian Society Hill Development at Rockaway, Rockaway Township, Morris County, New Jersey.
Report On file, NJDEP-Historic Preservation Office, Trenton.

New Jersey Department of Transportation
1978 Historical, Architectural, Archaeological, and Cultural Resources – Berkshire Valley Road, from New Jersey Route 15 to New Jersey Route 23. Technical Support Document. Report On file, NJDEP-Historic Preservation Office, Trenton.

Charles A. Bello, M.A., RPA
Senior Archaeologist, Project Manager
Cultural Resource Consulting Group
415 Cleveland Avenue
Highland Park, New Jersey 08904

(732) 247-8880 ext. 25; (732) 247-2888 (fax)
(908) 239-0825 (cell)

SUBMITTED IN RESPONSE TO SHPO QUESTIONS SUBSEQUENT TO SHPO REVIEW OF INITIAL I.P. APPLICATION

SCHOOR DEPALMA
Engineers and Consultants

April 11, 2006

VIA OVERNIGHT MAIL

Mr. Michael Gregg
Historic Preservation Office
501 East State Street - 4th Floor
PO Box 404
Trenton, NJ 08625

RE: Wetlands Individual Permit Application
Route 15 Improvements at Pondview Estates
Township of Rockaway & Borough of Wharton
Morris County, New Jersey
HPO-B2006-52
Our Project Number 020721201

Dear Mr. Gregg:

The following is in response to your request for additional site information regarding cultural and historic resources on the site. .

Attached are sheets 1 through 10 of the Environmental Plans that were submitted to NJDEP with the individual permit application. I have highlighted on the plans the limits of disturbance and limits of wooded areas. Also attached are photographs of the areas to be disturbed that are keyed to the plans.

The majority of the disturbance will occur within the existing medians and road shoulders. No structures will be removed. The project will involve a combination of cuts and fills depending on the topography adjacent to the roadway. Cutting is generally only proposed where the road is adjacent to a steep bank. The DOT will be obtaining an easement of approximately 1.6 acres from Picatinny Arsenal for improvements in the vicinity of Phipps Road (Sheet 2 of the plans), however, much of this area is already disturbed by Phipps Road.

If you have any questions or require additional information, please call.

Very truly yours,

SCHOOR DEPALMA INC.

Brian Hobbs

bkh
Attachments

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APPENDIX 11.5

SCHOOR DEPALMA
Engineers and Consultants

REVISED HYDROLOGIC AND HYDRAULIC ANALYSIS REPORT

For

OFFSITE ROADWAY IMPROVEMENTS PONDVIEW ESTATES NEW JERSEY STATE HIGHWAY ROUTE 15

Situated in the

TOWNSHIP OF ROCKAWAY, BOROUGH OF WHARTON

MORRIS COUNTY, NEW JERSEY

Prepared by

Schoor DePalma
Justin Corporate Center
200 State Highway Nine
Manalapan, New Jersey 07726

Christopher Benosky, PE
NJ Professional Engineer
License No. GE 39916

020721201
Revised: September 17, 2007
N:\PROJECT\2002\0207212\01\H&H\REVISED H&H REPORT\REPORT COVER.DOC

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APPENDIX 4 - Site Photographs

A. PROJECT INTRODUCTION

This report addresses the hydrologic and hydraulic design requirements for the proposed Phipps Road culvert improvements along an unnamed tributary to the Green Pond Brook. The Phipps Road culvert improvements are being constructed in conjunction with the overall Pondview Estates; New Jersey State Highway Route 15 improvement project in the Township of Rockaway/ Borough of Wharton, Morris County, N.J.

This report addresses the following design issues:

1. Documenting the computations for the 2, 10, 100-year and New Jersey Flood Hazard Area Design Flood (NJFHADF) peak flows to the Green Pond Brook Unnamed Tributary both upstream and downstream of the Phipps Road Culvert;
2. Presenting the proposed culvert and roadway improvements;
3. Determining the volume of flood fringe storage volume filled;
4. Discussing the measures to be taken to reduce soil erosion during construction.

This report has been prepared in conjunction with design documents entitled "Pondview Estates New Jersey State Highway Route 15 Design Plans" as prepared by Schoor DePalma. This report presents the hydrologic and hydraulic analysis of the project, including proposed roadway culvert improvement design, the 100-year floodplain delineation of the unnamed tributary to the Green Pond Brook and documentation of compliance with the 20% net fill requirements.

B. PROJECT LOCATION AND DESCRIPTION

It is proposed to improve New Jersey State Highway Route 15, an urban principal arterial running in a north-south direction, in coordination with the development of Pondview Estates. Pondview Estates consists of a mixed-use development, including retail and residential areas. This portion of Route 15 is located approximately 1.5 miles North of Interstate Route I-80 in Rockaway Township and Wharton Borough, Morris County, NJ.

Route 15 is being improved for the purpose of public safety and to accommodate the additional traffic flow generated by Pondview Estates. The proposed improvements include widening of Route 15 in both directions to provide a minimum of three through lanes, reconfiguration of the Route 15/ Phipps Road intersection with addition of new jughandle ramps, construction of two new streets (Road A and Morris Street) to connect Union Turnpike and Pondview Estates to Route 15. Additionally, a new traffic signal is proposed at the Route 15/Morris Street intersection. The intersection serves as an access to both Pondview Estates and the NJDOT maintenance yard just north of the intersection. The existing traffic signals at the intersections of Phipps Road, Main Street and Parker Road will also be upgraded to accommodate the improved roadway geometry. Finally, the proposed project also includes the design of an improved stormwater management system along the roadway.

The proposed culvert improvements are required to accommodate the future Phipps Road jughandle ramp. The roadway profile above the Phipps Road culvert will have to be raised in order to accommodate construction of the future jughandle ramp described

previously. The NJDOT has the responsibility of maintaining the roadway and culvert and is therefore the applicant for this project.

The hydrologic and hydraulic analysis presented in this report is required for three separate elements. First, the analysis must demonstrate that the revised stormwater management system along Route 15 will not create increased flooding along the unnamed tributary to the Green Pond Brook both upstream and downstream of the Phipps Road Culvert. Second, the analysis is required to show that the revised roadway alignment along Phipps Road will not create increased upstream or downstream flooding off of the applicant's property. Third and finally, the analysis is required to document the on-site 100-year floodplain and to show compliance with the 20% net fill requirement.

C. PROJECT NEED

Route 15 is being improved for the purpose of public safety and to accommodate the additional traffic flow generated by Pondview Estates. The proposed culvert improvements are located along an unnamed tributary to the Green Pond Brook that has been adopted by the State of New Jersey. Mr. John Scordato of the NJDEP Bureau of Floodplain Management has verified that there is no official state study of the existing floodplain hydrology or hydraulics. As such, a hydrology model of the existing watershed, both upstream and downstream of the Phipps Road was performed in order to determine the 2, 10, 100-year and NJFHADF regulatory flood peak flow rates to the tributary in the vicinity of the culvert. Existing and proposed conditions hydraulic models for the Green Pond Brook unnamed tributary in the vicinity of the project area

were created using HEC-RAS. The HEC-RAS model is a Standard Step backwater computer program developed by the U.S. Army Corp of Engineers – Hydrologic Engineering Center and is an NJDEP accepted computer model for this type of study. The existing and proposed conditions hydraulic models were created to show the proposed culvert improvements meet the hydraulic design requirements of N.J.A.C. 7:13-2.16.

D. H&H MODEL

To study the impacts to the Unnamed Tributary of the Green Pond Brook due to the earlier mentioned improvements to Route 15, a detailed Hydrologic and Hydraulic model was set up for both existing and proposed conditions. Since the unnamed tributary initiates within the project limits, it was not possible to setup the H&H model to study the tributary to an extent of 500 ft upstream of the project limits. The upstream end of the tributary is located about 100 ft north of the Phipps Road Culvert, just south of Route 15. This area is called "Existing Wetland #2" in the Stormwater Management Report and in this report. Upstream of this area the tributary is part of a piped Stormwater Management System with both onsite and offsite contributory areas. The Phipps Road Culvert is considered the downstream edge of the project limits and the Green Pond tributary was studied for 550 ft downstream of this location. In total, approximately 650 ft of stream reach was modeled.

Upon a review of this stream reach and the proposed conditions stormwater drainage system, it was decided that there were two significant flow change locations within the

reach length. The first location is just downstream of the Phipps Road Culvert, where stormwater pipes drain a potion of the project area to the tributary adding to the initial flow from "Existing Wetland #2". The second location is approximately 300 ft downstream of the Phipps Road Culvert where another tributary flows into this studied tributary reach. The drainage area of this second tributary is offsite and is not impacted by the proposed improvements. Due to these two flow change locations, the Green Pond Brook tributary was split into three reaches impacted by three different drainage areas. It should also be noted that for the existing conditions, the stormwater pipe network contributing to just downstream of Phipps Road Culvert is unknown. Hence, it was not possible to determine the specific flows from this pipe network. Therefore, the flows from the entire piped upstream drainage area were applied to the start of the tributary.

1. Floodplain Hydrology

A Regional Drainage Analysis was performed using the Soil Conservation Service Technical Release 55 methodology in conjunction with the Pondpack Version 9.0 software program in order to determine the peak discharges of the drainage basin to the unnamed tributary of the Green Pond Brook both upstream and downstream of the Phipps Road Culvert during the 2, 10 and 100-year storm events (regulatory storm events). The NJFHADF flow was obtained by adding another 25% flow to the 100-year storm flow. Based upon the previously mentioned flow change locations within the tributary, three separate drainage areas were analyzed in the model. Those drainage areas are as follows:

Condition was assumed to be in existence prior to the Type III rainfall distribution for each of the three regulatory storm events. An overall Time of concentration taking into account sheet flow, shallow concentrated flow and channel flow from the most remote point of the drainage basin was established and utilized to formulate a SCS unit tabular hydrograph for each regulatory storm event during both existing and proposed conditions. The peak of these times vs. flow graphs were determined to be the maximum flows to each of the three sub-drainage areas during the said regulatory storm events.

The following table is a summary of the peak regulatory storm flows from the existing and proposed Route 15 hydrology study:

Route 15 Regulatory Storm Events Flow Summary Table

Drainage Area	Frequency	Existing Flow (cfs)	Proposed Flow (cfs)
Existing Wetland #2	2-Year	128	117
Existing Wetland #2	10-year	226	208
Existing Wetland #2	100-Year	409	393
Existing Wetland #2	100-Year + 25%	511.25	491.25
Phipps Road Culvert Outlet	2-Year	128	120
Phipps Road Culvert Outlet	10-year	226	212
Phipps Road Culvert Outlet	100-Year	409	400
Phipps Road Culvert Outlet	100-Year + 25%	511.25	500
Downstream Confluence	2-Year	153	150
Downstream Confluence	10-year	275	261
Downstream Confluence	100-Year	502	492
Downstream Confluence	100-Year + 25%	627.5	615

Regulatory Storm Flows will decrease from existing to proposed conditions due to the proposed improvements along Route 15. The revised stormwater management

network will reduce flows to the Green Pond Brook tributary as documented above.

Refer to Appendix 1 for complete details of the Route 15 Hydrology Study.

Refer to the Pondview Estates New Jersey State Highway Route 15 Stormwater Management Report for additional information regarding the existing and proposed on-site flows.

2. Floodplain Hydraulic Computations

The United States Army Corps of Engineers Hydrologic Engineering Center River Analysis Software (HEC-RAS) was implemented to determine the hydraulic performance of the existing and proposed Phipps Road Culvert. The HEC-RAS model was used to evaluate the existing and proposed water surface profiles of the unnamed tributary to the Green Pond Brook for a distance of approximately 100 feet upstream and 550 feet downstream of the culvert during the regulatory flood events. This was a sufficient enough distance in both directions to determine if the proposed structure meets the hydraulic requirements of N.J.A.C. 7:13-2.16.

Existing topographic data, in-situ land cover conditions and field reconnaissance were used to mirror the existing channel geometry in the HEC-RAS software model. Manning's "n" value for the stream channel varies from 0.030 to 0.035 depending on location. Manning's "n" value for the channel overbanks varies from 0.050 to 0.060 depending on the location (see Appendix 4 for photographs of the project site). Contraction and Expansion coefficients were held constant at 0.1 and 0.3 respectfully at all open cross sections and set to 0.3 and 0.5 respectfully at the defining culvert structure and downstream confluence. The regulatory peak

flow values were entered into the model as mixed flow values to determine the water surface elevations that would result at each cross section during existing and proposed conditions.

3. Improvement Design Criteria

The proposed culvert improvements fall under the jurisdiction of the NJDEP - Land Use Regulation Program. The NJDEP cites specific design criteria for stormwater management and floodplain management in the Flood Hazard Area Control Act Rules (NJAC 7:13).

4. Proposed Structure Design

The existing Phipps Road culvert will not be replaced in its entirety. The existing culvert is an approximate 75' long, 4' diameter reinforced concrete pipe (RCP) that spans the roadway with concrete headwalls and wingwalls on both the upstream and downstream end. The culvert has an upstream invert of 685.04 ft. (NAVD 88). The roadway profile above the existing culvert will be slightly modified to allow for construction of the proposed jug-handle ramp. These proposed improvements will raise the centerline elevation of the roadway. However, at the same time a berm that runs parallel to the existing roadway will be cut back. This berm currently sits at a higher elevation than the existing roadway profile. Upon completion of the Route 15 improvements, this berm will be cut back below the proposed roadway profile to allow for construction of the new jug-handle ramp.

5. Modeling and Performance

The existing conditions HEC-RAS model of the Phipps Road Culvert demonstrates that the 100-year floodplain is not contained within the existing 4' RCP and the roadway overtops. The existing conditions model was revised to reflect the changes for the proposed roadway alignment described in Section 4 above. The incorporation of these revisions was used to make up the proposed conditions HEC-RAS model of the Phipps Road Culvert. The proposed conditions HEC-RAS model also incorporates the Regulatory Flood Flow decreases described within Section D1 above.

The proposed structure was analyzed from a hydraulic perspective by comparing the existing computed water surfaces, both upstream and downstream of the structure, with the proposed computed water surfaces to determine if there is a rise in elevation outside of acceptable limits. During the Pre-Application Meeting for this project, the NJDEP determined that the regulatory flood events for this project would be the 2, 10, 100-year storm events and the NJFHADF. The NJDEP regulations do not allow an increase to the upstream or downstream water surface profile outside of the applicant's property during the regulatory flood events of greater then 0.04 feet without written permission from the adjacent property owners. The supporting documentation for the existing and proposed conditions HEC-RAS Models during the regulatory storm events is located within Appendices 2 and 3 of this report respectively. The following table compares the

existing conditions performance and the proposed conditions performance during the regulatory storm flood events.

TABLE: 2, 10, and 100 YEAR STORM EXISTING VERSUS PROPOSED WATER SURFACE ELEVATION (WSE) COMPARISON TABLE

		Existing Conditions			Proposed Conditions			
River Station	Profile	Q Tot. (cfs)	WSEL (ft)	Vel. (ft/s)	Q Tot. (cfs)	WSEL (ft)	Vel. (ft/s)	Diff. WSEL
685.25	2 Year Event	128	692.89	0.42	117	691.73	0.82	-1.16
685.25	10 Year Event	226	693.43	0.58	208	693.14	0.6	-0.29
685.25	100 Year Event	409	693.62	0.98	393	693.45	1	-0.17
685.25	NJFHADF	511.25	693.77	1.15	491.25	693.56	1.2	-0.21
655.25	2 Year Event	128	692.89	0.66	117	691.68	1.96	-1.21
655.25	10 Year Event	226	693.42	0.83	208	693.14	0.91	-0.28
655.25	100 Year Event	409	693.61	1.36	393	693.45	1.43	-0.16
655.25	NJFHADF	511.25	693.76	1.57	491.25	693.55	1.69	-0.21
625.25	2 Year Event	128	692.45	5.06	117	691.11	5.88	-1.34
625.25	10 Year Event	226	693.42	0.62	208	693.14	0.62	-0.28
625.25	100 Year Event	409	693.61	1.06	393	693.45	1.07	-0.16
625.25	NJFHADF	511.25	693.76	1.26	491.25	693.55	1.3	-0.21
587.625		Culvert			Culvert			
550	2 Year Event	128	689.24	10.07	120	689.11	9.86	-0.13
550	10 Year Event	226	690.68	12.23	212	690.5	11.94	-0.18
550	100 Year Event	409	692.76	0.49	400	692.26	0.54	-0.5
550	NJFHADF	511.25	692.76	0.61	500	692.26	0.68	-0.5
500	2 Year Event	128	687.55	14.56	120	687.54	13.77	-0.01
500	10 Year Event	226	687.61	21.93	212	687.6	21.06	-0.01
500	100 Year Event	409	687.79	26.18	400	687.8	24.92	0.01
500	NJFHADF	511.25	687.89	26.83	500	687.9	25.49	0.01
450	2 Year Event	128	688.17	0.59	120	688.15	0.57	-0.02
450	10 Year Event	226	688.37	0.83	212	688.35	0.8	-0.02
450	100 Year Event	409	688.63	1.11	400	688.62	1.1	-0.01
450	NJFHADF	511.25	688.69	1.31	500	688.67	1.3	-0.02
400	2 Year Event	128	688.1	2.9	120	688.08	2.9	-0.02
400	10 Year Event	226	688.3	3.13	212	688.28	3.08	-0.02
400	100 Year Event	409	688.54	3.63	400	688.54	3.59	0
400	NJFHADF	511.25	688.57	4.35	500	688.56	4.33	-0.01

TABLE: 2, 10, and 100 YEAR STORM EXISTING VERSUS PROPOSED WATER SURFACE ELEVATION (WSE) COMPARISON TABLE

		Existing Conditions			Proposed Conditions			
River Station	Profile	Q Tot. (cfs)	WSEL (ft)	Vel. (ft/s)	Q Tot. (cfs)	WSEL (ft)	Vel. (ft/s)	Diff. WSEL
350	2 Year Event	128	687.85	3.79	120	687.86	3.48	0.01
350	10 Year Event	226	687.99	4.69	212	687.97	4.62	-0.02
350	100 Year Event	409	688.15	5.9	400	688.13	5.95	-0.02
350	NJFHADF	511.25	688.26	5.89	500	688.23	6.13	-0.03
300	2 Year Event	128	687.91	0.55	120	687.91	0.51	0
300	10 Year Event	226	687.94	0.93	212	687.94	0.88	0
300	100 Year Event	409	688.13	1.29	400	688.11	1.29	-0.02
300	NJFHADF	511.25	688.32	1.3	500	688.3	1.3	-0.02
250	2 Year Event	153	687.91	0.81	150	687.91	0.79	0
250	10 Year Event	275	687.92	1.42	261	687.92	1.35	0
250	100 Year Event	502	688.1	1.99	492	688.08	2	-0.02
250	NJFHADF	627.5	688.29	1.97	615	688.27	1.97	-0.02
200	2 Year Event	153	687.9	0.8	150	687.9	0.79	0
200	10 Year Event	275	687.9	1.44	261	687.9	1.37	0
200	100 Year Event	502	688.06	2.07	492	688.04	2.08	-0.02
200	NJFHADF	627.5	688.26	2.01	615	688.24	2.01	-0.02
150	2 Year Event	153	687.29	1.38	150	687.28	1.39	-0.01
150	10 Year Event	275	687.6	1.38	261	687.57	1.37	-0.03
150	100 Year Event	502	688.03	1.48	492	688.02	1.47	-0.01
150	NJFHADF	627.5	688.23	1.53	615	688.22	1.52	-0.01
100	2 Year Event	153	686.99	5.02	150	686.98	4.99	-0.01
100	10 Year Event	275	687.3	5.6	261	687.27	5.52	-0.03
100	100 Year Event	502	687.53	7.79	492	687.52	7.73	-0.01
100	NJFHADF	627.5	687.68	8.35	615	687.66	8.34	-0.02
50	2 Year Event	153	687.02	1.7	150	687.01	1.7	-0.01
50	10 Year Event	275	687.35	1.87	261	687.32	1.86	-0.03
50	100 Year Event	502	687.52	2.79	492	687.51	2.76	-0.01
50	NJFHADF	627.5	687.62	3.09	615	687.61	3.07	-0.01
0	2 Year Event	153	686.94	2.25	150	686.94	2.24	0
0	10 Year Event	275	687.26	2.67	261	687.23	2.63	-0.03
0	100 Year Event	502	687.42	2.87	492	687.41	2.86	-0.01
0	NJFHADF	627.5	687.53	3	615	687.52	2.99	-0.01

As can be seen from the preceding table, the proposed improvements do not cause a flooding increase of more than 0.04 feet at any River Stations. Hence, the proposed improvements will not have any negative impacts upstream or downstream of the study area. As such, the proposed structure design meets the NJDEP Flood Hazard Area Control Act Rules, specifically those found at N.J.A.C. 7:13-2.16.

E. IMPACTS TO FLOODPLAIN

The computed water surface profiles indicate that the proposed roadway improvements will not have a significant impact on the existing floodplain. The proposed improvements will not adversely affect the available floodplain storage within the existing Right-of-Way. Thus, the impact of the proposed improvements to the existing floodplain meets the NJDEP Flood Hazard Area Control Act Rules.

F. DOWNSTREAM IMPACT ANALYSIS

Based upon the fact that the computed water surface profiles downstream of the proposed structure are maintained and the velocities are essentially unchanged at the downstream limit of the study, it is not expected that there will be any detrimental downstream impacts. Generally, a significant change in downstream water surface elevations or velocities could result in a potential impact. Therefore, the proposed improvements to the Phipps Road Culvert are not expected to have a negative downstream impact along the Green Pond Brook watershed.

G. FLOOD FRINGE NET FILL

The NJDEP regulates the amount of floodplain fringe volume that can be filled. A maximum of 20% of the existing flood fringe volume can be filled. The flood fringe is defined as the fringe area that is bound by the NJFHADF floodplain and the encroached 100-year storm event (100-year floodway). The proposed improvements consist of a cut and fill operation to modify the existing Phipps Road profile above the existing culvert and allow for construction of the proposed jug-handle ramp. More specifically, Phipps Road will be raised to approximately elevation 692.8 ft and the existing berm on the wetland side of Phipps Road which has a crest elevation of 693.0 ft will be removed. The removal of the existing berm and the raising of Phipps Road will, in effect, only result in minor changes to the available floodplain area. As such, by inspection, this project meets the 20% Net Fill Requirement found at N.J.A.C. 7:13-2.14.

H. SOIL EROSION AND SEDIMENT CONTROL MEASURES

The proposed improvements have been designed to incorporate soil erosion and sediment control features as specified in the New Jersey Standards for Soil Erosion and Sediment Control. The specific features designed for this site include the following:

1. Silt fencing and Turbidity Barriers throughout the site in order to capture any waterborne silt and sediment. The silt fence has been placed in order to protect the offsite areas;
2. Stormwater inlet protection incorporated into the design by placing stone filters in front of the grates of the storm sewer inlets. The filter will allow the stormwater to pass through the stone and capture the silts and sediment that are waterborne;
3. Detailed construction sequence to control excessive soil erosion.

These measures are shown on the supporting Soil Erosion and Sediment Control Plans.

I. PROJECT SUMMARY AND CONCLUSIONS

New Jersey State Highway Route 15 in the vicinity of Phipps Road is being improved for the purpose of public safety and to accommodate the additional traffic flow generated by Pondview Estates. The proposed culvert improvements described within this report are required to accommodate the future Phipps Road jug-handle ramp. The roadway profile above the Phipps Road culvert will have to be modified in order to accommodate the proposed improvements. The NJDOT has the responsibility of maintaining the roadway and culvert and is therefore the applicant for this project. This report has been prepared to address the hydrologic and hydraulic impacts of the proposed improvements.

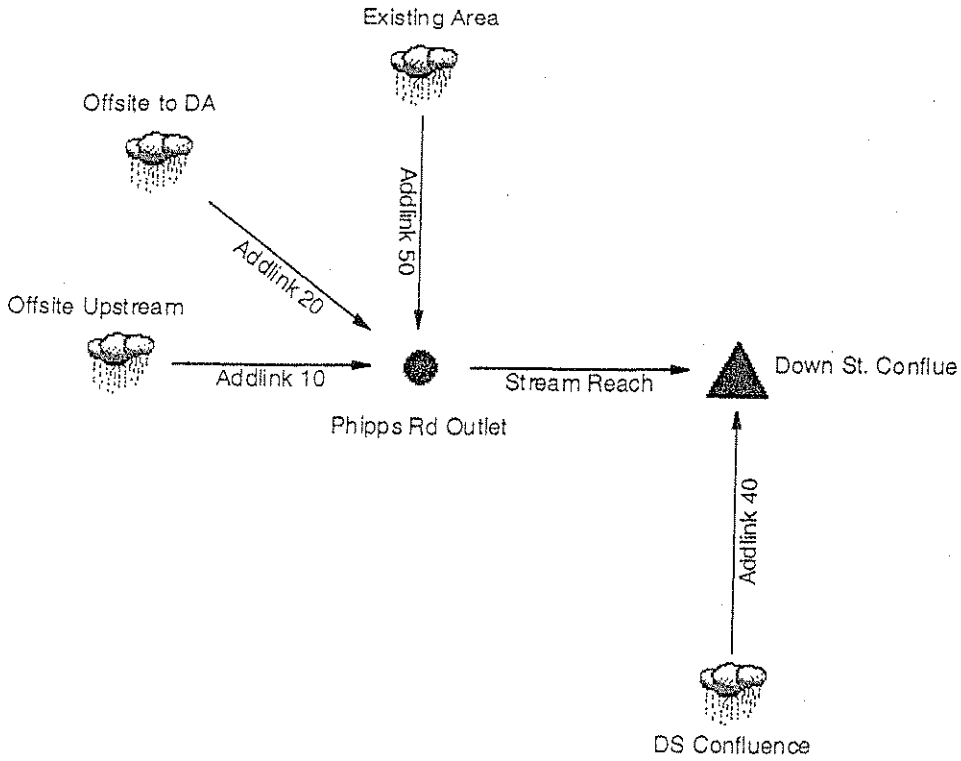
The results of our analysis demonstrate that the proposed improvements will not increase existing water surface elevations (greater than 0.04 feet) upstream or downstream of the applicant's property during routing of the 2, 10, 100-year and NJFHADF Regulatory storm events. The proposed improvements will not have any negative upstream or downstream impacts on the Green Pond Brook watershed and the project meets the 20% Net Fill Requirement by inspection.

In summary, the proposed Pondview Estates New Jersey State Highway Route 15 Project is required for public safety, meets the requirements set forth at N.J.A.C. 7:13 and should be issued a Stream Encroachment Permit by the NJDEP Land Use Regulation Program.

APPENDIX 1

ROUTE 15

HYDROLOGIC MODEL


Existing Area
Offsite to DA
Addlink 50
Addlink 20
Offsite Upstream
Addlink 10
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PHIPPS RD OUTLET 100
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MASTER DESIGN STORM SUMMARY

Network Storm Collection: Morris

Return Event	Total Depth in	Rainfall Type	RNF ID
2	3.5000	Synthetic Curve	TypeIII 24hr
10	5.2000	Synthetic Curve	TypeIII 24hr
100	8.3000	Synthetic Curve	TypeIII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
*DOWN ST. CONFLUE	JCT	2	14.738		12.1500	152.43		
*DOWN ST. CONFLUE	JCT	10	26.622		12.1500	274.15		
*DOWN ST. CONFLUE	JCT	100	49.739		12.1500	501.02		
DS CONFLUENCE	AREA	2	3.175		12.2400	29.17		
DS CONFLUENCE	AREA	10	5.877		12.2400	54.19		
DS CONFLUENCE	AREA	100	11.198		12.2400	101.47		
EXISTING AREA	AREA	2	1.446		12.1200	16.17		
EXISTING AREA	AREA	10	2.460		12.1200	27.00		
EXISTING AREA	AREA	100	4.374		12.1200	46.58		
OFFSITE TO DA	AREA	2	.083		12.1500	.92		
OFFSITE TO DA	AREA	10	.169		12.1500	1.91		
OFFSITE TO DA	AREA	100	.348		12.1200	3.91		
OFFSITE UPSTREAM	AREA	2	10.033		12.1500	110.00		
OFFSITE UPSTREAM	AREA	10	18.115		12.1500	197.16		
OFFSITE UPSTREAM	AREA	100	33.818		12.1500	359.03		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
PHIPPS RD OUTLET	JCT	2	11.563		12.1500	127.05		
PHIPPS RD OUTLET	JCT	10	20.745		12.1500	225.86		
PHIPPS RD OUTLET	JCT	100	38.541		12.1500	408.96		

NETWORK SUMMARY -- NODES
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = Morris

Storm Tag Name = 2

Data Type, File, ID = Synthetic Storm TypeIII 24hr
Storm Frequency = 2 yr
Total Rainfall Depth= 3.5000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

	Node ID	Type	HYG Vol ac-ft	Trun.	Qpeak hrs	Qpeak cfs	Max WSEL ft
Outfall	DOWN ST. CONFLUE	JCT	14.738		12.1500	152.43	
	DS CONFLUENCE	AREA	3.175		12.2400	29.17	
	EXISTING AREA	AREA	1.446		12.1200	16.17	
	OFFSITE TO DA	AREA	.083		12.1500	.92	
	OFFSITE UPSTREAM	AREA	10.033		12.1500	110.00	
	PHIPPS RD OUTLET	JCT	11.563		12.1500	127.05	

NETWORK SUMMARY -- NODES
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = Morris

Storm Tag Name = 10

Data Type, File, ID = Synthetic Storm TypeIII 24hr
Storm Frequency = 10 yr
Total Rainfall Depth= 5.2000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Node ID	Type	HYG Vol ac-ft	Trun.	Qpeak hrs	Qpeak cfs	Max WSEL ft
Outfall DOWN ST. CONFLUE	JCT	26.622		12.1500	274.15	
DS CONFLUENCE	AREA	5.877		12.2400	54.19	
EXISTING AREA	AREA	2.460		12.1200	27.00	
OFFSITE TO DA	AREA	.169		12.1500	1.91	
OFFSITE UPSTREAM	AREA	18.115		12.1500	197.16	
PHIPPS RD OUTLET	JCT	20.745		12.1500	225.86	

File.... N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Title... Project Date: 5/5/2005
Project Engineer: Schoor DePalma
Project Title: Route 15 (Pondview Estates)
Project Comments:
Basin #1 at Hawk Drive jughandle

DESIGN STORMS SUMMARY

Design Storm File,ID = Morris

Storm Tag Name = 2

Data Type, File, ID = Synthetic Storm TypeIII 24hr
Storm Frequency = 2 yr
Total Rainfall Depth= 3.5000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 10

Data Type, File, ID = Synthetic Storm TypeIII 24hr
Storm Frequency = 10 yr
Total Rainfall Depth= 5.2000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 100

Data Type, File, ID = Synthetic Storm TypeIII 24hr
Storm Frequency = 100 yr
Total Rainfall Depth= 8.3000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

File.... N:\project\2002\0207212\01\H&H\Hydrology\Final Report\DA1- EXISTING-GREENPOND TRIB-H&H.MDK

TIME OF CONCENTRATION CALCULATOR

Segment #1: Tc: TR-55 Sheet

Mannings n	.4000
Hydraulic Length	100.00 ft
2yr, 24hr P	3.5000 in
Slope	.050000 ft/ft

Avg.Velocity .12 ft/sec

Segment #1 Time: .2372 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	1675.00 ft
Slope	.100000 ft/ft
Unpaved	

Avg.Velocity 5.10 ft/sec

Segment #2 Time: .0912 hrs

Segment #3: Tc: TR-55 Shallow

Hydraulic Length	75.00 ft
Slope	.010000 ft/ft
Paved	

Avg.Velocity 2.03 ft/sec

Segment #3 Time: .0102 hrs

Total Tc: .3386 hrs

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

```
Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where:  Tc = Time of concentration, hrs
        n  = Mannings n
        Lf = Flow length, ft
        P  = 2yr, 24hr Rain depth, inches
        Sf = Slope, %
```

==== SCS TR-55 Shallow Concentrated Flow ==========

```
Unpaved surface:
V  = 16.1345 * (Sf**0.5)

Paved surface:
V  = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where:  V  = Velocity, ft/sec
        Sf = Slope, ft/ft
        Tc = Time of concentration, hrs
        Lf = Flow length, ft
```

File.... N:\project\2002\0207212\01\H&H\Hydrology\Final Report\DA1- EXISTING-GREENPOND TRIB-H&H.MDK

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: User Defined

Segment #1 Time: .1667 hrs

========================
Total Tc: .1667 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .1667 hrs
========================

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

File.... N:\project\2002\0207212\01\H&H\Hydrology\Final Report\DA1- EXISTING-GREENPOND TRIB-H&H.MDK

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: User Defined

Segment #1 Time: .1667 hrs

==========
Total Tc: .1667 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .1667 hrs
==========

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

File.... N:\project\2002\0207212\01\H&H\Hydrology\Final Report\DA1- EXISTING-GREENPOND TRIB-H&H.MDK

TIME OF CONCENTRATION CALCULATOR

Segment #1: Tc: TR-55 Sheet

Mannings n	.1500
Hydraulic Length	100.00 ft
2yr, 24hr P	3.5000 in
Slope	.063000 ft/ft
Avg.Velocity	.28 ft/sec

Segment #1 Time: .0987 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	350.00 ft
Slope	.146000 ft/ft
Paved	
Avg.Velocity	7.77 ft/sec

Segment #2 Time: .0125 hrs

Segment #3: Tc: TR-55 Shallow

Hydraulic Length	1600.00 ft
Slope	.146000 ft/ft
Unpaved	
Avg.Velocity	6.16 ft/sec

Segment #3 Time: .0721 hrs

File.... N:\project\2002\0207212\01\H&H\Hydrology\Final Report\DA1- EXISTING-GREENPOND TRIB-H&H.MDK

Segment #4: Tc: TR-55 Shallow

Hydraulic Length 300.00 ft
Slope .146000 ft/ft
Paved

Avg.Velocity 7.77 ft/sec

Segment #4 Time: .0107 hrs

==========
Total Tc: .1940 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

File.... N:\project\2002\0207212\01\H&H\Hydrology\Final Report\DA1- EXISTING-GREENPOND TRIB-H&H.MDK

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
Woods - Wetland	84	4.900			84.00
Woods - grass & tree combination	79	9.300			79.00
Woods - grass & tree combination	79	1.000			79.00
Impervious Areas - Paved Parking Lo	98	.300			98.00
Impervious Areas - Paved Parking Lo	98	.500			98.00
Woods - grass & tree combination	79	5.900			79.00
Woods - grass & tree combination	73	.200			73.00
Impervious Areas - Paved parking	98	.200			98.00
COMPOSITE AREA & WEIGHTED CN --->		22.300			80.90 (81)

File.... N:\project\2002\0207212\01\H&H\Hydrology\Final Report\DA1- EXISTING-GREENPOND TRIB-H&H.MDK

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
Open Space (Fair Conditions),C	79	1.400			79.00
Open Space(Fair Conditions),D	84	1.490			84.00
Open Space (Fair Conditions),B	69	1.130			69.00
Impervious	98	3.630			98.00
COMPOSITE AREA & WEIGHTED CN --->		7.650			87.51 (88)

File.... N:\project\2002\0207212\01\H&H\Hydrology\Final Report\DA1- EXISTING-GREENPOND TRIB-H&H.MDK

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Impervious Areas - Paved parking lo	98	.005			98.00
Open Space(Fair Conditions),B	69	.550			69.00
Open Space(Fair Conditions),D	84	.250			84.00
COMPOSITE AREA & WEIGHTED CN --->		.805			73.84 (74)

File.... N:\project\2002\0207212\01\H&H\Hydrology\Final Report\DA1- EXISTING-GREENPOND TRIB-H&H.MDK

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
Wooded Wetland, C	78	.230			78.00
Wooded Wetland, D	84	16.670			84.00
Woods - grass combination, fair	76	11.250			76.00
Woods - grass combination, fair	82	11.950			82.00
Urban Districts- Commercial & Busin	94	8.030			94.00
Residential Districts - 1/2 acre	80	8.120			80.00
Residential Districts - 1/2 acre	85	8.530			85.00
COMPOSITE AREA & WEIGHTED CN --->		64.780			83.09 (83)

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration       = 24.0000 hrs     Rain Depth = 3.5000 in
Rain Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID  =  - TypeIII 24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID  =  - DS CONFLUENCE 2
Tc             = .3386 hrs
Drainage Area  = 22.300 acres  Runoff CN= 81

==========================================
Computational Time Increment   =   .04515 hrs
Computed Peak Time             =  12.2364 hrs
Computed Peak Flow             =    29.20 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.2400 hrs
Peak Flow, Interpolated Output =    29.17 cfs
==========================================

                DRAINAGE AREA
              -------------------
              ID:DS CONFLUENCE
              CN    =   81
              Area  =      22.300 acres
              S     =   2.3457 in
              0.2S  =    .4691 in

               Cumulative Runoff
              -------------------
                      1.7086 in
                       3.175 ac-ft

HYG Volume...           3.175 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .33865 hrs (ID: DS CONFLUENCE)
Computational Incr, Tm =    .04515 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =    74.61 cfs
Unit peak time       Tp =   .22576 hrs
Unit receding limb,  Tr =   .90306 hrs
Total unit time,     Tb =  1.12882 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.2000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - DS CONFLUENCE 10
Tc            = .3386 hrs
Drainage Area = 22.300 acres  Runoff CN= 81

==========================================
Computational Time Increment   =   .04515 hrs
Computed Peak Time             =  12.2364 hrs
Computed Peak Flow             =    54.30 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.2400 hrs
Peak Flow, Interpolated Output =    54.19 cfs
==========================================

                DRAINAGE AREA
              -------------------
              ID:DS CONFLUENCE
              CN    =   81
              Area =      22.300 acres
              S     =   2.3457 in
              0.2S =     .4691 in

               Cumulative Runoff
              -------------------
                      3.1627 in
                       5.877 ac-ft

HYG Volume...          5.877 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .33865 hrs (ID: DS CONFLUENCE)
Computational Incr, Tm =   .04515 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =    74.61 cfs
Unit peak time       Tp =   .22576 hrs
Unit receding limb,  Tr =   .90306 hrs
Total unit time,     Tb =  1.12882 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.3000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - DS CONFLUENCE 100
Tc            = .3386 hrs
Drainage Area = 22.300 acres  Runoff CN= 81

==========================================
Computational Time Increment   =   .04515 hrs
Computed Peak Time             =  12.2364 hrs
Computed Peak Flow             =   101.72 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.2400 hrs
Peak Flow, Interpolated Output =   101.47 cfs
==========================================

                DRAINAGE AREA
             -------------------
             ID:DS CONFLUENCE
             CN    =   81
             Area =      22.300 acres
             S     =   2.3457 in
             0.2S =     .4691 in

              Cumulative Runoff
             -------------------
                     6.0259 in
                     11.198 ac-ft

HYG Volume...        11.198 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .33865 hrs (ID: DS CONFLUENCE)
Computational Incr, Tm =   .04515 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,          qp =    74.61 cfs
Unit peak time      Tp =   .22576 hrs
Unit receding limb, Tr =   .90306 hrs
Total unit time,    Tb =  1.12882 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.5000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - EXISTING AREA 2
Tc (Min. Tc)  = .1667 hrs
Drainage Area = 7.650 acres  Runoff CN= 88

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =    16.32 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =    16.17 cfs
==========================================

                 DRAINAGE AREA
              -------------------
              ID:EXISTING AREA
              CN    =   88
              Area =       7.650 acres
              S     =   1.3636 in
              0.2S =     .2727 in

               Cumulative Runoff
              -------------------
                      2.2687 in
                       1.446 ac-ft

HYG Volume...          1.446 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .16670 hrs (ID: EXISTING AREA)
Computational Incr, Tm =   .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =    52.00 cfs
Unit peak time       Tp =   .11113 hrs
Unit receding limb,  Tr =   .44453 hrs
Total unit time,     Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration       = 24.0000 hrs     Rain Depth = 5.2000 in
Rain Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID  =  - TypeIII 24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID  =  - EXISTING AREA 10
Tc (Min. Tc)   = .1667 hrs
Drainage Area  = 7.650 acres  Runoff CN= 88

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =    27.16 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =    27.00 cfs
==========================================

                DRAINAGE AREA
              -------------------
              ID:EXISTING AREA
              CN    =   88
              Area =       7.650 acres
              S     =   1.3636 in
              0.2S =     .2727 in

               Cumulative Runoff
              -------------------
                      3.8592 in
                       2.460 ac-ft

HYG Volume...          2.460 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .16670 hrs (ID: EXISTING AREA)
Computational Incr, Tm =    .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,          qp =    52.00 cfs
Unit peak time      Tp =   .11113 hrs
Unit receding limb, Tr =   .44453 hrs
Total unit time,    Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.3000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - EXISTING AREA 100
Tc (Min. Tc)  = .1667 hrs
Drainage Area = 7.650 acres  Runoff CN= 88

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =    46.75 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =    46.58 cfs
==========================================

                 DRAINAGE AREA
               -------------------
               ID:EXISTING AREA
               CN   =   88
               Area =       7.650 acres
               S    =   1.3636 in
               0.2S =    .2727 in

                Cumulative Runoff
               -------------------
                       6.8616 in
                        4.374 ac-ft

HYG Volume...           4.374 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .16670 hrs (ID: EXISTING AREA)
Computational Incr, Tm =   .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =    52.00 cfs
Unit peak time       Tp =   .11113 hrs
Unit receding limb,  Tr =   .44453 hrs
Total unit time,     Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.5000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - OFFSITE TO DA 2
Tc (Min. Tc)  = .1667 hrs
Drainage Area = .805 acres  Runoff CN= 74

=========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1580 hrs
Computed Peak Flow             =       .92 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1500 hrs
Peak Flow, Interpolated Output =       .92 cfs
=========================================

                 DRAINAGE AREA
               -------------------
               ID:OFFSITE TO DA
               CN    =   74
               Area =        .805 acres
               S     =   3.5135 in
               0.2S =     .7027 in

                Cumulative Runoff
               -------------------
                       1.2399 in
                         .083 ac-ft

HYG Volume...            .083 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .16670 hrs (ID: OFFSITE TO DA)
Computational Incr, Tm =    .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =     5.47 cfs
Unit peak time       Tp =   .11113 hrs
Unit receding limb, Tr =   .44453 hrs
Total unit time,     Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.2000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - OFFSITE TO DA 10
Tc (Min. Tc)  = .1667 hrs
Drainage Area = .805 acres  Runoff CN= 74

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =     1.93 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1500 hrs
Peak Flow, Interpolated Output =     1.91 cfs
==========================================

                DRAINAGE AREA
             -------------------
             ID:OFFSITE TO DA
             CN   =   74
             Area =        .805 acres
             S    =   3.5135 in
             0.2S =    .7027 in

              Cumulative Runoff
             -------------------
                     2.5248 in
                       .169 ac-ft

HYG Volume...            .169 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .16670 hrs (ID: OFFSITE TO DA)
Computational Incr, Tm =   .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =     5.47 cfs
Unit peak time       Tp =   .11113 hrs
Unit receding limb,  Tr =   .44453 hrs
Total unit time,     Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.3000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - OFFSITE TO DA 100
Tc (Min. Tc)  = .1667 hrs
Drainage Area = .805 acres  Runoff CN= 74

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =     3.94 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =     3.91 cfs
==========================================

                DRAINAGE AREA
              -------------------
              ID:OFFSITE TO DA
              CN    =   74
              Area =         .805 acres
              S     =   3.5135 in
              0.2S =     .7027 in

               Cumulative Runoff
              -------------------
                      5.1948 in
                        .348 ac-ft

HYG Volume...           .348 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .16670 hrs (ID: OFFSITE TO DA)
Computational Incr, Tm =    .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,          qp =     5.47 cfs
Unit peak time      Tp =   .11113 hrs
Unit receding limb, Tr =   .44453 hrs
Total unit time,    Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.5000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - OFFSITE UPSTREAM 2
Tc            = .1940 hrs
Drainage Area = 64.780 acres  Runoff CN= 83

==========================================
Computational Time Increment   =   .02587 hrs
Computed Peak Time             =  12.1580 hrs
Computed Peak Flow             =   110.39 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1500 hrs
Peak Flow, Interpolated Output =   110.00 cfs
==========================================

                 DRAINAGE AREA
               -------------------
               ID:OFFSITE UPSTREAM
               CN   =   83
               Area =      64.780 acres
               S    =   2.0482 in
               0.2S =    .4096 in

                Cumulative Runoff
               -------------------
                       1.8586 in
                       10.033 ac-ft

HYG Volume...          10.033 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .19401 hrs (ID: OFFSITE UPSTREAM)
Computational Incr, Tm =   .02587 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =   378.32 cfs
Unit peak time       Tp =   .12934 hrs
Unit receding limb,  Tr =   .51736 hrs
Total unit time,     Tb =   .64670 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.2000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - OFFSITE UPSTREAM 10
Tc            = .1940 hrs
Drainage Area = 64.780 acres  Runoff CN= 83

==========================================
Computational Time Increment   =   .02587 hrs
Computed Peak Time             =  12.1580 hrs
Computed Peak Flow             =   197.44 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1500 hrs
Peak Flow, Interpolated Output =   197.16 cfs
==========================================

                DRAINAGE AREA
              -------------------
              ID:OFFSITE UPSTREAM
              CN    =   83
              Area =       64.780 acres
              S     =   2.0482 in
              0.2S =     .4096 in

               Cumulative Runoff
              -------------------
                      3.3556 in
                      18.115 ac-ft

HYG Volume...         18.115 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .19401 hrs (ID: OFFSITE UPSTREAM)
Computational Incr, Tm =    .02587 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,          qp =   378.32 cfs
Unit peak time      Tp =   .12934 hrs
Unit receding limb, Tr =   .51736 hrs
Total unit time,    Tb =   .64670 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.3000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - OFFSITE UPSTREAM 100
Tc            = .1940 hrs
Drainage Area = 64.780 acres  Runoff CN= 83

==========================================
Computational Time Increment   =   .02587 hrs
Computed Peak Time             =  12.1321 hrs
Computed Peak Flow             =   359.20 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1500 hrs
Peak Flow, Interpolated Output =   359.03 cfs
==========================================

                 DRAINAGE AREA
               -------------------
               ID:OFFSITE UPSTREAM
               CN   =   83
               Area =      64.780 acres
               S    =   2.0482 in
               0.2S =    .4096 in

                Cumulative Runoff
               -------------------
                       6.2643 in
                       33.817 ac-ft

HYG Volume...          33.818 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .19401 hrs (ID: OFFSITE UPSTREAM)
Computational Incr, Tm =   .02587 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,           qp =   378.32 cfs
Unit peak time       Tp =   .12934 hrs
Unit receding limb,  Tr =   .51736 hrs
Total unit time,     Tb =   .64670 hrs
```

SUMMARY FOR HYDROGRAPH ADDITION
at Node: DOWN ST. CONFLUE

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 40	DS CONFLUENCE		DS CONFLUENCE	2
STREAM REACH	PHIPPS RD OUTLET		PHIPPS RD OUTLET	2

INFLOWS TO: DOWN ST. CONFLUE

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	DS CONFLUENCE	2	3.175	12.2400	29.17
	PHIPPS RD OUTLET	2	11.563	12.1500	127.05

TOTAL FLOW INTO: DOWN ST. CONFLUE

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	DOWN ST. CONFLUE	2	14.738	12.1500	152.43

TOTAL NODE INFLOW...
HYG file =
HYG ID = DOWN ST. CONFLUE
HYG Tag = 2

Peak Discharge = 152.43 cfs
Time to Peak = 12.1500 hrs
HYG Volume = 14.738 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
6.4500	.00	.00	.00	.00	.00
6.6000	.01	.01	.01	.01	.01
6.7500	.01	.01	.02	.02	.02
6.9000	.02	.02	.02	.03	.03
7.0500	.03	.03	.03	.04	.04
7.2000	.04	.04	.04	.05	.05
7.3500	.05	.05	.05	.06	.06
7.5000	.06	.06	.07	.07	.07
7.6500	.07	.07	.08	.08	.08
7.8000	.08	.09	.09	.09	.09
7.9500	.10	.10	.10	.11	.11
8.1000	.11	.11	.12	.12	.13
8.2500	.14	.16	.18	.19	.22
8.4000	.24	.26	.29	.31	.34
8.5500	.37	.39	.42	.45	.48
8.7000	.51	.55	.58	.61	.65
8.8500	.68	.72	.76	.80	.85
9.0000	.89	.94	.98	1.03	1.08
9.1500	1.13	1.18	1.23	1.29	1.34
9.3000	1.40	1.45	1.51	1.57	1.63
9.4500	1.69	1.75	1.81	1.87	1.94
9.6000	2.00	2.07	2.13	2.20	2.27
9.7500	2.34	2.41	2.48	2.55	2.62
9.9000	2.69	2.77	2.84	2.92	3.00
10.0500	3.08	3.16	3.25	3.34	3.43
10.2000	3.53	3.64	3.75	3.86	3.97
10.3500	4.09	4.21	4.33	4.46	4.59
10.5000	4.72	4.85	4.98	5.12	5.26
10.6500	5.40	5.55	5.69	5.84	5.99
10.8000	6.14	6.30	6.45	6.61	6.77
10.9500	6.94	7.10	7.27	7.45	7.66

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.1000	7.89	8.14	8.43	8.76	9.11
11.2500	9.49	9.90	10.33	10.77	11.24
11.4000	11.72	12.20	12.70	13.23	13.84
11.5500	14.65	15.78	17.23	19.06	21.49
11.7000	24.43	27.76	31.54	35.71	40.17
11.8500	44.91	50.10	55.91	63.60	74.85
12.0000	89.92	106.54	122.46	136.49	146.92
12.1500	152.43	151.43	144.77	135.48	125.29
12.3000	115.93	107.76	100.09	92.73	85.82
12.4500	79.18	72.54	66.09	60.01	54.27
12.6000	49.02	44.49	40.64	37.42	34.89
12.7500	32.84	31.09	29.66	28.41	27.27
12.9000	26.27	25.34	24.47	23.63	22.85
13.0500	22.12	21.45	20.84	20.29	19.83
13.2000	19.43	19.09	18.80	18.53	18.28
13.3500	18.06	17.84	17.64	17.45	17.26
13.5000	17.07	16.89	16.71	16.52	16.35
13.6500	16.17	15.99	15.81	15.63	15.46
13.8000	15.28	15.10	14.92	14.74	14.56
13.9500	14.38	14.20	14.02	13.85	13.68
14.1000	13.52	13.37	13.23	13.10	12.99
14.2500	12.88	12.78	12.68	12.58	12.49
14.4000	12.40	12.31	12.22	12.13	12.05
14.5500	11.96	11.87	11.78	11.70	11.61
14.7000	11.52	11.44	11.35	11.26	11.18
14.8500	11.09	11.00	10.91	10.83	10.74
15.0000	10.65	10.56	10.47	10.38	10.29
15.1500	10.21	10.12	10.03	9.94	9.85
15.3000	9.76	9.67	9.58	9.49	9.40
15.4500	9.32	9.22	9.13	9.04	8.95
15.6000	8.86	8.77	8.68	8.59	8.50
15.7500	8.41	8.32	8.22	8.14	8.04
15.9000	7.95	7.86	7.77	7.67	7.59
16.0500	7.50	7.42	7.34	7.27	7.20
16.2000	7.14	7.08	7.03	6.98	6.94
16.3500	6.90	6.85	6.81	6.76	6.72
16.5000	6.68	6.64	6.61	6.56	6.52
16.6500	6.48	6.44	6.40	6.36	6.33
16.8000	6.28	6.24	6.20	6.16	6.12
16.9500	6.09	6.05	6.00	5.96	5.92
17.1000	5.88	5.85	5.81	5.77	5.72
17.2500	5.68	5.64	5.60	5.56	5.52
17.4000	5.48	5.44	5.40	5.36	5.32
17.5500	5.28	5.24	5.20	5.16	5.12
17.7000	5.08	5.04	5.00	4.96	4.92

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
17.8500	4.87	4.83	4.79	4.76	4.71
18.0000	4.67	4.63	4.59	4.55	4.52
18.1500	4.49	4.47	4.45	4.43	4.41
18.3000	4.40	4.38	4.36	4.35	4.34
18.4500	4.33	4.31	4.30	4.29	4.28
18.6000	4.26	4.25	4.24	4.23	4.22
18.7500	4.20	4.19	4.18	4.17	4.16
18.9000	4.14	4.13	4.12	4.11	4.10
19.0500	4.09	4.07	4.06	4.05	4.04
19.2000	4.02	4.01	4.00	3.99	3.98
19.3500	3.96	3.95	3.94	3.93	3.92
19.5000	3.90	3.89	3.88	3.87	3.86
19.6500	3.84	3.83	3.82	3.81	3.79
19.8000	3.78	3.77	3.76	3.75	3.73
19.9500	3.72	3.71	3.70	3.69	3.68
20.1000	3.66	3.65	3.64	3.63	3.62
20.2500	3.62	3.61	3.60	3.59	3.57
20.4000	3.56	3.55	3.55	3.54	3.53
20.5500	3.52	3.51	3.50	3.49	3.48
20.7000	3.47	3.46	3.45	3.44	3.43
20.8500	3.43	3.42	3.41	3.40	3.39
21.0000	3.38	3.38	3.37	3.36	3.35
21.1500	3.34	3.33	3.32	3.31	3.30
21.3000	3.29	3.28	3.27	3.26	3.26
21.4500	3.25	3.24	3.22	3.21	3.20
21.6000	3.19	3.19	3.18	3.17	3.16
21.7500	3.15	3.14	3.14	3.13	3.12
21.9000	3.11	3.10	3.09	3.08	3.07
22.0500	3.06	3.05	3.04	3.03	3.03
22.2000	3.02	3.01	3.00	2.99	2.97
22.3500	2.96	2.95	2.95	2.94	2.93
22.5000	2.92	2.91	2.90	2.89	2.89
22.6500	2.88	2.87	2.86	2.85	2.84
22.8000	2.83	2.82	2.81	2.80	2.79
22.9500	2.78	2.78	2.77	2.76	2.75
23.1000	2.74	2.72	2.71	2.70	2.70
23.2500	2.69	2.68	2.67	2.66	2.65
23.4000	2.64	2.64	2.63	2.62	2.61
23.5500	2.60	2.59	2.58	2.57	2.56
23.7000	2.55	2.54	2.53	2.52	2.52
23.8500	2.51	2.49	2.48	2.47	2.46
24.0000	2.45	2.39	2.24	1.95	1.60
24.1500	1.24	.94	.70	.53	.40
24.3000	.30	.23	.17	.13	.10
24.4500	.08	.06	.05	.04	.03

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
24.6000	.02	.02	.01	.01	.01
24.7500	.01	.01	.00	.00	.00
24.9000	.00	.00	.00		

SUMMARY FOR HYDROGRAPH ADDITION
at Node: DOWN ST. CONFLUE

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 40	DS CONFLUENCE		DS CONFLUENCE	10
STREAM REACH	PHIPPS RD OUTLET		PHIPPS RD OUTLET	10

INFLOWS TO: DOWN ST. CONFLUE

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	DS CONFLUENCE	10	5.877	12.2400	54.19
	PHIPPS RD OUTLET	10	20.745	12.1500	225.86

TOTAL FLOW INTO: DOWN ST. CONFLUE

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	DOWN ST. CONFLUE	10	26.622	12.1500	274.15

TOTAL NODE INFLOW...
HYG file =
HYG ID = DOWN ST. CONFLUE
HYG Tag = 10

Peak Discharge = 274.15 cfs
Time to Peak = 12.1500 hrs
HYG Volume = 26.622 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.8000	.00	.00	.00	.00	.01
4.9500	.01	.01	.01	.01	.01
5.1000	.02	.02	.02	.02	.02
5.2500	.03	.03	.03	.03	.03
5.4000	.04	.04	.04	.04	.04
5.5500	.05	.05	.05	.05	.05
5.7000	.06	.06	.06	.06	.06
5.8500	.07	.07	.07	.07	.07
6.0000	.08	.08	.08	.08	.09
6.1500	.09	.09	.09	.10	.10
6.3000	.10	.10	.11	.11	.11
6.4500	.12	.12	.13	.14	.16
6.6000	.17	.19	.21	.23	.25
6.7500	.27	.29	.32	.34	.36
6.9000	.39	.41	.44	.46	.49
7.0500	.52	.54	.57	.60	.63
7.2000	.66	.69	.73	.76	.80
7.3500	.83	.87	.91	.94	.98
7.5000	1.02	1.06	1.10	1.14	1.19
7.6500	1.23	1.27	1.31	1.36	1.40
7.8000	1.45	1.49	1.54	1.58	1.63
7.9500	1.68	1.73	1.77	1.82	1.87
8.1000	1.93	1.98	2.04	2.11	2.17
8.2500	2.24	2.30	2.38	2.45	2.52
8.4000	2.60	2.67	2.75	2.83	2.91
8.5500	3.00	3.08	3.17	3.25	3.34
8.7000	3.43	3.52	3.61	3.71	3.80
8.8500	3.90	4.00	4.10	4.20	4.30
9.0000	4.41	4.51	4.62	4.73	4.84
9.1500	4.95	5.06	5.17	5.29	5.40
9.3000	5.52	5.64	5.76	5.88	6.00

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
9.4500	6.13	6.25	6.38	6.51	6.64
9.6000	6.77	6.90	7.03	7.17	7.30
9.7500	7.44	7.58	7.72	7.85	8.00
9.9000	8.14	8.28	8.43	8.58	8.72
10.0500	8.88	9.04	9.21	9.39	9.58
10.2000	9.78	9.99	10.21	10.44	10.67
10.3500	10.90	11.15	11.39	11.64	11.89
10.5000	12.15	12.41	12.67	12.94	13.20
10.6500	13.47	13.75	14.03	14.31	14.59
10.8000	14.88	15.17	15.46	15.75	16.05
10.9500	16.35	16.65	16.96	17.30	17.68
11.1000	18.12	18.60	19.16	19.81	20.51
11.2500	21.25	22.06	22.90	23.76	24.66
11.4000	25.59	26.52	27.47	28.48	29.62
11.5500	31.19	33.39	36.23	39.82	44.57
11.7000	50.29	56.74	63.96	71.88	80.21
11.8500	88.97	98.43	108.90	122.64	142.71
12.0000	169.44	198.57	225.94	249.47	266.22
12.1500	274.15	270.70	257.50	239.90	220.91
12.3000	203.54	188.41	174.33	160.94	148.44
12.4500	136.57	124.81	113.45	102.82	92.82
12.6000	83.68	75.84	69.17	63.58	59.20
12.7500	55.63	52.59	50.09	47.92	45.95
12.9000	44.21	42.61	41.10	39.67	38.32
13.0500	37.07	35.92	34.87	33.94	33.15
13.2000	32.47	31.88	31.37	30.90	30.48
13.3500	30.10	29.72	29.37	29.04	28.71
13.5000	28.39	28.07	27.77	27.45	27.15
13.6500	26.84	26.54	26.23	25.93	25.62
13.8000	25.32	25.02	24.71	24.41	24.10
13.9500	23.80	23.50	23.19	22.90	22.61
14.1000	22.34	22.09	21.85	21.64	21.44
14.2500	21.26	21.08	20.91	20.75	20.60
14.4000	20.44	20.29	20.14	19.99	19.84
14.5500	19.69	19.55	19.40	19.26	19.11
14.7000	18.96	18.81	18.66	18.52	18.37
14.8500	18.23	18.08	17.93	17.78	17.63
15.0000	17.48	17.34	17.19	17.04	16.89
15.1500	16.74	16.59	16.44	16.30	16.15
15.3000	16.00	15.85	15.70	15.55	15.40
15.4500	15.26	15.11	14.95	14.80	14.65
15.6000	14.50	14.36	14.21	14.05	13.90
15.7500	13.75	13.60	13.45	13.30	13.15
15.9000	13.00	12.84	12.69	12.54	12.39
16.0500	12.25	12.12	11.99	11.87	11.76

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
16.2000	11.66	11.56	11.48	11.40	11.32
16.3500	11.25	11.18	11.11	11.03	10.96
16.5000	10.90	10.83	10.77	10.70	10.63
16.6500	10.56	10.50	10.43	10.37	10.31
16.8000	10.24	10.17	10.10	10.04	9.97
16.9500	9.91	9.84	9.78	9.71	9.64
17.1000	9.58	9.51	9.45	9.38	9.31
17.2500	9.25	9.18	9.11	9.05	8.99
17.4000	8.92	8.85	8.78	8.72	8.65
17.5500	8.59	8.52	8.45	8.38	8.32
17.7000	8.25	8.19	8.12	8.06	7.99
17.8500	7.92	7.85	7.79	7.72	7.66
18.0000	7.59	7.52	7.45	7.39	7.34
18.1500	7.29	7.25	7.22	7.19	7.16
18.3000	7.13	7.11	7.08	7.06	7.04
18.4500	7.02	7.00	6.98	6.96	6.94
18.6000	6.92	6.90	6.88	6.86	6.84
18.7500	6.82	6.80	6.78	6.76	6.74
18.9000	6.72	6.70	6.68	6.66	6.64
19.0500	6.62	6.60	6.58	6.56	6.54
19.2000	6.52	6.50	6.48	6.46	6.44
19.3500	6.42	6.40	6.38	6.36	6.34
19.5000	6.32	6.30	6.28	6.26	6.24
19.6500	6.23	6.20	6.18	6.16	6.14
19.8000	6.12	6.11	6.09	6.07	6.04
19.9500	6.02	6.00	5.98	5.97	5.95
20.1000	5.93	5.91	5.89	5.87	5.86
20.2500	5.85	5.83	5.82	5.80	5.78
20.4000	5.76	5.75	5.73	5.72	5.70
20.5500	5.69	5.68	5.66	5.65	5.63
20.7000	5.61	5.59	5.57	5.56	5.55
20.8500	5.54	5.52	5.51	5.49	5.48
21.0000	5.47	5.46	5.44	5.43	5.41
21.1500	5.39	5.38	5.36	5.34	5.33
21.3000	5.31	5.30	5.29	5.27	5.26
21.4500	5.24	5.22	5.21	5.19	5.17
21.6000	5.16	5.15	5.13	5.12	5.10
21.7500	5.09	5.07	5.06	5.05	5.04
21.9000	5.02	5.01	4.99	4.97	4.95
22.0500	4.94	4.92	4.91	4.90	4.88
22.2000	4.87	4.85	4.84	4.82	4.80
22.3500	4.78	4.77	4.75	4.74	4.73
22.5000	4.71	4.70	4.68	4.67	4.66
22.6500	4.65	4.63	4.62	4.60	4.58
22.8000	4.56	4.55	4.53	4.52	4.50

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
22.9500	4.49	4.47	4.46	4.45	4.43
23.1000	4.41	4.39	4.37	4.36	4.35
23.2500	4.34	4.32	4.30	4.29	4.27
23.4000	4.26	4.25	4.24	4.22	4.21
23.5500	4.19	4.17	4.15	4.14	4.12
23.7000	4.11	4.09	4.08	4.07	4.05
23.8500	4.04	4.02	4.00	3.98	3.96
24.0000	3.94	3.85	3.60	3.14	2.57
24.1500	2.01	1.51	1.14	.86	.65
24.3000	.49	.37	.28	.21	.16
24.4500	.13	.10	.07	.06	.04
24.6000	.03	.03	.02	.02	.01
24.7500	.01	.01	.01	.00	.00
24.9000	.00	.00	.00	.00	

SUMMARY FOR HYDROGRAPH ADDITION
at Node: DOWN ST. CONFLUE

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 40	DS CONFLUENCE		DS CONFLUENCE	100
STREAM REACH	PHIPPS RD OUTLET		PHIPPS RD OUTLET	100

INFLOWS TO: DOWN ST. CONFLUE

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	DS CONFLUENCE	100	11.198	12.2400	101.47
	PHIPPS RD OUTLET	100	38.541	12.1500	408.96

TOTAL FLOW INTO: DOWN ST. CONFLUE

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	DOWN ST. CONFLUE	100	49.739	12.1500	501.02

TOTAL NODE INFLOW...
HYG file =
HYG ID = DOWN ST. CONFLUE
HYG Tag = 100

Peak Discharge = 501.02 cfs
Time to Peak = 12.1500 hrs
HYG Volume = 49.739 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
3.2700	.00	.00	.00	.01	.01
3.4200	.01	.02	.02	.02	.03
3.5700	.03	.03	.04	.04	.04
3.7200	.05	.05	.05	.06	.06
3.8700	.06	.07	.07	.07	.08
4.0200	.08	.08	.09	.09	.10
4.1700	.10	.10	.11	.11	.11
4.3200	.12	.12	.12	.13	.13
4.4700	.14	.14	.14	.15	.16
4.6200	.18	.20	.22	.24	.27
4.7700	.30	.32	.35	.38	.41
4.9200	.44	.47	.50	.53	.56
5.0700	.59	.62	.65	.69	.72
5.2200	.75	.79	.83	.86	.90
5.3700	.94	.98	1.02	1.06	1.10
5.5200	1.14	1.18	1.22	1.26	1.30
5.6700	1.34	1.38	1.42	1.46	1.51
5.8200	1.55	1.59	1.63	1.67	1.72
5.9700	1.76	1.80	1.85	1.89	1.94
6.1200	1.98	2.03	2.09	2.14	2.19
6.2700	2.25	2.31	2.37	2.43	2.50
6.4200	2.56	2.62	2.69	2.75	2.82
6.5700	2.89	2.96	3.02	3.09	3.16
6.7200	3.24	3.31	3.38	3.46	3.53
6.8700	3.61	3.69	3.77	3.85	3.92
7.0200	4.00	4.08	4.17	4.25	4.34
7.1700	4.42	4.50	4.59	4.67	4.76
7.3200	4.85	4.94	5.03	5.12	5.21
7.4700	5.30	5.40	5.50	5.59	5.69
7.6200	5.78	5.87	5.97	6.07	6.17
7.7700	6.27	6.37	6.47	6.57	6.68

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
7.9200	6.78	6.89	6.99	7.10	7.20
8.0700	7.31	7.44	7.57	7.70	7.85
8.2200	8.00	8.15	8.32	8.49	8.66
8.3700	8.84	9.02	9.20	9.38	9.57
8.5200	9.76	9.95	10.14	10.34	10.53
8.6700	10.73	10.94	11.14	11.34	11.55
8.8200	11.76	11.97	12.18	12.40	12.62
8.9700	12.84	13.06	13.28	13.50	13.74
9.1200	13.97	14.20	14.43	14.66	14.90
9.2700	15.13	15.38	15.62	15.86	16.10
9.4200	16.35	16.59	16.85	17.10	17.35
9.5700	17.61	17.86	18.12	18.38	18.64
9.7200	18.90	19.16	19.43	19.70	19.96
9.8700	20.23	20.51	20.78	21.05	21.33
10.0200	21.61	21.89	22.20	22.53	22.87
10.1700	23.25	23.65	24.06	24.49	24.94
10.3200	25.39	25.85	26.33	26.81	27.29
10.4700	27.78	28.28	28.78	29.28	29.79
10.6200	30.30	30.81	31.34	31.86	32.38
10.7700	32.91	33.45	33.98	34.52	35.07
10.9200	35.61	36.15	36.71	37.28	37.89
11.0700	38.60	39.43	40.36	41.43	42.69
11.2200	44.04	45.48	47.07	48.70	50.36
11.3700	52.09	53.87	55.64	57.45	59.36
11.5200	61.54	64.54	68.81	74.33	81.32
11.6700	90.57	101.65	114.08	127.90	142.92
11.8200	158.59	174.86	192.29	211.37	236.28
11.9700	272.62	320.85	372.88	421.03	461.54
12.1200	489.28	501.02	492.40	466.58	433.22
12.2700	397.62	365.18	336.96	310.83	286.16
12.4200	263.27	241.69	220.45	200.04	181.02
12.5700	163.18	146.93	133.00	121.15	111.22
12.7200	103.42	97.08	91.66	87.23	83.36
12.8700	79.86	76.77	73.94	71.28	68.74
13.0200	66.38	64.17	62.15	60.30	58.67
13.1700	57.27	56.06	55.03	54.13	53.30
13.3200	52.55	51.87	51.22	50.59	50.01
13.4700	49.43	48.85	48.30	47.76	47.20
13.6200	46.67	46.14	45.60	45.06	44.53
13.7700	44.00	43.46	42.94	42.41	41.87
13.9200	41.34	40.82	40.28	39.76	39.25
14.0700	38.75	38.27	37.83	37.42	37.05
14.2200	36.70	36.39	36.08	35.78	35.50
14.3700	35.22	34.95	34.69	34.43	34.17
14.5200	33.91	33.65	33.39	33.13	32.88

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
14.6700	32.63	32.37	32.11	31.85	31.60
14.8200	31.34	31.10	30.84	30.58	30.32
14.9700	30.07	29.81	29.56	29.30	29.04
15.1200	28.78	28.53	28.27	28.01	27.76
15.2700	27.50	27.24	26.99	26.73	26.47
15.4200	26.22	25.96	25.70	25.44	25.19
15.5700	24.93	24.67	24.41	24.16	23.90
15.7200	23.64	23.38	23.12	22.86	22.61
15.8700	22.35	22.08	21.83	21.57	21.30
16.0200	21.05	20.81	20.58	20.36	20.16
16.1700	19.97	19.79	19.63	19.48	19.34
16.3200	19.22	19.10	18.97	18.84	18.72
16.4700	18.60	18.49	18.38	18.27	18.15
16.6200	18.03	17.91	17.80	17.69	17.59
16.7700	17.47	17.36	17.24	17.12	17.01
16.9200	16.91	16.80	16.68	16.57	16.45
17.0700	16.33	16.22	16.12	16.01	15.89
17.2200	15.77	15.66	15.54	15.44	15.33
17.3700	15.22	15.10	14.98	14.87	14.75
17.5200	14.65	14.54	14.42	14.31	14.19
17.6700	14.07	13.96	13.86	13.75	13.63
17.8200	13.51	13.40	13.28	13.17	13.07
17.9700	12.95	12.84	12.72	12.61	12.50
18.1200	12.41	12.33	12.26	12.21	12.16
18.2700	12.11	12.06	12.02	11.97	11.94
18.4200	11.90	11.87	11.83	11.79	11.76
18.5700	11.72	11.69	11.66	11.62	11.59
18.7200	11.55	11.52	11.48	11.45	11.42
18.8700	11.39	11.35	11.31	11.28	11.25
19.0200	11.21	11.18	11.15	11.11	11.08
19.1700	11.04	11.01	10.98	10.95	10.91
19.3200	10.87	10.84	10.80	10.77	10.74
19.4700	10.71	10.67	10.64	10.60	10.57
19.6200	10.54	10.51	10.47	10.43	10.40
19.7700	10.36	10.33	10.30	10.27	10.23
19.9200	10.20	10.16	10.13	10.10	10.06
20.0700	10.03	9.99	9.96	9.93	9.91
20.2200	9.89	9.87	9.84	9.81	9.78
20.3700	9.75	9.72	9.69	9.67	9.64
20.5200	9.62	9.59	9.57	9.55	9.52
20.6700	9.49	9.46	9.43	9.40	9.37
20.8200	9.35	9.34	9.31	9.28	9.25
20.9700	9.23	9.21	9.19	9.17	9.15
21.1200	9.12	9.09	9.06	9.03	9.00
21.2700	8.98	8.95	8.93	8.91	8.88

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
21.4200	8.86	8.83	8.80	8.77	8.74
21.5700	8.71	8.69	8.67	8.65	8.62
21.7200	8.59	8.56	8.54	8.52	8.51
21.8700	8.48	8.46	8.43	8.40	8.37
22.0200	8.34	8.32	8.29	8.26	8.24
22.1700	8.22	8.19	8.17	8.14	8.11
22.3200	8.08	8.04	8.02	8.00	7.98
22.4700	7.96	7.93	7.90	7.88	7.85
22.6200	7.84	7.82	7.79	7.77	7.74
22.7700	7.71	7.68	7.65	7.63	7.60
22.9200	7.58	7.55	7.53	7.50	7.48
23.0700	7.45	7.41	7.38	7.35	7.33
23.2200	7.31	7.29	7.27	7.24	7.21
23.3700	7.19	7.17	7.15	7.13	7.10
23.5200	7.07	7.04	7.01	6.99	6.96
23.6700	6.93	6.91	6.88	6.86	6.84
23.8200	6.81	6.79	6.75	6.72	6.69
23.9700	6.66	6.62	6.48	6.06	5.29
24.1200	4.33	3.38	2.55	1.92	1.45
24.2700	1.10	.83	.63	.48	.36
24.4200	.28	.21	.16	.13	.10
24.5700	.08	.06	.05	.04	.03
24.7200	.02	.02	.01	.01	.01
24.8700	.01	.00	.00	.00	.00
25.0200	.00				

SUMMARY FOR HYDROGRAPH ADDITION
at Node: PHIPPS RD OUTLET

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 50	EXISTING AREA		EXISTING AREA	2
ADDLINK 10	OFFSITE UPSTREAM		OFFSITE UPSTREAM	2
ADDLINK 20	OFFSITE TO DA		OFFSITE TO DA	2

INFLOWS TO: PHIPPS RD OUTLET

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	EXISTING AREA	2	1.446	12.1200	16.17
	OFFSITE UPSTREAM	2	10.033	12.1500	110.00
	OFFSITE TO DA	2	.083	12.1500	.92

TOTAL FLOW INTO: PHIPPS RD OUTLET

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	PHIPPS RD OUTLET	2	11.563	12.1500	127.05

TOTAL NODE INFLOW...
HYG file =
HYG ID = PHIPPS RD OUTLET
HYG Tag = 2

Peak Discharge = 127.05 cfs
Time to Peak = 12.1500 hrs
HYG Volume = 11.563 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
6.4500	.00	.00	.00	.00	.00
6.6000	.01	.01	.01	.01	.01
6.7500	.01	.01	.02	.02	.02
6.9000	.02	.02	.02	.03	.03
7.0500	.03	.03	.03	.04	.04
7.2000	.04	.04	.04	.05	.05
7.3500	.05	.05	.05	.06	.06
7.5000	.06	.06	.07	.07	.07
7.6500	.07	.07	.08	.08	.08
7.8000	.08	.09	.09	.09	.09
7.9500	.10	.10	.10	.11	.11
8.1000	.11	.11	.12	.12	.13
8.2500	.14	.16	.18	.19	.22
8.4000	.24	.26	.29	.31	.34
8.5500	.37	.39	.42	.45	.48
8.7000	.51	.55	.58	.61	.64
8.8500	.68	.71	.75	.79	.82
9.0000	.86	.90	.94	.98	1.02
9.1500	1.06	1.11	1.15	1.19	1.24
9.3000	1.28	1.33	1.37	1.42	1.47
9.4500	1.52	1.57	1.62	1.67	1.72
9.6000	1.77	1.82	1.88	1.93	1.98
9.7500	2.04	2.10	2.15	2.21	2.27
9.9000	2.33	2.39	2.45	2.51	2.57
10.0500	2.63	2.70	2.77	2.84	2.92
10.2000	3.00	3.09	3.18	3.27	3.36
10.3500	3.46	3.56	3.66	3.76	3.86
10.5000	3.97	4.07	4.18	4.29	4.40
10.6500	4.52	4.63	4.75	4.87	4.99
10.8000	5.11	5.23	5.36	5.49	5.61
10.9500	5.74	5.88	6.01	6.16	6.32

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.1000	6.51	6.72	6.97	7.24	7.54
11.2500	7.86	8.21	8.56	8.93	9.31
11.4000	9.70	10.10	10.50	10.93	11.43
11.5500	12.12	13.10	14.37	15.98	18.11
11.7000	20.71	23.60	26.85	30.43	34.18
11.8500	38.13	42.47	47.27	53.75	63.61
12.0000	76.86	91.31	104.82	116.15	123.99
12.1500	127.05	124.14	116.27	106.31	96.40
12.3000	87.75	80.60	74.27	68.35	62.92
12.4500	57.71	52.46	47.37	42.64	38.22
12.6000	34.26	30.94	28.21	26.05	24.43
12.7500	23.19	22.16	21.32	20.58	19.91
12.9000	19.27	18.69	18.12	17.56	17.02
13.0500	16.53	16.06	15.64	15.28	14.97
13.2000	14.71	14.50	14.31	14.14	13.98
13.3500	13.83	13.68	13.54	13.40	13.27
13.5000	13.13	12.99	12.86	12.72	12.58
13.6500	12.44	12.31	12.17	12.03	11.89
13.8000	11.75	11.62	11.48	11.33	11.20
13.9500	11.06	10.91	10.77	10.64	10.51
14.1000	10.38	10.27	10.17	10.08	9.99
14.2500	9.92	9.84	9.77	9.70	9.63
14.4000	9.56	9.50	9.43	9.36	9.29
14.5500	9.23	9.16	9.09	9.03	8.96
14.7000	8.89	8.82	8.75	8.69	8.62
14.8500	8.55	8.48	8.41	8.35	8.28
15.0000	8.21	8.14	8.07	8.00	7.93
15.1500	7.86	7.79	7.72	7.66	7.59
15.3000	7.52	7.45	7.38	7.31	7.24
15.4500	7.17	7.10	7.03	6.96	6.89
15.6000	6.82	6.75	6.68	6.60	6.53
15.7500	6.46	6.39	6.32	6.25	6.18
15.9000	6.11	6.04	5.96	5.89	5.82
16.0500	5.76	5.70	5.64	5.58	5.54
16.2000	5.49	5.45	5.41	5.38	5.34
16.3500	5.31	5.28	5.25	5.22	5.18
16.5000	5.15	5.13	5.10	5.06	5.03
16.6500	5.00	4.97	4.94	4.91	4.88
16.8000	4.85	4.81	4.78	4.75	4.72
16.9500	4.69	4.66	4.63	4.60	4.57
17.1000	4.54	4.51	4.48	4.44	4.41
17.2500	4.38	4.35	4.32	4.29	4.26
17.4000	4.22	4.19	4.16	4.13	4.10
17.5500	4.07	4.04	4.00	3.97	3.94
17.7000	3.91	3.88	3.85	3.82	3.78

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
17.8500	3.75	3.72	3.69	3.66	3.63
18.0000	3.59	3.56	3.53	3.50	3.48
18.1500	3.46	3.44	3.43	3.42	3.40
18.3000	3.39	3.38	3.37	3.36	3.35
18.4500	3.34	3.33	3.32	3.31	3.31
18.6000	3.30	3.29	3.28	3.27	3.26
18.7500	3.25	3.24	3.23	3.22	3.21
18.9000	3.20	3.19	3.18	3.18	3.17
19.0500	3.16	3.15	3.14	3.13	3.12
19.2000	3.11	3.10	3.09	3.08	3.07
19.3500	3.06	3.05	3.05	3.04	3.03
19.5000	3.02	3.01	3.00	2.99	2.98
19.6500	2.97	2.96	2.95	2.94	2.93
19.8000	2.92	2.92	2.91	2.90	2.89
19.9500	2.88	2.87	2.86	2.85	2.84
20.1000	2.83	2.82	2.81	2.81	2.80
20.2500	2.80	2.79	2.78	2.77	2.76
20.4000	2.76	2.75	2.74	2.73	2.73
20.5500	2.72	2.71	2.71	2.70	2.69
20.7000	2.68	2.67	2.67	2.66	2.65
20.8500	2.65	2.64	2.63	2.63	2.62
21.0000	2.62	2.61	2.61	2.60	2.59
21.1500	2.58	2.57	2.56	2.56	2.55
21.3000	2.54	2.54	2.53	2.52	2.52
21.4500	2.51	2.50	2.49	2.48	2.47
21.6000	2.47	2.46	2.46	2.45	2.44
21.7500	2.44	2.43	2.42	2.42	2.41
21.9000	2.41	2.40	2.39	2.38	2.37
22.0500	2.36	2.36	2.35	2.34	2.34
22.2000	2.33	2.32	2.32	2.31	2.30
22.3500	2.29	2.28	2.28	2.27	2.27
22.5000	2.26	2.25	2.24	2.24	2.23
22.6500	2.23	2.22	2.21	2.20	2.19
22.8000	2.19	2.18	2.17	2.16	2.16
22.9500	2.15	2.14	2.14	2.13	2.12
23.1000	2.11	2.10	2.09	2.09	2.08
23.2500	2.08	2.07	2.06	2.05	2.05
23.4000	2.04	2.04	2.03	2.03	2.02
23.5500	2.01	2.00	1.99	1.98	1.98
23.7000	1.97	1.96	1.96	1.95	1.94
23.8500	1.94	1.93	1.92	1.91	1.90
24.0000	1.89	1.84	1.70	1.44	1.11
24.1500	.81	.55	.37	.25	.17
24.3000	.12	.08	.05	.04	.02
24.4500	.02	.01	.01	.00	.00

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs	
24.6000	.00

SUMMARY FOR HYDROGRAPH ADDITION
at Node: PHIPPS RD OUTLET

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 50	EXISTING AREA		EXISTING AREA	10
ADDLINK 10	OFFSITE UPSTREAM		OFFSITE UPSTREAM	10
ADDLINK 20	OFFSITE TO DA		OFFSITE TO DA	10

INFLOWS TO: PHIPPS RD OUTLET

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	EXISTING AREA	10	2.460	12.1200	27.00
	OFFSITE UPSTREAM	10	18.115	12.1500	197.16
	OFFSITE TO DA	10	.169	12.1500	1.91

TOTAL FLOW INTO: PHIPPS RD OUTLET

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	PHIPPS RD OUTLET	10	20.745	12.1500	225.86

TOTAL NODE INFLOW...
HYG file =
HYG ID = PHIPPS RD OUTLET
HYG Tag = 10

Peak Discharge = 225.86 cfs
Time to Peak = 12.1500 hrs
HYG Volume = 20.745 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.8000	.00	.00	.00	.00	.01
4.9500	.01	.01	.01	.01	.01
5.1000	.02	.02	.02	.02	.02
5.2500	.03	.03	.03	.03	.03
5.4000	.04	.04	.04	.04	.04
5.5500	.05	.05	.05	.05	.05
5.7000	.06	.06	.06	.06	.06
5.8500	.07	.07	.07	.07	.07
6.0000	.08	.08	.08	.08	.09
6.1500	.09	.09	.09	.10	.10
6.3000	.10	.10	.11	.11	.11
6.4500	.12	.12	.13	.14	.16
6.6000	.17	.19	.21	.23	.25
6.7500	.27	.29	.32	.34	.36
6.9000	.39	.41	.44	.46	.49
7.0500	.52	.54	.57	.60	.63
7.2000	.65	.68	.71	.74	.77
7.3500	.80	.83	.86	.89	.93
7.5000	.96	.99	1.03	1.06	1.09
7.6500	1.13	1.16	1.20	1.23	1.27
7.8000	1.30	1.34	1.37	1.41	1.45
7.9500	1.49	1.53	1.56	1.60	1.65
8.1000	1.69	1.73	1.78	1.83	1.89
8.2500	1.94	2.00	2.05	2.11	2.17
8.4000	2.24	2.30	2.36	2.43	2.49
8.5500	2.56	2.63	2.70	2.77	2.84
8.7000	2.91	2.98	3.06	3.13	3.21
8.8500	3.29	3.37	3.45	3.53	3.61
9.0000	3.69	3.78	3.86	3.95	4.04
9.1500	4.13	4.22	4.31	4.40	4.49
9.3000	4.58	4.68	4.77	4.87	4.97

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
9.4500	5.06	5.16	5.27	5.37	5.47
9.6000	5.57	5.68	5.78	5.89	6.00
9.7500	6.10	6.21	6.32	6.43	6.54
9.9000	6.66	6.77	6.88	7.00	7.12
10.0500	7.24	7.37	7.50	7.65	7.80
10.2000	7.97	8.14	8.31	8.50	8.69
10.3500	8.87	9.07	9.26	9.46	9.66
10.5000	9.87	10.07	10.28	10.49	10.71
10.6500	10.92	11.14	11.36	11.58	11.80
10.8000	12.03	12.25	12.48	12.72	12.95
10.9500	13.18	13.42	13.67	13.93	14.24
11.1000	14.60	15.00	15.47	16.02	16.60
11.2500	17.22	17.89	18.59	19.28	20.01
11.4000	20.76	21.51	22.27	23.08	24.01
11.5500	25.32	27.23	29.71	32.83	36.99
11.7000	42.01	47.55	53.69	60.41	67.34
11.8500	74.54	82.33	90.87	102.31	119.76
12.0000	143.13	168.28	191.26	209.97	222.16
12.1500	225.86	219.24	204.17	185.71	167.58
12.3000	151.82	138.85	127.45	116.87	107.25
12.4500	98.11	88.98	80.18	72.04	64.46
12.6000	57.68	52.02	47.38	43.70	40.93
12.7500	38.81	37.06	35.61	34.36	33.21
12.9000	32.13	31.14	30.18	29.22	28.32
13.0500	27.48	26.69	25.98	25.37	24.85
13.2000	24.41	24.04	23.72	23.42	23.15
13.3500	22.90	22.64	22.40	22.17	21.93
13.5000	21.69	21.46	21.23	20.99	20.76
13.6500	20.53	20.30	20.06	19.83	19.60
13.8000	19.36	19.13	18.90	18.66	18.42
13.9500	18.19	17.95	17.72	17.49	17.27
14.1000	17.06	16.87	16.70	16.55	16.41
14.2500	16.28	16.15	16.03	15.91	15.79
14.4000	15.68	15.56	15.45	15.34	15.22
14.5500	15.11	14.99	14.88	14.77	14.66
14.7000	14.54	14.43	14.32	14.20	14.09
14.8500	13.98	13.86	13.75	13.63	13.52
15.0000	13.40	13.29	13.18	13.06	12.94
15.1500	12.83	12.71	12.60	12.49	12.37
15.3000	12.25	12.14	12.02	11.91	11.79
15.4500	11.68	11.56	11.44	11.33	11.21
15.6000	11.10	10.98	10.87	10.75	10.63
15.7500	10.52	10.40	10.28	10.17	10.05
15.9000	9.93	9.81	9.70	9.58	9.47
16.0500	9.36	9.26	9.16	9.07	8.99

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
16.2000	8.92	8.85	8.79	8.73	8.68
16.3500	8.63	8.57	8.52	8.46	8.41
16.5000	8.36	8.32	8.27	8.21	8.16
16.6500	8.11	8.06	8.01	7.96	7.91
16.8000	7.86	7.80	7.75	7.70	7.65
16.9500	7.61	7.55	7.50	7.45	7.40
17.1000	7.35	7.30	7.25	7.20	7.14
17.2500	7.09	7.04	6.99	6.94	6.89
17.4000	6.84	6.78	6.73	6.68	6.63
17.5500	6.58	6.53	6.48	6.42	6.37
17.7000	6.32	6.28	6.23	6.17	6.12
17.8500	6.06	6.01	5.96	5.92	5.87
18.0000	5.81	5.76	5.71	5.66	5.62
18.1500	5.59	5.56	5.54	5.52	5.50
18.3000	5.48	5.46	5.45	5.43	5.42
18.4500	5.40	5.39	5.37	5.35	5.34
18.6000	5.32	5.31	5.29	5.28	5.26
18.7500	5.25	5.23	5.22	5.20	5.19
18.9000	5.17	5.15	5.14	5.12	5.11
19.0500	5.10	5.08	5.06	5.05	5.03
19.2000	5.02	5.00	4.99	4.97	4.96
19.3500	4.94	4.92	4.91	4.90	4.88
19.5000	4.87	4.85	4.83	4.82	4.80
19.6500	4.79	4.77	4.76	4.74	4.72
19.8000	4.71	4.70	4.68	4.67	4.65
19.9500	4.63	4.62	4.60	4.59	4.57
20.1000	4.56	4.54	4.53	4.52	4.51
20.2500	4.50	4.49	4.48	4.46	4.45
20.4000	4.44	4.42	4.41	4.40	4.39
20.5500	4.38	4.37	4.36	4.35	4.33
20.7000	4.32	4.30	4.29	4.28	4.27
20.8500	4.26	4.25	4.24	4.23	4.21
21.0000	4.21	4.20	4.19	4.18	4.16
21.1500	4.15	4.14	4.12	4.11	4.10
21.3000	4.09	4.08	4.07	4.06	4.05
21.4500	4.03	4.02	4.00	3.99	3.98
21.6000	3.97	3.96	3.95	3.94	3.93
21.7500	3.91	3.90	3.90	3.89	3.88
21.9000	3.87	3.85	3.84	3.82	3.81
22.0500	3.80	3.79	3.78	3.77	3.75
22.2000	3.74	3.73	3.72	3.70	3.69
22.3500	3.67	3.66	3.66	3.65	3.64
22.5000	3.62	3.61	3.60	3.59	3.58
22.6500	3.57	3.56	3.55	3.54	3.52
22.8000	3.51	3.50	3.48	3.47	3.46

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
22.9500	3.45	3.44	3.43	3.42	3.40
23.1000	3.39	3.37	3.36	3.35	3.34
23.2500	3.33	3.32	3.31	3.30	3.28
23.4000	3.28	3.27	3.26	3.25	3.23
23.5500	3.22	3.21	3.19	3.18	3.17
23.7000	3.16	3.15	3.14	3.13	3.11
23.8500	3.10	3.09	3.07	3.06	3.04
24.0000	3.03	2.95	2.73	2.30	1.79
24.1500	1.29	.88	.59	.40	.28
24.3000	.19	.13	.08	.06	.04
24.4500	.02	.02	.01	.01	.00
24.6000	.00				

SUMMARY FOR HYDROGRAPH ADDITION
at Node: PHIPPS RD OUTLET

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 50	EXISTING AREA		EXISTING AREA	100
ADDLINK 10	OFFSITE UPSTREAM		OFFSITE UPSTREAM	100
ADDLINK 20	OFFSITE TO DA		OFFSITE TO DA	100

INFLOWS TO: PHIPPS RD OUTLET

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	EXISTING AREA	100	4.374	12.1200	46.58
	OFFSITE UPSTREAM	100	33.818	12.1500	359.03
	OFFSITE TO DA	100	.348	12.1200	3.91

TOTAL FLOW INTO: PHIPPS RD OUTLET

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	PHIPPS RD OUTLET	100	38.541	12.1500	408.96

TOTAL NODE INFLOW...
HYG file =
HYG ID = PHIPPS RD OUTLET
HYG Tag = 100

Peak Discharge = 408.96 cfs
Time to Peak = 12.1500 hrs
HYG Volume = 38.541 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
3.2700	.00	.00	.00	.01	.01
3.4200	.01	.02	.02	.02	.03
3.5700	.03	.03	.04	.04	.04
3.7200	.05	.05	.05	.06	.06
3.8700	.06	.07	.07	.07	.08
4.0200	.08	.08	.09	.09	.10
4.1700	.10	.10	.11	.11	.11
4.3200	.12	.12	.12	.13	.13
4.4700	.14	.14	.14	.15	.16
4.6200	.18	.20	.22	.24	.27
4.7700	.30	.32	.35	.38	.41
4.9200	.44	.47	.50	.53	.56
5.0700	.59	.62	.65	.68	.71
5.2200	.74	.77	.80	.84	.87
5.3700	.90	.93	.96	.99	1.03
5.5200	1.06	1.09	1.12	1.15	1.19
5.6700	1.22	1.25	1.29	1.32	1.35
5.8200	1.38	1.42	1.45	1.48	1.52
5.9700	1.55	1.58	1.62	1.65	1.69
6.1200	1.73	1.77	1.81	1.85	1.90
6.2700	1.94	1.99	2.04	2.09	2.14
6.4200	2.19	2.24	2.29	2.35	2.40
6.5700	2.46	2.51	2.57	2.62	2.68
6.7200	2.74	2.80	2.86	2.91	2.97
6.8700	3.03	3.10	3.16	3.22	3.29
7.0200	3.35	3.41	3.48	3.55	3.61
7.1700	3.68	3.75	3.81	3.88	3.95
7.3200	4.02	4.10	4.17	4.24	4.31
7.4700	4.38	4.46	4.53	4.61	4.68
7.6200	4.76	4.83	4.91	4.99	5.07
7.7700	5.15	5.22	5.30	5.38	5.46

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
7.9200	5.55	5.63	5.71	5.79	5.88
8.0700	5.97	6.06	6.17	6.28	6.40
8.2200	6.52	6.65	6.78	6.92	7.06
8.3700	7.20	7.34	7.49	7.63	7.78
8.5200	7.93	8.08	8.24	8.39	8.55
8.6700	8.70	8.87	9.03	9.19	9.35
8.8200	9.52	9.68	9.85	10.02	10.19
8.9700	10.37	10.54	10.72	10.89	11.07
9.1200	11.25	11.43	11.62	11.80	11.98
9.2700	12.17	12.36	12.55	12.74	12.93
9.4200	13.12	13.31	13.51	13.71	13.90
9.5700	14.10	14.30	14.50	14.70	14.91
9.7200	15.11	15.32	15.53	15.73	15.94
9.8700	16.15	16.36	16.58	16.79	17.00
10.0200	17.22	17.44	17.69	17.95	18.22
10.1700	18.53	18.85	19.18	19.53	19.89
10.3200	20.25	20.62	21.00	21.37	21.75
10.4700	22.14	22.53	22.92	23.31	23.72
10.6200	24.12	24.51	24.92	25.33	25.74
10.7700	26.15	26.57	26.98	27.40	27.83
10.9200	28.25	28.67	29.10	29.55	30.03
11.0700	30.60	31.28	32.05	32.95	34.00
11.2200	35.13	36.32	37.63	38.96	40.30
11.3700	41.69	43.12	44.52	45.95	47.46
11.5200	49.22	51.73	55.40	60.22	66.26
11.6700	74.31	83.99	94.58	106.25	118.89
11.8200	131.79	145.03	159.21	174.59	195.15
11.9700	226.56	268.52	313.21	353.30	385.07
12.1200	404.68	408.96	394.96	366.18	331.75
12.2700	298.24	269.24	245.41	224.60	205.40
12.4200	188.05	171.66	155.41	139.82	125.43
12.5700	112.09	100.19	90.26	82.12	75.67
12.7200	70.83	67.11	64.04	61.50	59.31
12.8700	57.29	55.41	53.67	51.99	50.32
13.0200	48.75	47.29	45.91	44.68	43.61
13.1700	42.70	41.93	41.29	40.72	40.20
13.3200	39.72	39.28	38.83	38.40	37.99
13.4700	37.58	37.16	36.75	36.35	35.93
13.6200	35.53	35.13	34.72	34.31	33.91
13.7700	33.50	33.09	32.69	32.28	31.87
13.9200	31.46	31.06	30.64	30.24	29.85
14.0700	29.47	29.10	28.78	28.48	28.21
14.2200	27.97	27.74	27.52	27.30	27.10
14.3700	26.89	26.69	26.50	26.31	26.10
14.5200	25.90	25.71	25.51	25.32	25.13

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
14.6700	24.93	24.73	24.53	24.34	24.14
14.8200	23.95	23.76	23.55	23.35	23.16
14.9700	22.96	22.76	22.57	22.37	22.17
15.1200	21.97	21.77	21.57	21.38	21.19
15.2700	20.99	20.78	20.59	20.39	20.19
15.4200	19.99	19.80	19.60	19.40	19.20
15.5700	19.00	18.80	18.61	18.41	18.21
15.7200	18.01	17.81	17.61	17.41	17.21
15.8700	17.01	16.81	16.61	16.41	16.21
16.0200	16.02	15.84	15.66	15.50	15.35
16.1700	15.21	15.08	14.97	14.86	14.76
16.3200	14.67	14.59	14.50	14.40	14.31
16.4700	14.22	14.14	14.05	13.97	13.88
16.6200	13.79	13.70	13.61	13.53	13.45
16.7700	13.36	13.27	13.18	13.09	13.01
16.9200	12.93	12.85	12.76	12.66	12.57
17.0700	12.49	12.40	12.32	12.24	12.15
17.2200	12.06	11.97	11.88	11.79	11.71
17.3700	11.63	11.54	11.45	11.36	11.27
17.5200	11.19	11.11	11.02	10.93	10.84
17.6700	10.75	10.66	10.58	10.50	10.41
17.8200	10.32	10.23	10.14	10.05	9.97
17.9700	9.89	9.79	9.70	9.62	9.54
18.1200	9.47	9.42	9.37	9.33	9.30
18.2700	9.27	9.23	9.20	9.17	9.15
18.4200	9.12	9.10	9.07	9.04	9.02
18.5700	8.99	8.96	8.94	8.92	8.89
18.7200	8.86	8.83	8.81	8.78	8.76
18.8700	8.73	8.71	8.68	8.65	8.62
19.0200	8.60	8.58	8.55	8.52	8.49
19.1700	8.47	8.44	8.42	8.40	8.37
19.3200	8.34	8.31	8.29	8.26	8.24
19.4700	8.21	8.19	8.16	8.13	8.10
19.6200	8.08	8.06	8.03	8.00	7.97
19.7700	7.95	7.92	7.90	7.87	7.85
19.9200	7.82	7.79	7.76	7.74	7.72
20.0700	7.69	7.66	7.64	7.61	7.60
20.2200	7.58	7.57	7.55	7.53	7.50
20.3700	7.48	7.45	7.43	7.41	7.40
20.5200	7.38	7.36	7.34	7.32	7.30
20.6700	7.28	7.25	7.23	7.21	7.19
20.8200	7.18	7.16	7.14	7.12	7.10
20.9700	7.08	7.07	7.05	7.04	7.02
21.1200	7.00	6.97	6.95	6.93	6.91
21.2700	6.89	6.87	6.85	6.83	6.81

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
21.4200	6.79	6.77	6.75	6.72	6.70
21.5700	6.68	6.66	6.65	6.63	6.61
21.7200	6.59	6.57	6.55	6.54	6.53
21.8700	6.51	6.49	6.46	6.44	6.42
22.0200	6.40	6.38	6.36	6.34	6.32
22.1700	6.30	6.28	6.26	6.24	6.22
22.3200	6.19	6.17	6.15	6.13	6.12
22.4700	6.10	6.08	6.06	6.04	6.02
22.6200	6.01	6.00	5.98	5.96	5.93
22.7700	5.91	5.88	5.86	5.84	5.82
22.9200	5.81	5.79	5.77	5.75	5.73
23.0700	5.71	5.68	5.66	5.63	5.62
23.2200	5.60	5.59	5.57	5.55	5.53
23.3700	5.51	5.49	5.48	5.47	5.45
23.5200	5.42	5.40	5.37	5.35	5.33
23.6700	5.31	5.29	5.27	5.26	5.24
23.8200	5.22	5.20	5.17	5.15	5.12
23.9700	5.10	5.07	4.95	4.57	3.86
24.1200	3.00	2.17	1.48	.99	.67
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24.5700	.00	.00	.00		

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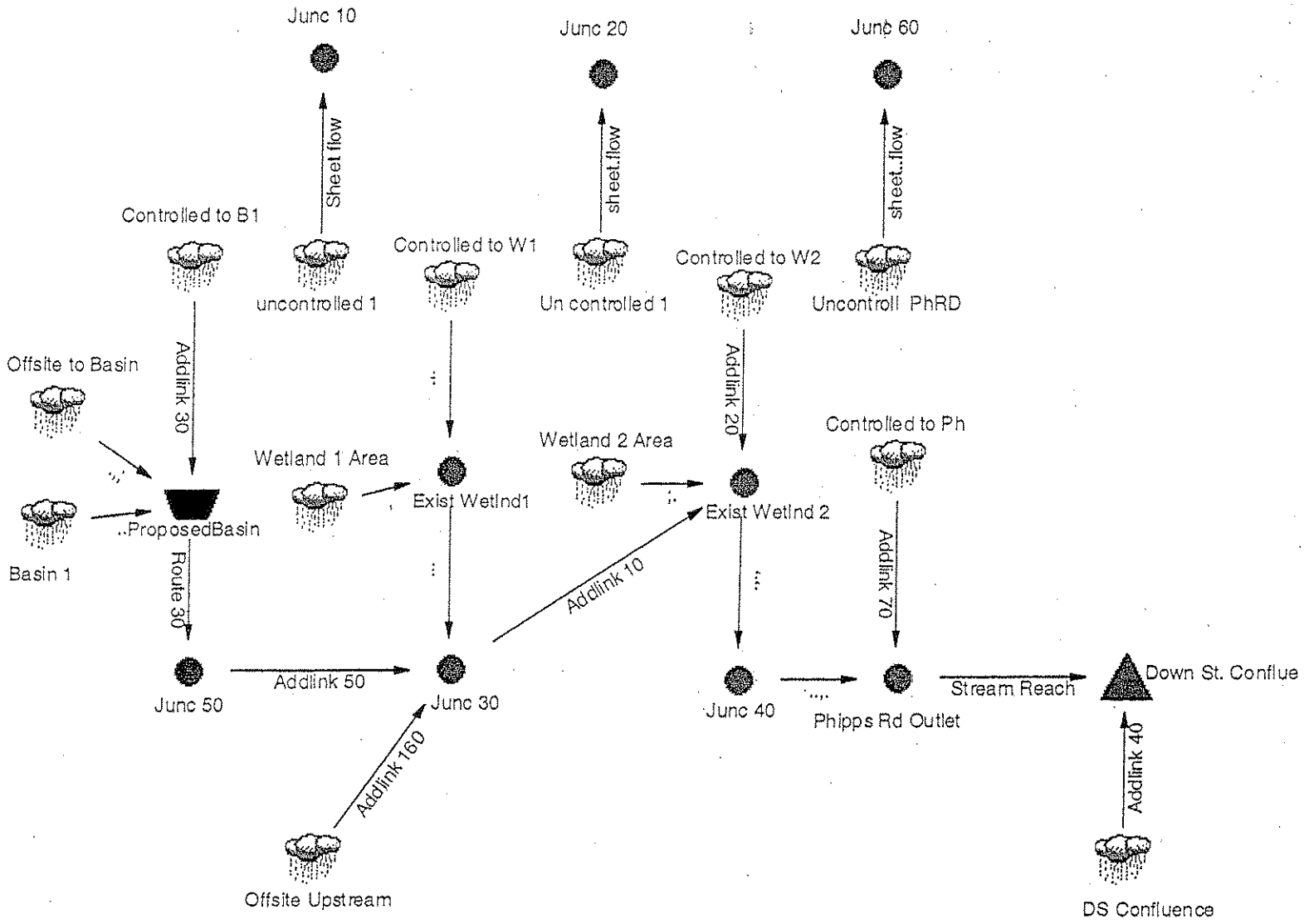
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Junc 20
Junc 60
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sheet.flow
sheet..flow
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uncontrolled 1
Controlled to W1
Un controlled 1
Controlled to W2
Uncontroll PhRD
Offsite to Basin
Addlink 30
Addlink 20
Controlled to Ph
Wetland 1 Area
Wetland 2 Area
Exist Wetlnd1
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Route 30
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MASTER DESIGN STORM SUMMARY

Network Storm Collection: Morris

Return Event	Total Depth in	Rainfall Type	RNF ID
2	3.5000	Synthetic Curve	TypeIII 24hr
10	5.2000	Synthetic Curve	TypeIII 24hr
100	8.3000	Synthetic Curve	TypeIII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
BASIN 1	AREA	2	.112		12.1200	1.06		
BASIN 1	AREA	10	.167		12.1200	1.58		
BASIN 1	AREA	100	.266		12.1200	2.52		
CONTROLLED TO B1	AREA	2	.799		12.1200	8.66		
CONTROLLED TO B1	AREA	10	1.284		12.1200	13.56		
CONTROLLED TO B1	AREA	100	2.180		12.1200	22.35		
CONTROLLED TO PH	AREA	2	.283		12.1200	3.03		
CONTROLLED TO PH	AREA	10	.449		12.1200	4.69		
CONTROLLED TO PH	AREA	100	.756		12.1200	7.68		
CONTROLLED TO W1	AREA	2	.182		12.1200	1.95		
CONTROLLED TO W1	AREA	10	.289		12.1200	3.02		
CONTROLLED TO W1	AREA	100	.487		12.1200	4.95		
CONTROLLED TO W2	AREA	2	.177		12.1200	1.91		
CONTROLLED TO W2	AREA	10	.284		12.1200	3.00		
CONTROLLED TO W2	AREA	100	.482		12.1200	4.94		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
*DOWN ST. CONFLUE	JCT	2	14.146		12.1500	144.96		
*DOWN ST. CONFLUE	JCT	10	25.727		12.1500	260.20		
*DOWN ST. CONFLUE	JCT	100	48.425		12.1500	491.99		
DS CONFLUENCE	AREA	2	3.175		12.2400	29.17		
DS CONFLUENCE	AREA	10	5.877		12.2400	54.19		
DS CONFLUENCE	AREA	100	11.198		12.2400	101.47		
EXIST WETLND 2	JCT	2	10.688		12.1500	116.58		
EXIST WETLND 2	JCT	10	19.400		12.1500	207.27		
EXIST WETLND 2	JCT	100	36.471		12.1500	392.35		
EXIST WETLND1	JCT	2	.296		12.1200	3.03		
EXIST WETLND1	JCT	10	.458		12.1200	4.62		
EXIST WETLND1	JCT	100	.757		12.1200	7.50		
*JUNC 10	JCT	2	.346		12.1500	3.90		
*JUNC 10	JCT	10	.617		12.1200	6.88		
*JUNC 10	JCT	100	1.140		12.1200	12.41		
*JUNC 20	JCT	2	.000		12.0600	.01		
*JUNC 20	JCT	10	.001		12.0600	.01		
*JUNC 20	JCT	100	.002		12.1200	.03		
JUNC 30	JCT	2	10.329		12.1500	112.99		
JUNC 30	JCT	10	18.846		12.1500	201.80		
JUNC 30	JCT	100	35.557		12.1500	383.46		
JUNC 40	JCT	2	10.688		12.1500	116.58		
JUNC 40	JCT	10	19.400		12.1500	207.27		
JUNC 40	JCT	100	36.471		12.1500	392.35		
JUNC 50	JCT	2	.000		.0300	.00		
JUNC 50	JCT	10	.272		12.3900	6.01		
JUNC 50	JCT	100	.983		12.2400	20.02		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
*JUNC 60	JCT	2	.039		12.1200	.44		
*JUNC 60	JCT	10	.066		12.1200	.73		
*JUNC 60	JCT	100	.118		12.1200	1.25		
OFFSITE TO BASIN	AREA	2	.083		12.1500	.92		
OFFSITE TO BASIN	AREA	10	.169		12.1500	1.91		
OFFSITE TO BASIN	AREA	100	.348		12.1200	3.91		
OFFSITE UPSTREAM	AREA	2	10.033		12.1500	110.00		
OFFSITE UPSTREAM	AREA	10	18.115		12.1500	197.16		
OFFSITE UPSTREAM	AREA	100	33.818		12.1500	359.03		
PHIPPS RD OUTLET	JCT	2	10.971		12.1500	119.58		
PHIPPS RD OUTLET	JCT	10	19.850		12.1500	211.91		
PHIPPS RD OUTLET	JCT	100	37.227		12.1500	399.92		
PROPOSEDBASININ	POND	2	.995		12.1200	10.62		
PROPOSEDBASININ	POND	10	1.620		12.1200	17.03		
PROPOSEDBASININ	POND	100	2.795		12.1200	28.77		
PROPOSEDBASINOUT	POND	2	.000		.0600	.00	694.03	.385
PROPOSEDBASINOUT	POND	10	.272		12.3900	6.01	694.57	.530
PROPOSEDBASINOUT	POND	100	.983		12.2400	20.02	695.13	.691
UN CONTROLLED 1	AREA	2	.000		12.0600	.01		
UN CONTROLLED 1	AREA	10	.001		12.0600	.01		
UN CONTROLLED 1	AREA	100	.002		12.1200	.03		
UNCONTROLL PHRD	AREA	2	.039		12.1200	.44		
UNCONTROLL PHRD	AREA	10	.066		12.1200	.73		
UNCONTROLL PHRD	AREA	100	.118		12.1200	1.25		
UNCONTROLLED 1	AREA	2	.346		12.1500	3.90		
UNCONTROLLED 1	AREA	10	.617		12.1200	6.88		
UNCONTROLLED 1	AREA	100	1.140		12.1200	12.41		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
WETLAND 1 AREA	AREA	2	.114		12.1200	1.08		
WETLAND 1 AREA	AREA	10	.169		12.1200	1.60		
WETLAND 1 AREA	AREA	100	.270		12.1200	2.55		
WETLAND 2 AREA	AREA	2	.182		12.1200	1.72		
WETLAND 2 AREA	AREA	10	.271		12.1200	2.56		
WETLAND 2 AREA	AREA	100	.432		12.1200	4.09		

NETWORK SUMMARY -- NODES
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = Morris

Storm Tag Name = 2

Data Type, File, ID = Synthetic Storm TypeIII 24hr
Storm Frequency = 2 yr
Total Rainfall Depth= 3.5000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

	Node ID	Type	HYG Vol ac-ft	Trun.	Qpeak hrs	Qpeak cfs	Max WSEL ft
	BASIN 1	AREA	.112		12.1200	1.06	
	CONTROLLED TO B1	AREA	.799		12.1200	8.66	
	CONTROLLED TO PH	AREA	.283		12.1200	3.03	
	CONTROLLED TO W1	AREA	.182		12.1200	1.95	
	CONTROLLED TO W2	AREA	.177		12.1200	1.91	
Outfall	DOWN ST. CONFLUE	JCT	14.146		12.1500	144.96	
	DS CONFLUENCE	AREA	3.175		12.2400	29.17	
	EXIST WETLND 2	JCT	10.688		12.1500	116.58	
	EXIST WETLND1	JCT	.296		12.1200	3.03	
Outfall	JUNC 10	JCT	.346		12.1500	3.90	
Outfall	JUNC 20	JCT	.000		12.0600	.01	
	JUNC 30	JCT	10.329		12.1500	112.99	
	JUNC 40	JCT	10.688		12.1500	116.58	
	JUNC 50	JCT	.000		.0300	.00	
Outfall	JUNC 60	JCT	.039		12.1200	.44	
	OFFSITE TO BASIN	AREA	.083		12.1500	.92	
	OFFSITE UPSTREAM	AREA	10.033		12.1500	110.00	
	PHIPPS RD OUTLET	JCT	10.971		12.1500	119.58	
	PROPOSEDBASININ	POND	.995		12.1200	10.62	
	PROPOSEDBASINOUT	POND	.000		.0600	.00	694.03
	UN CONTROLLED 1	AREA	.000		12.0600	.01	
	UNCONTROLL PHRD	AREA	.039		12.1200	.44	
	UNCONTROLLED 1	AREA	.346		12.1500	3.90	
	WETLAND 1 AREA	AREA	.114		12.1200	1.08	
	WETLAND 2 AREA	AREA	.182		12.1200	1.72	

NETWORK SUMMARY -- NODES
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = Morris

Storm Tag Name = 10

Data Type, File, ID = Synthetic Storm TypeIII 24hr
Storm Frequency = 10 yr
Total Rainfall Depth= 5.2000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

	Node ID	Type	HYG Vol ac-ft	Trun.	Qpeak hrs	Qpeak cfs	Max WSEL ft
	BASIN 1	AREA	.167		12.1200	1.58	
	CONTROLLED TO B1	AREA	1.284		12.1200	13.56	
	CONTROLLED TO PH	AREA	.449		12.1200	4.69	
	CONTROLLED TO W1	AREA	.289		12.1200	3.02	
	CONTROLLED TO W2	AREA	.284		12.1200	3.00	
Outfall	DOWN ST. CONFLUE	JCT	25.727		12.1500	260.20	
	DS CONFLUENCE	AREA	5.877		12.2400	54.19	
	EXIST WETLND 2	JCT	19.400		12.1500	207.27	
	EXIST WETLND1	JCT	.458		12.1200	4.62	
Outfall	JUNC 10	JCT	.617		12.1200	6.88	
Outfall	JUNC 20	JCT	.001		12.0600	.01	
	JUNC 30	JCT	18.846		12.1500	201.80	
	JUNC 40	JCT	19.400		12.1500	207.27	
	JUNC 50	JCT	.272		12.3900	6.01	
Outfall	JUNC 60	JCT	.066		12.1200	.73	
	OFFSITE TO BASIN	AREA	.169		12.1500	1.91	
	OFFSITE UPSTREAM	AREA	18.115		12.1500	197.16	
	PHIPPS RD OUTLET	JCT	19.850		12.1500	211.91	
	PROPOSEDBASININ	POND	1.620		12.1200	17.03	
	PROPOSEDBASINOUT	POND	.272		12.3900	6.01	694.57
	UN CONTROLLED 1	AREA	.001		12.0600	.01	
	UNCONTROLL PHRD	AREA	.066		12.1200	.73	
	UNCONTROLLED 1	AREA	.617		12.1200	6.88	
	WETLAND 1 AREA	AREA	.169		12.1200	1.60	
	WETLAND 2 AREA	AREA	.271		12.1200	2.56	

NETWORK SUMMARY -- NODES
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = Morris

Storm Tag Name = 100

Data Type, File, ID = Synthetic Storm TypeIII 24hr
Storm Frequency = 100 yr
Total Rainfall Depth= 8.3000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

	Node ID	Type	HYG Vol ac-ft	Trun.	Qpeak hrs	Qpeak cfs	Max WSEL ft
	BASIN 1	AREA	.266		12.1200	2.52	
	CONTROLLED TO B1	AREA	2.180		12.1200	22.35	
	CONTROLLED TO PH	AREA	.756		12.1200	7.68	
	CONTROLLED TO W1	AREA	.487		12.1200	4.95	
	CONTROLLED TO W2	AREA	.482		12.1200	4.94	
Outfall	DOWN ST. CONFLUE	JCT	48.425		12.1500	491.99	
	DS CONFLUENCE	AREA	11.198		12.2400	101.47	
	EXIST WETLND 2	JCT	36.471		12.1500	392.35	
	EXIST WETLND1	JCT	.757		12.1200	7.50	
Outfall	JUNC 10	JCT	1.140		12.1200	12.41	
Outfall	JUNC 20	JCT	.002		12.1200	.03	
	JUNC 30	JCT	35.557		12.1500	383.46	
	JUNC 40	JCT	36.471		12.1500	392.35	
	JUNC 50	JCT	.983		12.2400	20.02	
Outfall	JUNC 60	JCT	.118		12.1200	1.25	
	OFFSITE TO BASIN	AREA	.348		12.1200	3.91	
	OFFSITE UPSTREAM	AREA	33.818		12.1500	359.03	
	PHIPPS RD OUTLET	JCT	37.227		12.1500	399.92	
	PROPOSEDBASININ	POND	2.795		12.1200	28.77	
	PROPOSEDBASINOUT	POND	.983		12.2400	20.02	695.13
	UN CONTROLLED 1	AREA	.002		12.1200	.03	
	UNCONTROLL PHRD	AREA	.118		12.1200	1.25	
	UNCONTROLLED 1	AREA	1.140		12.1200	12.41	
	WETLAND 1 AREA	AREA	.270		12.1200	2.55	
	WETLAND 2 AREA	AREA	.432		12.1200	4.09	

NETWORK RUNOFF NODE SEQUENCE

Runoff Data		Apply to Node		Receiving Link	
SCS UH	CONTROLLED TO B1	Subarea	CONTROLLED TO B1	Add Hyd	CONTROLLED TO B1
SCS UH	UNCONTROLLED 1	Subarea	UNCONTROLLED 1	Add Hyd	UNCONTROLLED 1
SCS UH	UN CONTROLLED 1	Subarea	UN CONTROLLED 1	Add Hyd	UN CONTROLLED 1
SCS UH	UNCONTROLL PHRD	Subarea	UNCONTROLL PHRD	Add Hyd	UNCONTROLL PHRD
SCS UH	CONTROLLED TO W1	Subarea	CONTROLLED TO W1	Add Hyd	CONTROLLED TO W1
SCS UH	WETLAND 1 AREA	Subarea	WETLAND 1 AREA	Add Hyd	WETLAND 1 AREA
SCS UH	WETLAND 2 AREA	Subarea	WETLAND 2 AREA	Add Hyd	WETLAND 2 AREA
SCS UH	CONTROLLED TO W2	Subarea	CONTROLLED TO W2	Add Hyd	CONTROLLED TO W2
SCS UH	OFFSITE TO BASIN	Subarea	OFFSITE TO BASIN	Add Hyd	OFFSITE TO BASIN
SCS UH	OFFSITE UPSTREAM	Subarea	OFFSITE UPSTREAM	Add Hyd	OFFSITE UPSTREAM
SCS UH	BASIN 1	Subarea	BASIN 1	Add Hyd	BASIN 1
SCS UH	CONTROLLED TO PH	Subarea	CONTROLLED TO PH	Add Hyd	CONTROLLED TO PH
SCS UH	DS CONFLUENCE	Subarea	DS CONFLUENCE	Add Hyd	DS CONFLUENCE

NETWORK ROUTING SEQUENCE

Link Operation	UPstream Node		DNstream Node	
Add Hyd ADDLINK 30	Subarea	CONTROLLED TO B1	Pond	PROPOSEDBASININ
Add Hyd .,;	Subarea	OFFSITE TO BASIN	Pond	PROPOSEDBASININ
Add Hyd ..	Subarea	BASIN 1	Pond	PROPOSEDBASININ
POND ROUTE INFILTRATION AND TOTAL OUTFLOW...				
Infiltration	Pond	PROPOSEDBASININ	Infilt.	PROPOSEDBASININF
Total Pond Outflow	Pond	PROPOSEDBASININ	Outflow	PROPOSEDBASINOUT
SET POND ROUTING LINK TO TOTAL POND OUTFLOW...				
Outlet ROUTE 30	Outflow	PROPOSEDBASINOUT	Jct	JUNC 50
Add Hyd .,.	Subarea	CONTROLLED TO W1	Jct	EXIST WETLND1
Add Hyd ,	Subarea	WETLAND 1 AREA	Jct	EXIST WETLND1
Add Hyd ADDLINK 160	Subarea	OFFSITE UPSTREAM	Jct	JUNC 30
Add Hyd ADDLINK 50	Jct	JUNC 50	Jct	JUNC 30
Add Hyd ...	Jct	EXIST WETLND1	Jct	JUNC 30
Add Hyd ADDLINK 20	Subarea	CONTROLLED TO W2	Jct	EXIST WETLND 2
Add Hyd ;.	Subarea	WETLAND 2 AREA	Jct	EXIST WETLND 2
Add Hyd ADDLINK 10	Jct	JUNC 30	Jct	EXIST WETLND 2
Add Hyd .,.,	Jct	EXIST WETLND 2	Jct	JUNC 40
Add Hyd ADDLINK 70	Subarea	CONTROLLED TO PH	Jct	PHIPPS RD OUTLET
Add Hyd ..,.	Jct	JUNC 40	Jct	PHIPPS RD OUTLET
Add Hyd ADDLINK 40	Subarea	DS CONFLUENCE	Jct	DOWN ST. CONFLUE
Add Hyd STREAM REACH	Jct	PHIPPS RD OUTLET	Jct	DOWN ST. CONFLUE
Add Hyd SHEET..FLOW	Subarea	UNCONTROLL PHRD	Jct	JUNC 60
Add Hyd SHEET.FLOW	Subarea	UN CONTROLLED 1	Jct	JUNC 20
Add Hyd SHEET FLOW	Subarea	UNCONTROLLED 1	Jct	JUNC 10

File.... N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Title... Project Date: 5/5/2005
Project Engineer: Schoor DePalma
Project Title: Route 15 (Pondview Estates)
Project Comments:
Basin #1 at Hawk Drive jughandle

DESIGN STORMS SUMMARY

Design Storm File,ID = Morris

Storm Tag Name = 2

Data Type, File, ID = Synthetic Storm TypeIII 24hr
Storm Frequency = 2 yr
Total Rainfall Depth= 3.5000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 10

Data Type, File, ID = Synthetic Storm TypeIII 24hr
Storm Frequency = 10 yr
Total Rainfall Depth= 5.2000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 100

Data Type, File, ID = Synthetic Storm TypeIII 24hr
Storm Frequency = 100 yr
Total Rainfall Depth= 8.3000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

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::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: User Defined

Segment #1 Time: .0001 hrs

========================
Total Tc: .0001 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .1667 hrs
========================

File.... N:\project\2002\0207212\01\H&H\Hydrology\Final Report\DA1- PROPOSED-GREENPOND TRIB-H&H.MDK

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: User Defined

Segment #1 Time: .1667 hrs

========================
Total Tc: .1667 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .1667 hrs
========================

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

File.... N:\project\2002\0207212\01\H&H\Hydrology\Final Report\DA1- PROPOSED-GREENPOND TRIB-H&H.MDK

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: User Defined

Segment #1 Time: .1667 hrs

==========
Total Tc: .1667 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .1667 hrs
==========

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

File.... N:\project\2002\0207212\01\H&H\Hydrology\Final Report\DA1- PROPOSED-GREENPOND TRIB-H&H.MDK

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: User Defined

Segment #1 Time: .1667 hrs

==========
Total Tc: .1667 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .1667 hrs
==========

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

TIME OF CONCENTRATION CALCULATOR

Segment #1: Tc: User Defined

Segment #1 Time: .1667 hrs

Total Tc: .1667 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .1667 hrs

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

File.... N:\project\2002\0207212\01\H&H\Hydrology\Final Report\DA1- PROPOSED-GREENPOND TRIB-H&H.MDK

TIME OF CONCENTRATION CALCULATOR

Segment #1: Tc: TR-55 Sheet

Mannings n	.4000
Hydraulic Length	100.00 ft
2yr, 24hr P	3.5000 in
Slope	.050000 ft/ft

Avg.Velocity .12 ft/sec

Segment #1 Time: .2372 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	1675.00 ft
Slope	.100000 ft/ft
Unpaved	

Avg.Velocity 5.10 ft/sec

Segment #2 Time: .0912 hrs

Segment #3: Tc: TR-55 Shallow

Hydraulic Length	75.00 ft
Slope	.010000 ft/ft
Paved	

Avg.Velocity 2.03 ft/sec

Segment #3 Time: .0102 hrs

Total Tc: .3386 hrs

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

TIME OF CONCENTRATION CALCULATOR

Segment #1: Tc: User Defined

Segment #1 Time: .1667 hrs

Total Tc: .1667 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .1667 hrs

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

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::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.1500	
Hydraulic Length	100.00	ft
2yr, 24hr P	3.5000	in
Slope	.063000	ft/ft
Avg.Velocity	.28	ft/sec

Segment #1 Time: .0987 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	350.00	ft
Slope	.146000	ft/ft
Paved		
Avg.Velocity	7.77	ft/sec

Segment #2 Time: .0125 hrs

Segment #3: Tc: TR-55 Shallow

Hydraulic Length	1600.00	ft
Slope	.146000	ft/ft
Unpaved		
Avg.Velocity	6.16	ft/sec

Segment #3 Time: .0721 hrs

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Segment #4: Tc: TR-55 Shallow

Hydraulic Length 300.00 ft
Slope .146000 ft/ft
Paved

Avg.Velocity 7.77 ft/sec

Segment #4 Time: .0107 hrs

==========
Total Tc: .1940 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

```
Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where:  Tc = Time of concentration, hrs
        n  = Mannings n
        Lf = Flow length, ft
        P  = 2yr, 24hr Rain depth, inches
        Sf = Slope, %
```

==== SCS TR-55 Shallow Concentrated Flow ==========

```
Unpaved surface:
V  = 16.1345 * (Sf**0.5)

Paved surface:
V  = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where:  V  = Velocity, ft/sec
        Sf = Slope, ft/ft
        Tc = Time of concentration, hrs
        Lf = Flow length, ft
```

::

TIME OF CONCENTRATION CALCULATOR

::

Segment #1: Tc: User Defined

Segment #1 Time: .1667 hrs

Total Tc: .1667 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .1667 hrs

File.... N:\project\2002\0207212\01\H&H\Hydrology\Final Report\DA1- PROPOSED-GREENPOND TRIB-H&H.MDK

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

```
:::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
TIME OF CONCENTRATION CALCULATOR
:::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

-----------------------------------------------------------------------

Segment #1:  Tc: User Defined

                                      Segment #1 Time:     .1667 hrs
-----------------------------------------------------------------------

                                          ========================
                                           Total Tc:       .1667 hrs

                                           Calculated Tc < Min.Tc:
                                           Use Minimum Tc...
                                           Use Tc =        .1667 hrs
                                          ========================
```

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

TIME OF CONCENTRATION CALCULATOR

Segment #1: Tc: User Defined

Segment #1 Time: .1667 hrs

Total Tc: .1667 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .1667 hrs

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

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```
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
TIME OF CONCENTRATION CALCULATOR
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

----------------------------------------------------------------------

Segment #1:  Tc: User Defined

                                      Segment #1 Time:      .0001 hrs
----------------------------------------------------------------------

                                         ========================
                                          Total Tc:       .0001 hrs

                                          Calculated Tc < Min.Tc:
                                          Use Minimum Tc...
                                          Use Tc =        .1667 hrs
                                         ========================
```

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

File.... N:\project\2002\0207212\01\H&H\Hydrology\Final Report\DA1- PROPOSED-GREENPOND TRIB-H&H.MDK

TIME OF CONCENTRATION CALCULATOR

Segment #1: Tc: User Defined

Segment #1 Time: .0001 hrs

Total Tc: .0001 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .1667 hrs

File.... N:\project\2002\0207212\01\H&H\Hydrology\Final Report\DA1- PROPOSED-GREENPOND TRIB-H&H.MDK

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

File.... N:\project\2002\0207212\01\H&H\Hydrology\Final Report\DA1- PROPOSED-GREENPOND TRIB-H&H.MDK

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
Basin	100	.385			100.00
COMPOSITE AREA & WEIGHTED CN --->		.385			100.00 (100)

File.... N:\project\2002\0207212\01\H&H\Hydrology\Final Report\DA1- PROPOSED-GREENPOND TRIB-H&H.MDK

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Impervious Areas - Paved parking lo	98	2.484			98.00
Open space (Fair Condition),B	69	.302			69.00
Open Space (fair Condition),D	84	.720			84.00
COMPOSITE AREA & WEIGHTED CN --->		3.506			92.63 (93)

File.... N:\project\2002\0207212\01\H&H\Hydrology\Final Report\DA1- PROPOSED-GREENPOND TRIB-H&H.MDK

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Impervious Areas - Paved parking lo	98	.934			98.00
Open Space(Fair Conditions), B	69	.079			69.00
Open Space(Fair Conditions),D	84	.184			84.00
COMPOSITE AREA & WEIGHTED CN --->		1.197			93.94 (94)

File.... N:\project\2002\0207212\01\H&H\Hydrology\Final Report\DA1- PROPOSED-GREENPOND TRIB-H&H.MDK

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Impervious Areas - Paved parking lo	98	.618			98.00
Open Space (Fair Condtions), B	69	.046			69.00
Open Space (Fair Conditons),D	84	.107			84.00
COMPOSITE AREA & WEIGHTED CN --->		.771			94.33 (94)

File.... N:\project\2002\0207212\01\H&H\Hydrology\Final Report\DA1- PROPOSED-GREENPOND TRIB-H&H.MDK

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Impervious Areas - Paved parking lo	98	.545			98.00
Open Space (Fair Conditions), B	69	.069			69.00
Open Space (Fair Conditions), D	84	.161			84.00
COMPOSITE AREA & WEIGHTED CN --->		.775			92.51 (93)

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RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Woods - Wetland	84	4.900			84.00
Woods - grass & tree combination	79	9.300			79.00
Woods - grass & tree combination	79	1.000			79.00
Impervious Areas - Paved parking lo	98	.300			98.00
Impervious Areas - Paved parking lo	98	.500			98.00
Woods - grass & tree combination	79	5.900			79.00
Woods - grass & tree combination	73	.200			73.00
Impervious Areas - Paved parking lo	98	.200			98.00
COMPOSITE AREA & WEIGHTED CN --->		22.300			80.90 (81)

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RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Impervious Areas - Paved parking lo	98	.005			98.00
Open Spaces(Fair Condition), B	69	.550			69.00
Open Spaces(Fair Condition),D	84	.250			84.00
COMPOSITE AREA & WEIGHTED CN --->		.805			73.84 (74)

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RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
Wooded Wetland, C	78	.230			78.00
Wooded Wetland, D	84	16.670			84.00
Woods - grass combination, fair	76	11.250			76.00
Woods - grass combination, fair	82	11.950			82.00
Urban Districts- Commercial & Busin	94	8.030			94.00
Residential Districts - 1/2 acre	80	8.120			80.00
Residential Districts - 1/2 acre	85	8.530			85.00
COMPOSITE AREA & WEIGHTED CN --->		64.780			83.09 (83)

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RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Open Space (Fair Conditons), D	84	.004			84.00
Open Space (Fair Condtions), B	69	.002			69.00
COMPOSITE AREA & WEIGHTED CN --->		.006			79.50 (79)

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RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Impervious Areas - Paved parking lo	98	.093			98.00
Open Space(fair Conditions), B	69	.034			69.00
Open Space(Fair Conditions), D	84	.079			84.00
COMPOSITE AREA & WEIGHTED CN --->		.206			87.85 (88)

File.... N:\project\2002\0207212\01\H&H\Hydrology\Final Report\DA1- PROPOSED-GREENPOND TRIB-H&H.MDK

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Impervious Areas - Paved parking lo	98	.963			98.00
Open Space (fair condition), B	69	.947			69.00
Open Space (Fair Condition), D	84	.233			84.00
COMPOSITE AREA & WEIGHTED CN --->		2.143			83.66 (84)

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
Wetland 1 Area	100	.390			100.00
COMPOSITE AREA & WEIGHTED CN --->		.390			100.00 (100)

File.... N:\project\2002\0207212\01\H&H\Hydrology\Final Report\DA1- PROPOSED-GREENPOND TRIB-H&H.MDK

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Wetland Area	100	.625			100.00
COMPOSITE AREA & WEIGHTED CN --->		.625			100.00 (100)

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.5000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - BASIN 1 2
Tc (Min. Tc)  = .1667 hrs
Drainage Area = .385 acres  Runoff CN= 100

=========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =     1.06 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =     1.06 cfs
=========================================

                DRAINAGE AREA
              -------------------
              ID:BASIN 1
              CN    =  100
              Area =        .385 acres
              S     =    .0000 in
              0.2S =     .0000 in

               Cumulative Runoff
              -------------------
                      3.5000 in
                        .112 ac-ft

HYG Volume...           .112 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .16670 hrs (ID: BASIN 1)
Computational Incr, Tm =   .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,          qp =     2.62 cfs
Unit peak time      Tp =   .11113 hrs
Unit receding limb, Tr =   .44453 hrs
Total unit time,    Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration       = 24.0000 hrs      Rain Depth = 5.2000 in
Rain Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID  =  - TypeIII 24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID  =  - BASIN 1 10
Tc (Min. Tc)   = .1667 hrs
Drainage Area  = .385 acres  Runoff CN= 100

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =     1.58 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =     1.58 cfs
==========================================

                DRAINAGE AREA
             -------------------
             ID:BASIN 1
             CN    =  100
             Area =         .385 acres
             S     =     .0000 in
             0.2S =      .0000 in

              Cumulative Runoff
             -------------------
                     5.2000 in
                       .167 ac-ft

HYG Volume...            .167 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .16670 hrs (ID: BASIN 1)
Computational Incr, Tm =    .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =     2.62 cfs
Unit peak time       Tp =   .11113 hrs
Unit receding limb,  Tr =   .44453 hrs
Total unit time,     Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.3000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - BASIN 1 100
Tc (Min. Tc)  = .1667 hrs
Drainage Area = .385 acres  Runoff CN= 100

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =     2.52 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =     2.52 cfs
==========================================

                 DRAINAGE AREA
              -------------------
              ID:BASIN 1
              CN    =  100
              Area =         .385 acres
              S     =     .0000 in
              0.2S =      .0000 in

               Cumulative Runoff
              -------------------
                      8.3000 in
                        .266 ac-ft

HYG Volume...           .266 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .16670 hrs (ID: BASIN 1)
Computational Incr, Tm =    .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =     2.62 cfs
Unit peak time       Tp =   .11113 hrs
Unit receding limb, Tr =   .44453 hrs
Total unit time,     Tb =   .55567 hrs
```

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration = 24.0000 hrs Rain Depth = 3.5000 in
Rain Dir = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID = - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID = - CONTROLLED TO B1 2
Tc (Min. Tc) = .1667 hrs
Drainage Area = 3.506 acres Runoff CN= 93

==========
Computational Time Increment = .02223 hrs
Computed Peak Time = 12.1358 hrs
Computed Peak Flow = 8.70 cfs

Time Increment for HYG File = .0300 hrs
Peak Time, Interpolated Output = 12.1200 hrs
Peak Flow, Interpolated Output = 8.66 cfs
==========

DRAINAGE AREA

ID:CONTROLLED TO B1
CN = 93
Area = 3.506 acres
S = .7527 in
0.2S = .1505 in

Cumulative Runoff

2.7349 in
.799 ac-ft

HYG Volume... .799 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .16670 hrs (ID: CONTROLLED TO B1)
Computational Incr, Tm = .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 23.83 cfs
Unit peak time Tp = .11113 hrs
Unit receding limb, Tr = .44453 hrs
Total unit time, Tb = .55567 hrs

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.2000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - CONTROLLED TO B1 10
Tc (Min. Tc)  = .1667 hrs
Drainage Area = 3.506 acres  Runoff CN= 93

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =    13.60 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =    13.56 cfs
==========================================

                DRAINAGE AREA
              -------------------
              ID:CONTROLLED TO B1
              CN   =   93
              Area =       3.506 acres
              S    =    .7527 in
              0.2S =    .1505 in

               Cumulative Runoff
              -------------------
                     4.3944 in
                      1.284 ac-ft

HYG Volume...          1.284 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .16670 hrs (ID: CONTROLLED TO B1)
Computational Incr, Tm =   .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,           qp =    23.83 cfs
Unit peak time       Tp =   .11113 hrs
Unit receding limb,  Tr =   .44453 hrs
Total unit time,     Tb =   .55567 hrs
```

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration = 24.0000 hrs Rain Depth = 8.3000 in
Rain Dir = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID = - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID = - CONTROLLED TO B1 100
Tc (Min. Tc) = .1667 hrs
Drainage Area = 3.506 acres Runoff CN= 93

==========
Computational Time Increment = .02223 hrs
Computed Peak Time = 12.1358 hrs
Computed Peak Flow = 22.40 cfs

Time Increment for HYG File = .0300 hrs
Peak Time, Interpolated Output = 12.1200 hrs
Peak Flow, Interpolated Output = 22.35 cfs
==========

DRAINAGE AREA

ID:CONTROLLED TO B1
CN = 93
Area = 3.506 acres
S = .7527 in
0.2S = .1505 in

Cumulative Runoff

7.4604 in
2.180 ac-ft

HYG Volume... 2.180 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .16670 hrs (ID: CONTROLLED TO B1)
Computational Incr, Tm = .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 23.83 cfs
Unit peak time Tp = .11113 hrs
Unit receding limb, Tr = .44453 hrs
Total unit time, Tb = .55567 hrs

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration       = 24.0000 hrs     Rain Depth = 3.5000 in
Rain Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID  =  - TypeIII 24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID  =  - CONTROLLED TO PH 2
Tc (Min. Tc)   = .1667 hrs
Drainage Area  = 1.197 acres  Runoff CN= 94

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =     3.05 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =     3.03 cfs
==========================================

                DRAINAGE AREA
              -------------------
              ID:CONTROLLED TO PH
              CN    =   94
              Area =       1.197 acres
              S     =    .6383 in
              0.2S =     .1277 in

               Cumulative Runoff
              -------------------
                      2.8356 in
                        .283 ac-ft

HYG Volume...           .283 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .16670 hrs (ID: CONTROLLED TO PH)
Computational Incr, Tm =   .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =     8.14 cfs
Unit peak time       Tp =   .11113 hrs
Unit receding limb, Tr =   .44453 hrs
Total unit time,     Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.2000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - CONTROLLED TO PH 10
Tc (Min. Tc)  = .1667 hrs
Drainage Area = 1.197 acres  Runoff CN= 94

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =     4.71 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =     4.69 cfs
==========================================

                DRAINAGE AREA
             -------------------
             ID:CONTROLLED TO PH
             CN   =   94
             Area =       1.197 acres
             S    =    .6383 in
             0.2S =    .1277 in

              Cumulative Runoff
             -------------------
                     4.5054 in
                       .449 ac-ft

HYG Volume...            .449 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .16670 hrs (ID: CONTROLLED TO PH)
Computational Incr, Tm =   .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,          qp =     8.14 cfs
Unit peak time      Tp =   .11113 hrs
Unit receding limb, Tr =   .44453 hrs
Total unit time,    Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.3000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - CONTROLLED TO PH 100
Tc (Min. Tc)  = .1667 hrs
Drainage Area = 1.197 acres  Runoff CN= 94

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =     7.69 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =     7.68 cfs
==========================================

                 DRAINAGE AREA
               -------------------
               ID:CONTROLLED TO PH
               CN    =    94
               Area =        1.197 acres
               S     =     .6383 in
               0.2S =     .1277 in

                Cumulative Runoff
               -------------------
                       7.5803 in
                         .756 ac-ft

HYG Volume...            .756 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .16670 hrs (ID: CONTROLLED TO PH)
Computational Incr, Tm =    .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =     8.14 cfs
Unit peak time       Tp =   .11113 hrs
Unit receding limb, Tr =   .44453 hrs
Total unit time,     Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.5000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - CONTROLLED TO W1 2
Tc (Min. Tc)  = .1667 hrs
Drainage Area = .771 acres  Runoff CN= 94

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =     1.96 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =     1.95 cfs
==========================================

                DRAINAGE AREA
             -------------------
             ID:CONTROLLED TO W1
             CN    =    94
             Area =          .771 acres
             S     =     .6383 in
             0.2S =      .1277 in

              Cumulative Runoff
             -------------------
                     2.8356 in
                       .182 ac-ft

HYG Volume...            .182 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .16670 hrs (ID: CONTROLLED TO W1)
Computational Incr, Tm =    .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,   K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =     5.24 cfs
Unit peak time       Tp =   .11113 hrs
Unit receding limb, Tr =   .44453 hrs
Total unit time,     Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.2000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - CONTROLLED TO W1 10
Tc (Min. Tc)  = .1667 hrs
Drainage Area = .771 acres  Runoff CN= 94

=========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =     3.03 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =     3.02 cfs
=========================================

                 DRAINAGE AREA
               -------------------
               ID:CONTROLLED TO W1
               CN    =    94
               Area =         .771 acres
               S     =     .6383 in
               0.2S =      .1277 in

                Cumulative Runoff
               -------------------
                       4.5054 in
                         .289 ac-ft

HYG Volume...            .289 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .16670 hrs (ID: CONTROLLED TO W1)
Computational Incr, Tm =    .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =     5.24 cfs
Unit peak time       Tp =   .11113 hrs
Unit receding limb,  Tr =   .44453 hrs
Total unit time,     Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration       = 24.0000 hrs     Rain Depth = 8.3000 in
Rain Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID  =  - TypeIII 24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID  =  - CONTROLLED TO W1 100
Tc (Min. Tc)   = .1667 hrs
Drainage Area  = .771 acres  Runoff CN= 94

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =     4.96 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =     4.95 cfs
==========================================

                DRAINAGE AREA
             -------------------
             ID:CONTROLLED TO W1
             CN    =   94
             Area =         .771 acres
             S     =     .6383 in
             0.2S =      .1277 in

              Cumulative Runoff
             -------------------
                     7.5803 in
                       .487 ac-ft

HYG Volume...            .487 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .16670 hrs (ID: CONTROLLED TO W1)
Computational Incr, Tm =    .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =     5.24 cfs
Unit peak time       Tp =   .11113 hrs
Unit receding limb, Tr =   .44453 hrs
Total unit time,     Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration       = 24.0000 hrs     Rain Depth = 3.5000 in
Rain Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID  =  - TypeIII 24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID  =  - CONTROLLED TO W2 2
Tc (Min. Tc)   = .1667 hrs
Drainage Area  = .775 acres  Runoff CN= 93

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =     1.92 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =     1.91 cfs
==========================================

                DRAINAGE AREA
              -------------------
              ID:CONTROLLED TO W2
              CN    =   93
              Area =         .775 acres
              S     =     .7527 in
              0.2S =     .1505 in

               Cumulative Runoff
              -------------------
                      2.7349 in
                        .177 ac-ft

HYG Volume...           .177 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .16670 hrs (ID: CONTROLLED TO W2)
Computational Incr, Tm =    .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =     5.27 cfs
Unit peak time       Tp =   .11113 hrs
Unit receding limb, Tr =   .44453 hrs
Total unit time,     Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.2000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - CONTROLLED TO W2 10
Tc (Min. Tc)  = .1667 hrs
Drainage Area = .775 acres  Runoff CN= 93

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =     3.01 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =     3.00 cfs
==========================================

                DRAINAGE AREA
              -------------------
              ID:CONTROLLED TO W2
              CN    =    93
              Area =         .775 acres
              S     =     .7527 in
              0.2S =      .1505 in

               Cumulative Runoff
              -------------------
                      4.3944 in
                        .284 ac-ft

HYG Volume...           .284 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .16670 hrs (ID: CONTROLLED TO W2)
Computational Incr, Tm =    .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,          qp =     5.27 cfs
Unit peak time      Tp =   .11113 hrs
Unit receding limb, Tr =   .44453 hrs
Total unit time,    Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.3000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - CONTROLLED TO W2 100
Tc (Min. Tc)  = .1667 hrs
Drainage Area = .775 acres  Runoff CN= 93

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =     4.95 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =     4.94 cfs
==========================================

                 DRAINAGE AREA
               -------------------
               ID:CONTROLLED TO W2
               CN    =    93
               Area =         .775 acres
               S     =     .7527 in
               0.2S =     .1505 in

                Cumulative Runoff
               -------------------
                       7.4604 in
                         .482 ac-ft

HYG Volume...            .482 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .16670 hrs (ID: CONTROLLED TO W2)
Computational Incr, Tm =    .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =     5.27 cfs
Unit peak time       Tp =   .11113 hrs
Unit receding limb, Tr =   .44453 hrs
Total unit time,     Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.5000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - DS CONFLUENCE 2
Tc            = .3386 hrs
Drainage Area = 22.300 acres  Runoff CN= 81

==========================================
Computational Time Increment   =   .04515 hrs
Computed Peak Time             =  12.2364 hrs
Computed Peak Flow             =    29.20 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.2400 hrs
Peak Flow, Interpolated Output =    29.17 cfs
==========================================

                DRAINAGE AREA
             -------------------
             ID:DS CONFLUENCE
             CN    =   81
             Area =       22.300 acres
             S     =   2.3457 in
             0.2S =     .4691 in

              Cumulative Runoff
             -------------------
                     1.7086 in
                      3.175 ac-ft

HYG Volume...          3.175 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .33865 hrs (ID: DS CONFLUENCE)
Computational Incr, Tm =    .04515 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =    74.61 cfs
Unit peak time       Tp =   .22576 hrs
Unit receding limb, Tr =   .90306 hrs
Total unit time,     Tb =  1.12882 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration       = 24.0000 hrs      Rain Depth = 5.2000 in
Rain Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID  =  - TypeIII 24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID  =  - DS CONFLUENCE 10
Tc             = .3386 hrs
Drainage Area  = 22.300 acres  Runoff CN= 81

==========================================
Computational Time Increment   =   .04515 hrs
Computed Peak Time             =  12.2364 hrs
Computed Peak Flow             =    54.30 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.2400 hrs
Peak Flow, Interpolated Output =    54.19 cfs
==========================================

                 DRAINAGE AREA
               -------------------
               ID:DS CONFLUENCE
               CN    =    81
               Area =       22.300 acres
               S     =    2.3457 in
               0.2S =      .4691 in

                Cumulative Runoff
               -------------------
                       3.1627 in
                        5.877 ac-ft

HYG Volume...           5.877 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .33865 hrs (ID: DS CONFLUENCE)
Computational Incr, Tm =    .04515 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,   K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =    74.61 cfs
Unit peak time       Tp =   .22576 hrs
Unit receding limb,  Tr =   .90306 hrs
Total unit time,     Tb =  1.12882 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.3000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - DS CONFLUENCE 100
Tc            = .3386 hrs
Drainage Area = 22.300 acres  Runoff CN= 81

==========================================
Computational Time Increment   =   .04515 hrs
Computed Peak Time             =  12.2364 hrs
Computed Peak Flow             =   101.72 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.2400 hrs
Peak Flow, Interpolated Output =   101.47 cfs
==========================================

                DRAINAGE AREA
             -------------------
             ID:DS CONFLUENCE
             CN    =   81
             Area =       22.300 acres
             S     =   2.3457 in
             0.2S =     .4691 in

              Cumulative Runoff
             -------------------
                     6.0259 in
                     11.198 ac-ft

HYG Volume...        11.198 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .33865 hrs (ID: DS CONFLUENCE)
Computational Incr, Tm =    .04515 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =    74.61 cfs
Unit peak time       Tp =   .22576 hrs
Unit receding limb, Tr =   .90306 hrs
Total unit time,     Tb =  1.12882 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.5000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - OFFSITE TO BASIN 2
Tc (Min. Tc)  = .1667 hrs
Drainage Area = .805 acres  Runoff CN= 74

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1580 hrs
Computed Peak Flow             =      .92 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1500 hrs
Peak Flow, Interpolated Output =      .92 cfs
==========================================

                DRAINAGE AREA
             -------------------
             ID:OFFSITE TO BASIN
             CN   =   74
             Area =        .805 acres
             S    =   3.5135 in
             0.2S =    .7027 in

              Cumulative Runoff
             -------------------
                     1.2399 in
                       .083 ac-ft

HYG Volume...            .083 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .16670 hrs (ID: OFFSITE TO BASIN)
Computational Incr, Tm =   .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =     5.47 cfs
Unit peak time       Tp =   .11113 hrs
Unit receding limb,  Tr =   .44453 hrs
Total unit time,     Tb =   .55567 hrs
```

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration = 24.0000 hrs Rain Depth = 5.2000 in
Rain Dir = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID = - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID = - OFFSITE TO BASIN 10
Tc (Min. Tc) = .1667 hrs
Drainage Area = .805 acres Runoff CN= 74

==========
Computational Time Increment = .02223 hrs
Computed Peak Time = 12.1358 hrs
Computed Peak Flow = 1.93 cfs

Time Increment for HYG File = .0300 hrs
Peak Time, Interpolated Output = 12.1500 hrs
Peak Flow, Interpolated Output = 1.91 cfs
==========

DRAINAGE AREA

ID:OFFSITE TO BASIN
CN = 74
Area = .805 acres
S = 3.5135 in
0.2S = .7027 in

Cumulative Runoff

2.5248 in
.169 ac-ft

HYG Volume... .169 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .16670 hrs (ID: OFFSITE TO BASIN)
Computational Incr, Tm = .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 5.47 cfs
Unit peak time Tp = .11113 hrs
Unit receding limb, Tr = .44453 hrs
Total unit time, Tb = .55567 hrs

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.3000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - OFFSITE TO BASIN 100
Tc (Min. Tc)  = .1667 hrs
Drainage Area = .805 acres  Runoff CN= 74

=========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =     3.94 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =     3.91 cfs
=========================================

                DRAINAGE AREA
              -------------------
              ID:OFFSITE TO BASIN
              CN   =   74
              Area =        .805 acres
              S    =   3.5135 in
              0.2S =    .7027 in

               Cumulative Runoff
              -------------------
                      5.1948 in
                        .348 ac-ft

HYG Volume...           .348 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .16670 hrs (ID: OFFSITE TO BASIN)
Computational Incr, Tm =   .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,          qp =     5.47 cfs
Unit peak time      Tp =   .11113 hrs
Unit receding limb, Tr =   .44453 hrs
Total unit time,    Tb =   .55567 hrs
```

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration = 24.0000 hrs Rain Depth = 3.5000 in
Rain Dir = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID = - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID = - OFFSITE UPSTREAM 2
Tc = .1940 hrs
Drainage Area = 64.780 acres Runoff CN= 83

==========
Computational Time Increment = .02587 hrs
Computed Peak Time = 12.1580 hrs
Computed Peak Flow = 110.39 cfs

Time Increment for HYG File = .0300 hrs
Peak Time, Interpolated Output = 12.1500 hrs
Peak Flow, Interpolated Output = 110.00 cfs
==========

DRAINAGE AREA

ID:OFFSITE UPSTREAM
CN = 83
Area = 64.780 acres
S = 2.0482 in
0.2S = .4096 in

Cumulative Runoff

1.8586 in
10.033 ac-ft

HYG Volume... 10.033 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .19401 hrs (ID: OFFSITE UPSTREAM)
Computational Incr, Tm = .02587 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 378.32 cfs
Unit peak time Tp = .12934 hrs
Unit receding limb, Tr = .51736 hrs
Total unit time, Tb = .64670 hrs

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.2000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - OFFSITE UPSTREAM 10
Tc            = .1940 hrs
Drainage Area = 64.780 acres  Runoff CN= 83

==========================================
Computational Time Increment   =   .02587 hrs
Computed Peak Time             =  12.1580 hrs
Computed Peak Flow             =   197.44 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1500 hrs
Peak Flow, Interpolated Output =   197.16 cfs
==========================================

                 DRAINAGE AREA
               -------------------
               ID:OFFSITE UPSTREAM
               CN    =   83
               Area =      64.780 acres
               S     =   2.0482 in
               0.2S =     .4096 in

                Cumulative Runoff
               -------------------
                       3.3556 in
                       18.115 ac-ft

HYG Volume...          18.115 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .19401 hrs (ID: OFFSITE UPSTREAM)
Computational Incr, Tm =    .02587 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =   378.32 cfs
Unit peak time       Tp =   .12934 hrs
Unit receding limb,  Tr =   .51736 hrs
Total unit time,     Tb =   .64670 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration       = 24.0000 hrs     Rain Depth = 8.3000 in
Rain Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID  =  - TypeIII 24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID  =  - OFFSITE UPSTREAM 100
Tc             = .1940 hrs
Drainage Area  = 64.780 acres  Runoff CN= 83

==========================================
Computational Time Increment   =   .02587 hrs
Computed Peak Time             =  12.1321 hrs
Computed Peak Flow             =   359.20 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1500 hrs
Peak Flow, Interpolated Output =   359.03 cfs
==========================================

                 DRAINAGE AREA
              -------------------
              ID:OFFSITE UPSTREAM
              CN    =   83
              Area =       64.780 acres
              S     =   2.0482 in
              0.2S =     .4096 in

               Cumulative Runoff
              -------------------
                      6.2643 in
                      33.817 ac-ft

HYG Volume...         33.818 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .19401 hrs (ID: OFFSITE UPSTREAM)
Computational Incr, Tm =    .02587 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =   378.32 cfs
Unit peak time       Tp =   .12934 hrs
Unit receding limb, Tr =   .51736 hrs
Total unit time,     Tb =   .64670 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration       = 24.0000 hrs     Rain Depth = 3.5000 in
Rain Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID  =  - TypeIII 24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID  =  - UN CONTROLLED 1 2
Tc (Min. Tc)   = .1667 hrs
Drainage Area  = .006 acres  Runoff CN= 79

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =      .01 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1500 hrs
Peak Flow, Interpolated Output =      .01 cfs
==========================================

                 DRAINAGE AREA
               -------------------
               ID:UN CONTROLLED 1
               CN    =   79
               Area =        .006 acres
               S     =   2.6582 in
               0.2S =     .5316 in

                Cumulative Runoff
               -------------------
                       1.5660 in
                         .001 ac-ft

HYG Volume...            .000 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .16670 hrs (ID: UN CONTROLLED 1)
Computational Incr, Tm =    .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =      .04 cfs
Unit peak time       Tp =   .11113 hrs
Unit receding limb, Tr =   .44453 hrs
Total unit time,     Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration       = 24.0000 hrs     Rain Depth = 5.2000 in
Rain Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID  =  - TypeIII 24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID  =  - UN CONTROLLED 1 10
Tc (Min. Tc)   = .1667 hrs
Drainage Area  = .006 acres  Runoff CN= 79

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =      .02 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1500 hrs
Peak Flow, Interpolated Output =      .02 cfs
==========================================

                DRAINAGE AREA
              -------------------
              ID:UN CONTROLLED 1
              CN    =   79
              Area  =        .006 acres
              S     =   2.6582 in
              0.2S  =    .5316 in

               Cumulative Runoff
              -------------------
                      2.9746 in
                        .001 ac-ft

HYG Volume...           .001 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .16670 hrs (ID: UN CONTROLLED 1)
Computational Incr, Tm =   .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =      .04 cfs
Unit peak time      Tp =   .11113 hrs
Unit receding limb, Tr =   .44453 hrs
Total unit time,    Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.3000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - UN CONTROLLED 1 100
Tc (Min. Tc)  = .1667 hrs
Drainage Area = .006 acres  Runoff CN= 79

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =      .03 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =      .03 cfs
==========================================

                 DRAINAGE AREA
               -------------------
               ID:UN CONTROLLED 1
               CN    =   79
               Area =        .006 acres
               S     =   2.6582 in
               0.2S =     .5316 in

                Cumulative Runoff
               -------------------
                       5.7878 in
                         .003 ac-ft

HYG Volume...            .002 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .16670 hrs (ID: UN CONTROLLED 1)
Computational Incr, Tm =    .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =      .04 cfs
Unit peak time       Tp =   .11113 hrs
Unit receding limb,  Tr =   .44453 hrs
Total unit time,     Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.5000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - UNCONTROLL  PHRD 2
Tc (Min. Tc)  = .1667 hrs
Drainage Area = .206 acres  Runoff CN= 88

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =      .44 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =      .44 cfs
==========================================

                 DRAINAGE AREA
              -------------------
              ID:UNCONTROLL  PHRD
              CN   =   88
              Area =         .206 acres
              S    =   1.3636 in
              0.2S =    .2727 in

               Cumulative Runoff
              -------------------
                      2.2687 in
                        .039 ac-ft

HYG Volume...           .039 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .16670 hrs (ID: UNCONTROLL  PHRD)
Computational Incr, Tm =    .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,          qp =     1.40 cfs
Unit peak time      Tp =   .11113 hrs
Unit receding limb, Tr =   .44453 hrs
Total unit time,    Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.2000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - UNCONTROLL  PHRD 10
Tc (Min. Tc)  = .1667 hrs
Drainage Area = .206 acres  Runoff CN= 88

=============================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =       .73 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =       .73 cfs
=============================================

                 DRAINAGE AREA
               -------------------
               ID:UNCONTROLL  PHRD
               CN    =    88
               Area =         .206 acres
               S     =    1.3636 in
               0.2S =     .2727 in

                Cumulative Runoff
               -------------------
                       3.8592 in
                         .066 ac-ft

HYG Volume...            .066 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .16670 hrs (ID: UNCONTROLL  PHRD)
Computational Incr, Tm =    .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,   K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,          qp =      1.40 cfs
Unit peak time      Tp =    .11113 hrs
Unit receding limb, Tr =    .44453 hrs
Total unit time,    Tb =    .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration       = 24.0000 hrs     Rain Depth = 8.3000 in
Rain Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID  =  - TypeIII 24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID  =  - UNCONTROLL  PHRD 100
Tc (Min. Tc)   = .1667 hrs
Drainage Area  = .206 acres  Runoff CN= 88

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =     1.26 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =     1.25 cfs
==========================================

                DRAINAGE AREA
             -------------------
             ID:UNCONTROLL  PHRD
             CN    =   88
             Area  =        .206 acres
             S     =   1.3636 in
             0.2S  =    .2727 in

              Cumulative Runoff
             -------------------
                     6.8616 in
                       .118 ac-ft

HYG Volume...            .118 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .16670 hrs (ID: UNCONTROLL  PHRD)
Computational Incr, Tm =    .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,          qp =     1.40 cfs
Unit peak time      Tp =   .11113 hrs
Unit receding limb, Tr =   .44453 hrs
Total unit time,    Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.5000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - UNCONTROLLED 1 2
Tc (Min. Tc)  = .1667 hrs
Drainage Area = 2.143 acres  Runoff CN= 84

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =     3.94 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1500 hrs
Peak Flow, Interpolated Output =     3.90 cfs
==========================================

                 DRAINAGE AREA
               -------------------
               ID:UNCONTROLLED 1
               CN    =   84
               Area =       2.143 acres
               S     =   1.9048 in
               0.2S =     .3810 in

                Cumulative Runoff
               -------------------
                       1.9365 in
                         .346 ac-ft

HYG Volume...            .346 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .16670 hrs (ID: UNCONTROLLED 1)
Computational Incr, Tm =    .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =    14.57 cfs
Unit peak time       Tp =   .11113 hrs
Unit receding limb, Tr =   .44453 hrs
Total unit time,     Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.2000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - UNCONTROLLED 1 10
Tc (Min. Tc)  = .1667 hrs
Drainage Area = 2.143 acres  Runoff CN= 84

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =     6.94 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =     6.88 cfs
==========================================

                DRAINAGE AREA
              -------------------
              ID:UNCONTROLLED 1
              CN    =    84
              Area =        2.143 acres
              S     =    1.9048 in
              0.2S =     .3810 in

               Cumulative Runoff
              -------------------
                      3.4539 in
                        .617 ac-ft

HYG Volume...           .617 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .16670 hrs (ID: UNCONTROLLED 1)
Computational Incr, Tm =    .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,          qp =    14.57 cfs
Unit peak time      Tp =   .11113 hrs
Unit receding limb, Tr =   .44453 hrs
Total unit time,    Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.3000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - UNCONTROLLED 1 100
Tc (Min. Tc)  = .1667 hrs
Drainage Area = 2.143 acres  Runoff CN= 84

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =    12.47 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =    12.41 cfs
==========================================

                 DRAINAGE AREA
               -------------------
               ID:UNCONTROLLED 1
               CN    =    84
               Area =        2.143 acres
               S     =    1.9048 in
               0.2S =     .3810 in

                Cumulative Runoff
               -------------------
                       6.3836 in
                        1.140 ac-ft

HYG Volume...           1.140 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .16670 hrs (ID: UNCONTROLLED 1)
Computational Incr, Tm =    .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =    14.57 cfs
Unit peak time       Tp =   .11113 hrs
Unit receding limb, Tr =   .44453 hrs
Total unit time,     Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.5000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - WETLAND 1 AREA 2
Tc (Min. Tc)  = .1667 hrs
Drainage Area = .390 acres  Runoff CN= 100

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =     1.08 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =     1.08 cfs
==========================================

                 DRAINAGE AREA
              -------------------
              ID:WETLAND 1 AREA
              CN   =  100
              Area =         .390 acres
              S    =     .0000 in
              0.2S =     .0000 in

               Cumulative Runoff
              -------------------
                      3.5000 in
                        .114 ac-ft

HYG Volume...            .114 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .16670 hrs (ID: WETLAND 1 AREA)
Computational Incr, Tm =    .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =     2.65 cfs
Unit peak time       Tp =   .11113 hrs
Unit receding limb,  Tr =   .44453 hrs
Total unit time,     Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.2000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - WETLAND 1 AREA 10
Tc (Min. Tc)  = .1667 hrs
Drainage Area = .390 acres  Runoff CN= 100

=============================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =     1.60 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =     1.60 cfs
=============================================

                 DRAINAGE AREA
               -------------------
               ID:WETLAND 1 AREA
               CN    =  100
               Area =         .390 acres
               S     =    .0000 in
               0.2S =     .0000 in

                Cumulative Runoff
               -------------------
                       5.2000 in
                         .169 ac-ft

HYG Volume...            .169 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .16670 hrs (ID: WETLAND 1 AREA)
Computational Incr, Tm =    .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =     2.65 cfs
Unit peak time       Tp =   .11113 hrs
Unit receding limb, Tr =   .44453 hrs
Total unit time,     Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.3000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - WETLAND 1 AREA 100
Tc (Min. Tc)  = .1667 hrs
Drainage Area = .390 acres  Runoff CN= 100

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =     2.55 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =     2.55 cfs
==========================================

                DRAINAGE AREA
             -------------------
             ID:WETLAND 1 AREA
             CN    =  100
             Area =         .390 acres
             S     =     .0000 in
             0.2S =     .0000 in

              Cumulative Runoff
             -------------------
                     8.3000 in
                       .270 ac-ft

HYG Volume...            .270 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .16670 hrs (ID: WETLAND 1 AREA)
Computational Incr, Tm =    .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =     2.65 cfs
Unit peak time       Tp =   .11113 hrs
Unit receding limb, Tr =   .44453 hrs
Total unit time,     Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.5000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - WETLAND 2 AREA 2
Tc (Min. Tc)  = .1667 hrs
Drainage Area = .625 acres  Runoff CN= 100

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =     1.73 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =     1.72 cfs
==========================================

                DRAINAGE AREA
              -------------------
              ID:WETLAND 2 AREA
              CN    =  100
              Area =        .625 acres
              S    =    .0000 in
              0.2S =    .0000 in

               Cumulative Runoff
              -------------------
                      3.5000 in
                        .182 ac-ft

HYG Volume...           .182 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .16670 hrs (ID: WETLAND 2 AREA)
Computational Incr, Tm =   .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,          qp =     4.25 cfs
Unit peak time      Tp =   .11113 hrs
Unit receding limb, Tr =   .44453 hrs
Total unit time,    Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.2000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - WETLAND 2 AREA 10
Tc (Min. Tc)  = .1667 hrs
Drainage Area = .625 acres  Runoff CN= 100

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =     2.56 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =     2.56 cfs
==========================================

                DRAINAGE AREA
              -------------------
              ID:WETLAND 2 AREA
              CN    =  100
              Area =         .625 acres
              S     =     .0000 in
              0.2S =     .0000 in

               Cumulative Runoff
              -------------------
                      5.2000 in
                        .271 ac-ft

HYG Volume...            .271 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .16670 hrs (ID: WETLAND 2 AREA)
Computational Incr, Tm =    .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =     4.25 cfs
Unit peak time       Tp =   .11113 hrs
Unit receding limb, Tr =   .44453 hrs
Total unit time,     Tb =   .55567 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.3000 in
Rain Dir      = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
HYG File - ID =  - WETLAND 2 AREA 100
Tc (Min. Tc)  = .1667 hrs
Drainage Area = .625 acres  Runoff CN= 100

==========================================
Computational Time Increment   =   .02223 hrs
Computed Peak Time             =  12.1358 hrs
Computed Peak Flow             =     4.09 cfs

Time Increment for HYG File    =    .0300 hrs
Peak Time, Interpolated Output =  12.1200 hrs
Peak Flow, Interpolated Output =     4.09 cfs
==========================================

                 DRAINAGE AREA
               -------------------
               ID:WETLAND 2 AREA
               CN   =  100
               Area =        .625 acres
               S    =    .0000 in
               0.2S =    .0000 in

                Cumulative Runoff
               -------------------
                       8.3000 in
                         .432 ac-ft

HYG Volume...            .432 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .16670 hrs (ID: WETLAND 2 AREA)
Computational Incr, Tm =   .02223 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =     4.25 cfs
Unit peak time       Tp =   .11113 hrs
Unit receding limb,  Tr =   .44453 hrs
Total unit time,     Tb =   .55567 hrs
```

SUMMARY FOR HYDROGRAPH ADDITION
at Node: DOWN ST. CONFLUE

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 40	DS CONFLUENCE		DS CONFLUENCE	2
STREAM REACH	PHIPPS RD OUTLET		PHIPPS RD OUTLET	2

INFLOWS TO: DOWN ST. CONFLUE

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	DS CONFLUENCE	2	3.175	12.2400	29.17
	PHIPPS RD OUTLET	2	10.971	12.1500	119.58

TOTAL FLOW INTO: DOWN ST. CONFLUE

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	DOWN ST. CONFLUE	2	14.146	12.1500	144.96

TOTAL NODE INFLOW...
HYG file =
HYG ID = DOWN ST. CONFLUE
HYG Tag = 2

Peak Discharge = 144.96 cfs
Time to Peak = 12.1500 hrs
HYG Volume = 14.146 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
.0000	.00	.00	.00	.01	.02
.1500	.02	.03	.03	.03	.03
.3000	.03	.04	.04	.04	.04
.4500	.04	.04	.04	.04	.04
.6000	.04	.04	.04	.04	.04
.7500	.04	.04	.04	.04	.04
.9000	.04	.04	.04	.04	.04
1.0500	.04	.04	.04	.04	.04
1.2000	.04	.04	.04	.04	.04
1.3500	.04	.04	.04	.04	.04
1.5000	.04	.04	.04	.04	.04
1.6500	.04	.04	.04	.04	.04
1.8000	.04	.04	.04	.04	.04
1.9500	.04	.04	.04	.04	.04
2.1000	.04	.04	.04	.04	.04
2.2500	.04	.04	.04	.04	.04
2.4000	.04	.04	.04	.04	.04
2.5500	.04	.04	.04	.04	.04
2.7000	.04	.04	.04	.04	.04
2.8500	.04	.04	.04	.04	.04
3.0000	.04	.04	.04	.04	.04
3.1500	.04	.04	.04	.04	.04
3.3000	.04	.04	.04	.04	.04
3.4500	.04	.04	.04	.04	.04
3.6000	.04	.04	.04	.04	.04
3.7500	.05	.05	.05	.05	.05
3.9000	.05	.05	.05	.05	.05
4.0500	.05	.05	.05	.05	.05
4.2000	.05	.05	.05	.06	.06
4.3500	.06	.06	.06	.06	.06
4.5000	.06	.06	.06	.06	.06

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.6500	.06	.07	.07	.07	.07
4.8000	.07	.07	.07	.07	.07
4.9500	.07	.07	.07	.07	.07
5.1000	.07	.08	.08	.08	.08
5.2500	.08	.08	.08	.08	.08
5.4000	.08	.08	.08	.08	.09
5.5500	.09	.09	.09	.09	.09
5.7000	.09	.09	.09	.09	.09
5.8500	.09	.09	.09	.10	.10
6.0000	.10	.10	.10	.10	.10
6.1500	.10	.10	.10	.11	.11
6.3000	.11	.11	.11	.11	.11
6.4500	.12	.12	.12	.12	.12
6.6000	.12	.13	.13	.13	.13
6.7500	.13	.13	.13	.14	.14
6.9000	.14	.14	.14	.15	.15
7.0500	.15	.15	.15	.15	.16
7.2000	.16	.16	.16	.16	.16
7.3500	.17	.17	.17	.17	.17
7.5000	.18	.18	.18	.18	.18
7.6500	.18	.19	.19	.19	.19
7.8000	.19	.20	.20	.20	.20
7.9500	.20	.21	.21	.21	.21
8.1000	.21	.22	.22	.23	.23
8.2500	.24	.26	.28	.29	.32
8.4000	.34	.36	.38	.41	.44
8.5500	.46	.49	.52	.55	.58
8.7000	.61	.64	.67	.70	.73
8.8500	.77	.81	.84	.88	.93
9.0000	.97	1.01	1.06	1.10	1.15
9.1500	1.20	1.25	1.30	1.35	1.40
9.3000	1.46	1.51	1.56	1.62	1.68
9.4500	1.73	1.79	1.85	1.91	1.97
9.6000	2.04	2.10	2.16	2.23	2.29
9.7500	2.36	2.42	2.49	2.56	2.63
9.9000	2.70	2.77	2.84	2.92	2.99
10.0500	3.07	3.15	3.23	3.32	3.41
10.2000	3.50	3.60	3.71	3.82	3.93
10.3500	4.04	4.15	4.27	4.39	4.51
10.5000	4.64	4.77	4.89	5.03	5.16
10.6500	5.29	5.43	5.57	5.71	5.85
10.8000	6.00	6.15	6.29	6.45	6.60
10.9500	6.75	6.91	7.07	7.25	7.44
11.1000	7.66	7.90	8.18	8.49	8.83
11.2500	9.19	9.58	10.00	10.42	10.86

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.4000	11.32	11.78	12.26	12.77	13.34
11.5500	14.11	15.18	16.56	18.30	20.61
11.7000	23.40	26.58	30.17	34.14	38.38
11.8500	42.89	47.82	53.34	60.60	71.18
12.0000	85.37	101.08	116.19	129.56	139.56
12.1500	144.96	144.27	138.22	129.56	119.96
12.3000	111.05	103.25	95.93	88.90	82.28
12.4500	75.94	69.61	63.45	57.65	52.16
12.6000	47.12	42.77	39.06	35.95	33.49
12.7500	31.50	29.80	28.41	27.20	26.10
12.9000	25.13	24.24	23.39	22.59	21.84
13.0500	21.14	20.49	19.90	19.38	18.94
13.2000	18.55	18.22	17.94	17.67	17.44
13.3500	17.23	17.02	16.82	16.64	16.46
13.5000	16.27	16.10	15.93	15.75	15.58
13.6500	15.42	15.24	15.07	14.91	14.74
13.8000	14.56	14.39	14.23	14.05	13.88
13.9500	13.71	13.54	13.37	13.20	13.04
14.1000	12.89	12.74	12.61	12.49	12.38
14.2500	12.28	12.18	12.08	11.99	11.90
14.4000	11.82	11.73	11.65	11.56	11.48
14.5500	11.40	11.31	11.23	11.15	11.07
14.7000	10.98	10.90	10.82	10.73	10.65
14.8500	10.57	10.48	10.40	10.32	10.23
15.0000	10.15	10.07	9.98	9.90	9.81
15.1500	9.73	9.64	9.56	9.47	9.39
15.3000	9.30	9.22	9.13	9.05	8.96
15.4500	8.88	8.79	8.70	8.62	8.53
15.6000	8.44	8.36	8.27	8.19	8.10
15.7500	8.01	7.92	7.84	7.75	7.67
15.9000	7.58	7.49	7.40	7.31	7.23
16.0500	7.15	7.07	7.00	6.93	6.86
16.2000	6.80	6.75	6.70	6.65	6.61
16.3500	6.57	6.53	6.49	6.44	6.40
16.5000	6.37	6.33	6.29	6.25	6.21
16.6500	6.17	6.14	6.10	6.06	6.03
16.8000	5.99	5.95	5.91	5.87	5.83
16.9500	5.80	5.76	5.72	5.68	5.64
17.1000	5.60	5.57	5.53	5.49	5.45
17.2500	5.41	5.37	5.34	5.30	5.26
17.4000	5.22	5.18	5.14	5.11	5.07
17.5500	5.03	4.99	4.95	4.91	4.87
17.7000	4.84	4.80	4.76	4.72	4.68
17.8500	4.64	4.60	4.57	4.53	4.49
18.0000	4.45	4.41	4.37	4.34	4.31

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
18.1500	4.28	4.26	4.24	4.22	4.20
18.3000	4.19	4.17	4.16	4.14	4.13
18.4500	4.12	4.11	4.10	4.08	4.07
18.6000	4.06	4.05	4.04	4.03	4.01
18.7500	4.00	3.99	3.98	3.97	3.96
18.9000	3.95	3.93	3.92	3.91	3.90
19.0500	3.89	3.88	3.87	3.85	3.84
19.2000	3.83	3.82	3.81	3.80	3.79
19.3500	3.77	3.76	3.75	3.74	3.73
19.5000	3.72	3.71	3.69	3.68	3.67
19.6500	3.66	3.65	3.64	3.63	3.61
19.8000	3.60	3.59	3.58	3.57	3.56
19.9500	3.54	3.53	3.52	3.51	3.50
20.1000	3.49	3.48	3.47	3.46	3.45
20.2500	3.44	3.43	3.42	3.41	3.40
20.4000	3.39	3.39	3.38	3.37	3.36
20.5500	3.35	3.34	3.33	3.33	3.32
20.7000	3.31	3.29	3.28	3.28	3.27
20.8500	3.26	3.25	3.25	3.24	3.23
21.0000	3.22	3.21	3.21	3.20	3.19
21.1500	3.18	3.17	3.16	3.15	3.14
21.3000	3.13	3.13	3.12	3.11	3.10
21.4500	3.09	3.08	3.07	3.06	3.05
21.6000	3.04	3.04	3.03	3.02	3.01
21.7500	3.00	2.99	2.99	2.98	2.97
21.9000	2.96	2.95	2.94	2.93	2.92
22.0500	2.91	2.91	2.90	2.89	2.88
22.2000	2.87	2.86	2.85	2.84	2.83
22.3500	2.82	2.81	2.81	2.80	2.79
22.5000	2.78	2.77	2.76	2.76	2.75
22.6500	2.74	2.74	2.73	2.72	2.71
22.8000	2.70	2.69	2.68	2.67	2.66
22.9500	2.65	2.64	2.63	2.63	2.62
23.1000	2.60	2.59	2.58	2.58	2.57
23.2500	2.56	2.55	2.54	2.53	2.53
23.4000	2.52	2.51	2.51	2.50	2.49
23.5500	2.48	2.47	2.46	2.45	2.44
23.7000	2.43	2.42	2.41	2.40	2.40
23.8500	2.39	2.38	2.36	2.35	2.34
24.0000	2.33	2.28	2.14	1.87	1.54
24.1500	1.20	.91	.69	.52	.40
24.3000	.30	.22	.17	.13	.10
24.4500	.08	.06	.05	.04	.03
24.6000	.02	.02	.01	.01	.01
24.7500	.01	.01	.00	.00	.00

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs			
24.9000	.00	.00	.00

SUMMARY FOR HYDROGRAPH ADDITION
at Node: DOWN ST. CONFLUE

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 40	DS CONFLUENCE		DS CONFLUENCE	10
STREAM REACH	PHIPPS RD OUTLET		PHIPPS RD OUTLET	10

INFLOWS TO: DOWN ST. CONFLUE

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	DS CONFLUENCE	10	5.877	12.2400	54.19
	PHIPPS RD OUTLET	10	19.850	12.1500	211.91

TOTAL FLOW INTO: DOWN ST. CONFLUE

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	DOWN ST. CONFLUE	10	25.727	12.1500	260.20

TOTAL NODE INFLOW...
HYG file =
HYG ID = DOWN ST. CONFLUE
HYG Tag = 10

Peak Discharge = 260.20 cfs
Time to Peak = 12.1500 hrs
HYG Volume = 25.727 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
.0000	.00	.00	.01	.02	.03
.1500	.04	.04	.05	.05	.05
.3000	.05	.05	.05	.05	.05
.4500	.05	.05	.05	.05	.05
.6000	.05	.05	.05	.05	.05
.7500	.05	.05	.05	.05	.05
.9000	.05	.05	.05	.05	.05
1.0500	.05	.05	.05	.05	.05
1.2000	.05	.05	.05	.05	.05
1.3500	.05	.05	.05	.05	.05
1.5000	.05	.05	.05	.05	.05
1.6500	.05	.05	.05	.05	.05
1.8000	.05	.05	.05	.05	.05
1.9500	.05	.05	.05	.05	.05
2.1000	.05	.05	.05	.05	.05
2.2500	.05	.05	.05	.05	.06
2.4000	.06	.06	.06	.06	.06
2.5500	.06	.06	.06	.06	.06
2.7000	.06	.06	.06	.06	.06
2.8500	.06	.07	.07	.07	.07
3.0000	.07	.07	.07	.07	.07
3.1500	.07	.08	.08	.08	.08
3.3000	.08	.08	.08	.08	.08
3.4500	.09	.09	.09	.09	.09
3.6000	.09	.09	.09	.09	.10
3.7500	.10	.10	.10	.10	.10
3.9000	.10	.10	.10	.11	.11
4.0500	.11	.11	.11	.11	.11
4.2000	.11	.11	.12	.12	.12
4.3500	.12	.12	.12	.12	.12
4.5000	.13	.13	.13	.13	.13

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.6500	.13	.13	.13	.13	.14
4.8000	.14	.14	.14	.14	.14
4.9500	.14	.14	.15	.15	.15
5.1000	.15	.15	.15	.15	.15
5.2500	.15	.16	.16	.16	.16
5.4000	.16	.16	.16	.16	.17
5.5500	.17	.17	.17	.17	.17
5.7000	.17	.17	.18	.18	.18
5.8500	.18	.18	.18	.18	.18
6.0000	.19	.19	.19	.19	.19
6.1500	.19	.20	.20	.20	.20
6.3000	.20	.21	.21	.21	.22
6.4500	.22	.22	.23	.24	.25
6.6000	.27	.29	.30	.32	.34
6.7500	.37	.39	.41	.43	.45
6.9000	.48	.50	.53	.55	.57
7.0500	.60	.63	.65	.68	.71
7.2000	.74	.77	.80	.83	.87
7.3500	.90	.94	.97	1.01	1.05
7.5000	1.08	1.12	1.16	1.20	1.24
7.6500	1.28	1.32	1.36	1.41	1.45
7.8000	1.49	1.53	1.58	1.62	1.67
7.9500	1.71	1.76	1.81	1.85	1.90
8.1000	1.95	2.01	2.06	2.12	2.18
8.2500	2.25	2.31	2.38	2.45	2.52
8.4000	2.60	2.67	2.75	2.82	2.90
8.5500	2.98	3.06	3.14	3.23	3.31
8.7000	3.40	3.49	3.58	3.67	3.76
8.8500	3.85	3.94	4.04	4.13	4.23
9.0000	4.33	4.43	4.53	4.64	4.74
9.1500	4.85	4.95	5.06	5.17	5.28
9.3000	5.39	5.51	5.62	5.74	5.85
9.4500	5.97	6.09	6.21	6.33	6.45
9.6000	6.58	6.70	6.83	6.96	7.09
9.7500	7.21	7.35	7.48	7.61	7.74
9.9000	7.88	8.02	8.16	8.29	8.43
10.0500	8.58	8.73	8.90	9.06	9.25
10.2000	9.44	9.64	9.85	10.06	10.28
10.3500	10.51	10.74	10.97	11.20	11.45
10.5000	11.69	11.94	12.19	12.44	12.70
10.6500	12.95	13.21	13.48	13.74	14.01
10.8000	14.29	14.56	14.84	15.12	15.40
10.9500	15.68	15.97	16.27	16.58	16.95
11.1000	17.36	17.82	18.35	18.96	19.63
11.2500	20.33	21.10	21.90	22.72	23.57

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.4000	24.45	25.34	26.24	27.20	28.29
11.5500	29.77	31.84	34.52	37.91	42.40
11.7000	47.79	53.89	60.73	68.22	76.13
11.8500	84.43	93.40	103.32	116.27	135.07
12.0000	160.18	187.66	213.62	236.08	252.20
12.1500	260.20	259.01	248.27	232.87	215.79
12.3000	200.08	186.13	172.91	160.15	148.11
12.4500	136.58	125.09	113.91	103.38	93.42
12.6000	84.42	76.63	69.93	64.27	59.76
12.7500	56.05	52.87	50.24	47.93	45.85
12.9000	43.99	42.29	40.69	39.18	37.75
13.0500	36.43	35.21	34.09	33.10	32.24
13.2000	31.49	30.84	30.28	29.76	29.29
13.3500	28.86	28.45	28.07	27.71	27.35
13.5000	27.04	26.74	26.45	26.15	25.86
13.6500	25.57	25.27	24.98	24.70	24.41
13.8000	24.12	23.83	23.54	23.25	22.96
13.9500	22.67	22.38	22.09	21.81	21.54
14.1000	21.28	21.04	20.81	20.61	20.42
14.2500	20.25	20.08	19.92	19.76	19.61
14.4000	19.46	19.32	19.18	19.03	18.89
14.5500	18.75	18.61	18.47	18.33	18.19
14.7000	18.05	17.91	17.77	17.63	17.49
14.8500	17.35	17.21	17.07	16.93	16.79
15.0000	16.65	16.51	16.37	16.23	16.08
15.1500	15.94	15.80	15.66	15.52	15.38
15.3000	15.23	15.09	14.95	14.81	14.67
15.4500	14.53	14.38	14.24	14.10	13.95
15.6000	13.81	13.67	13.53	13.38	13.24
15.7500	13.10	12.95	12.81	12.67	12.52
15.9000	12.38	12.23	12.09	11.94	11.80
16.0500	11.67	11.54	11.42	11.30	11.20
16.2000	11.10	11.01	10.93	10.85	10.78
16.3500	10.71	10.64	10.57	10.50	10.44
16.5000	10.37	10.31	10.25	10.19	10.12
16.6500	10.06	9.99	9.93	9.87	9.81
16.8000	9.75	9.68	9.62	9.55	9.50
16.9500	9.44	9.37	9.31	9.24	9.18
17.1000	9.12	9.06	9.00	8.93	8.87
17.2500	8.80	8.74	8.68	8.62	8.56
17.4000	8.49	8.42	8.36	8.30	8.24
17.5500	8.18	8.11	8.05	7.98	7.92
17.7000	7.86	7.80	7.74	7.67	7.60
17.8500	7.54	7.48	7.41	7.35	7.29
18.0000	7.22	7.16	7.10	7.04	6.99

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
18.1500	6.94	6.90	6.87	6.84	6.82
18.3000	6.79	6.76	6.74	6.72	6.70
18.4500	6.68	6.66	6.64	6.62	6.60
18.6000	6.58	6.56	6.55	6.53	6.51
18.7500	6.49	6.47	6.45	6.43	6.41
18.9000	6.39	6.37	6.35	6.34	6.32
19.0500	6.30	6.28	6.26	6.24	6.22
19.2000	6.20	6.19	6.17	6.15	6.13
19.3500	6.11	6.09	6.07	6.06	6.04
19.5000	6.02	6.00	5.98	5.96	5.94
19.6500	5.92	5.90	5.88	5.86	5.85
19.8000	5.83	5.81	5.79	5.77	5.75
19.9500	5.73	5.71	5.70	5.68	5.66
20.1000	5.64	5.62	5.60	5.59	5.58
20.2500	5.57	5.55	5.54	5.52	5.50
20.4000	5.49	5.47	5.46	5.44	5.43
20.5500	5.41	5.40	5.39	5.37	5.36
20.7000	5.34	5.32	5.31	5.29	5.28
20.8500	5.27	5.26	5.24	5.23	5.21
21.0000	5.20	5.19	5.18	5.17	5.15
21.1500	5.13	5.12	5.10	5.09	5.07
21.3000	5.06	5.04	5.03	5.02	5.00
21.4500	4.99	4.97	4.95	4.94	4.92
21.6000	4.91	4.90	4.89	4.87	4.86
21.7500	4.84	4.83	4.82	4.81	4.79
21.9000	4.78	4.76	4.75	4.73	4.71
22.0500	4.70	4.69	4.67	4.66	4.64
22.2000	4.63	4.62	4.60	4.58	4.57
22.3500	4.55	4.53	4.52	4.51	4.50
22.5000	4.48	4.47	4.45	4.44	4.43
22.6500	4.42	4.41	4.39	4.38	4.36
22.8000	4.34	4.33	4.31	4.30	4.28
22.9500	4.27	4.26	4.24	4.23	4.21
23.1000	4.19	4.18	4.16	4.15	4.14
23.2500	4.13	4.11	4.10	4.08	4.07
23.4000	4.05	4.04	4.03	4.02	4.00
23.5500	3.99	3.97	3.95	3.94	3.92
23.7000	3.91	3.90	3.88	3.87	3.86
23.8500	3.84	3.82	3.80	3.79	3.77
24.0000	3.75	3.67	3.44	3.01	2.48
24.1500	1.94	1.47	1.11	.84	.64
24.3000	.48	.36	.28	.21	.16
24.4500	.13	.10	.07	.06	.04
24.6000	.03	.03	.02	.02	.01
24.7500	.01	.01	.01	.00	.00

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs				
24.9000	.00	.00	.00	.00

SUMMARY FOR HYDROGRAPH ADDITION
at Node: DOWN ST. CONFLUE

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 40	DS CONFLUENCE		DS CONFLUENCE	100
STREAM REACH	PHIPPS RD OUTLET		PHIPPS RD OUTLET	100

INFLOWS TO: DOWN ST. CONFLUE

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	DS CONFLUENCE	100	11.198	12.2400	101.47
	PHIPPS RD OUTLET	100	37.227	12.1500	399.92

TOTAL FLOW INTO: DOWN ST. CONFLUE

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	DOWN ST. CONFLUE	100	48.425	12.1500	491.99

TOTAL NODE INFLOW...
HYG file =
HYG ID = DOWN ST. CONFLUE
HYG Tag = 100

Peak Discharge = 491.99 cfs
Time to Peak = 12.1500 hrs
HYG Volume = 48.425 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
.0000	.00	.00	.01	.03	.04
.1500	.06	.07	.07	.08	.08
.3000	.08	.08	.08	.08	.08
.4500	.08	.08	.08	.08	.08
.6000	.08	.08	.08	.08	.08
.7500	.08	.08	.08	.08	.08
.9000	.08	.08	.08	.08	.08
1.0500	.08	.08	.08	.08	.08
1.2000	.08	.08	.08	.08	.08
1.3500	.08	.08	.08	.08	.08
1.5000	.08	.08	.08	.08	.08
1.6500	.08	.09	.09	.09	.09
1.8000	.09	.09	.09	.09	.10
1.9500	.10	.10	.10	.10	.10
2.1000	.10	.11	.11	.11	.11
2.2500	.11	.12	.12	.12	.12
2.4000	.12	.13	.13	.13	.13
2.5500	.13	.14	.14	.14	.14
2.7000	.14	.15	.15	.15	.15
2.8500	.15	.16	.16	.16	.16
3.0000	.16	.17	.17	.17	.17
3.1500	.17	.18	.18	.18	.18
3.3000	.18	.19	.19	.19	.19
3.4500	.19	.20	.20	.20	.20
3.6000	.20	.21	.21	.21	.21
3.7500	.21	.22	.22	.22	.22
3.9000	.23	.23	.23	.23	.23
4.0500	.24	.24	.24	.24	.24
4.2000	.25	.25	.25	.25	.25
4.3500	.26	.26	.26	.26	.26
4.5000	.27	.27	.27	.28	.30

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.6500	.31	.33	.36	.38	.41
4.8000	.43	.46	.49	.51	.54
4.9500	.57	.60	.62	.65	.68
5.1000	.71	.74	.77	.80	.84
5.2500	.87	.90	.94	.98	1.01
5.4000	1.05	1.08	1.12	1.16	1.20
5.5500	1.24	1.28	1.31	1.35	1.39
5.7000	1.43	1.47	1.51	1.55	1.59
5.8500	1.63	1.67	1.71	1.75	1.79
6.0000	1.83	1.87	1.91	1.96	2.00
6.1500	2.05	2.10	2.15	2.20	2.26
6.3000	2.32	2.38	2.43	2.49	2.55
6.4500	2.61	2.68	2.74	2.81	2.87
6.6000	2.94	3.00	3.07	3.14	3.21
6.7500	3.28	3.35	3.42	3.49	3.56
6.9000	3.63	3.71	3.79	3.86	3.94
7.0500	4.01	4.09	4.17	4.25	4.33
7.2000	4.41	4.49	4.58	4.66	4.75
7.3500	4.83	4.92	5.00	5.09	5.17
7.5000	5.26	5.35	5.45	5.54	5.62
7.6500	5.71	5.81	5.90	6.00	6.09
7.8000	6.19	6.28	6.38	6.48	6.58
7.9500	6.67	6.77	6.87	6.97	7.08
8.1000	7.20	7.32	7.45	7.59	7.73
8.2500	7.88	8.04	8.20	8.36	8.53
8.4000	8.70	8.87	9.04	9.22	9.40
8.5500	9.59	9.77	9.96	10.14	10.33
8.7000	10.52	10.72	10.91	11.11	11.31
8.8500	11.51	11.71	11.92	12.12	12.33
9.0000	12.55	12.75	12.97	13.19	13.40
9.1500	13.62	13.85	14.07	14.29	14.51
9.3000	14.74	14.97	15.20	15.44	15.67
9.4500	15.90	16.14	16.38	16.62	16.86
9.6000	17.11	17.35	17.59	17.84	18.09
9.7500	18.34	18.59	18.85	19.10	19.35
9.9000	19.61	19.87	20.13	20.39	20.66
10.0500	20.93	21.22	21.53	21.86	22.21
10.2000	22.59	22.98	23.39	23.81	24.24
10.3500	24.68	25.13	25.59	26.04	26.51
10.5000	26.99	27.46	27.93	28.42	28.91
10.6500	29.39	29.89	30.39	30.88	31.39
10.8000	31.89	32.40	32.91	33.43	33.95
10.9500	34.47	34.99	35.53	36.11	36.79
11.1000	37.56	38.44	39.46	40.64	41.93
11.2500	43.29	44.79	46.34	47.91	49.56

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.4000	51.25	52.93	54.65	56.46	58.53
11.5500	61.35	65.36	70.54	77.12	85.81
11.7000	96.23	107.96	121.01	135.20	150.06
11.8500	165.47	181.98	200.06	223.99	259.41
12.0000	306.25	357.80	406.60	448.26	477.70
12.1500	491.99	486.77	464.30	433.50	399.59
12.3000	367.98	340.11	314.10	289.52	266.69
12.4500	245.11	223.87	203.41	184.26	166.24
12.6000	149.73	135.49	123.25	112.91	104.70
12.7500	97.96	92.20	87.59	83.61	80.00
12.9000	76.81	73.88	71.13	68.52	66.08
13.0500	63.80	61.70	59.78	58.07	56.60
13.2000	55.31	54.20	53.23	52.34	51.52
13.3500	50.79	50.09	49.42	48.79	48.17
13.5000	47.57	46.99	46.42	45.84	45.29
13.6500	44.74	44.18	43.63	43.09	42.54
13.8000	42.00	41.46	40.92	40.38	39.84
13.9500	39.31	38.77	38.24	37.72	37.22
14.1000	36.73	36.28	35.87	35.48	35.13
14.2500	34.80	34.48	34.18	33.89	33.61
14.4000	33.33	33.06	32.80	32.53	32.27
14.5500	32.02	31.78	31.53	31.30	31.05
14.7000	30.80	30.56	30.32	30.07	29.83
14.8500	29.60	29.35	29.10	28.86	28.62
15.0000	28.37	28.13	27.89	27.64	27.39
15.1500	27.15	26.90	26.66	26.42	26.18
15.3000	25.93	25.69	25.44	25.20	24.95
15.4500	24.71	24.47	24.22	23.97	23.73
15.6000	23.48	23.24	23.00	22.75	22.50
15.7500	22.26	22.01	21.76	21.52	21.27
15.9000	21.02	20.78	20.53	20.28	20.04
16.0500	19.81	19.59	19.38	19.19	19.01
16.2000	18.84	18.68	18.54	18.41	18.29
16.3500	18.17	18.05	17.93	17.82	17.70
16.5000	17.59	17.49	17.38	17.27	17.16
16.6500	17.05	16.94	16.83	16.73	16.63
16.8000	16.52	16.40	16.30	16.19	16.09
16.9500	15.98	15.88	15.76	15.65	15.54
17.1000	15.44	15.34	15.23	15.12	15.01
17.2500	14.90	14.79	14.69	14.59	14.48
17.4000	14.37	14.26	14.15	14.04	13.94
17.5500	13.84	13.73	13.62	13.50	13.40
17.7000	13.29	13.19	13.08	12.97	12.86
17.8500	12.75	12.64	12.54	12.44	12.33
18.0000	12.22	12.11	12.00	11.90	11.81

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
18.1500	11.74	11.67	11.62	11.57	11.52
18.3000	11.48	11.43	11.39	11.36	11.32
18.4500	11.29	11.26	11.22	11.18	11.15
18.6000	11.12	11.09	11.06	11.02	10.99
18.7500	10.96	10.92	10.89	10.86	10.83
18.9000	10.80	10.76	10.73	10.70	10.67
19.0500	10.64	10.61	10.57	10.54	10.50
19.2000	10.47	10.44	10.41	10.38	10.35
19.3500	10.31	10.28	10.25	10.22	10.19
19.5000	10.15	10.12	10.09	10.05	10.02
19.6500	9.99	9.96	9.93	9.89	9.86
19.8000	9.83	9.80	9.77	9.74	9.70
19.9500	9.67	9.63	9.60	9.57	9.54
20.1000	9.51	9.48	9.45	9.42	9.40
20.2500	9.38	9.36	9.33	9.30	9.27
20.4000	9.25	9.22	9.20	9.17	9.15
20.5500	9.13	9.10	9.08	9.06	9.03
20.7000	9.00	8.97	8.94	8.92	8.90
20.8500	8.88	8.86	8.83	8.80	8.78
21.0000	8.76	8.74	8.73	8.70	8.67
21.1500	8.65	8.62	8.59	8.57	8.54
21.3000	8.52	8.49	8.47	8.45	8.43
21.4500	8.40	8.37	8.34	8.31	8.28
21.6000	8.26	8.25	8.23	8.20	8.17
21.7500	8.15	8.13	8.11	8.09	8.07
21.9000	8.05	8.02	7.99	7.96	7.94
22.0500	7.91	7.89	7.86	7.84	7.82
22.2000	7.79	7.77	7.74	7.71	7.68
22.3500	7.65	7.63	7.61	7.59	7.57
22.5000	7.54	7.52	7.49	7.47	7.45
22.6500	7.44	7.41	7.39	7.36	7.33
22.8000	7.30	7.28	7.25	7.23	7.21
22.9500	7.18	7.16	7.14	7.11	7.09
23.1000	7.05	7.02	7.00	6.97	6.95
23.2500	6.94	6.91	6.89	6.86	6.84
23.4000	6.82	6.80	6.78	6.76	6.73
23.5500	6.70	6.67	6.65	6.62	6.60
23.7000	6.57	6.55	6.53	6.50	6.48
23.8500	6.45	6.43	6.39	6.36	6.34
24.0000	6.30	6.17	5.78	5.06	4.17
24.1500	3.27	2.48	1.87	1.42	1.08
24.3000	.82	.62	.47	.36	.27
24.4500	.21	.16	.13	.10	.08
24.6000	.06	.05	.04	.03	.02
24.7500	.02	.01	.01	.01	.01

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
24.9000	.00	.00	.00	.00	.00

SUMMARY FOR HYDROGRAPH ADDITION
at Node: EXIST WETLND 2

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 20	CONTROLLED TO W2		CONTROLLED TO W22	
; .	WETLAND 2 AREA		WETLAND 2 AREA 2	
ADDLINK 10	JUNC 30		JUNC 30	2

INFLOWS TO: EXIST WETLND 2

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	CONTROLLED TO W2	2	.177	12.1200	1.91
	WETLAND 2 AREA	2	.182	12.1200	1.72
	JUNC 30	2	10.329	12.1500	112.99

TOTAL FLOW INTO: EXIST WETLND 2

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	EXIST WETLND 2	2	10.688	12.1500	116.58

TOTAL NODE INFLOW...
HYG file =
HYG ID = EXIST WETLND 2
HYG Tag = 2

Peak Discharge	=	116.58 cfs
Time to Peak	=	12.1500 hrs
HYG Volume	=	10.688 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
.0000	.00	.00	.00	.01	.02
.1500	.02	.03	.03	.03	.03
.3000	.03	.04	.04	.04	.04
.4500	.04	.04	.04	.04	.04
.6000	.04	.04	.04	.04	.04
.7500	.04	.04	.04	.04	.04
.9000	.04	.04	.04	.04	.04
1.0500	.04	.04	.04	.04	.04
1.2000	.04	.04	.04	.04	.04
1.3500	.04	.04	.04	.04	.04
1.5000	.04	.04	.04	.04	.04
1.6500	.04	.04	.04	.04	.04
1.8000	.04	.04	.04	.04	.04
1.9500	.04	.04	.04	.04	.04
2.1000	.04	.04	.04	.04	.04
2.2500	.04	.04	.04	.04	.04
2.4000	.04	.04	.04	.04	.04
2.5500	.04	.04	.04	.04	.04
2.7000	.04	.04	.04	.04	.04
2.8500	.04	.04	.04	.04	.04
3.0000	.04	.04	.04	.04	.04
3.1500	.04	.04	.04	.04	.04
3.3000	.04	.04	.04	.04	.04
3.4500	.04	.04	.04	.04	.04
3.6000	.04	.04	.04	.04	.04
3.7500	.04	.04	.05	.05	.05
3.9000	.05	.05	.05	.05	.05
4.0500	.05	.05	.05	.05	.05
4.2000	.05	.05	.05	.05	.05
4.3500	.05	.05	.05	.05	.05
4.5000	.05	.05	.06	.06	.06

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.6500	.06	.06	.06	.06	.06
4.8000	.06	.06	.06	.06	.06
4.9500	.06	.06	.06	.06	.06
5.1000	.06	.06	.06	.06	.07
5.2500	.07	.07	.07	.07	.07
5.4000	.07	.07	.07	.07	.07
5.5500	.07	.07	.07	.07	.07
5.7000	.07	.07	.07	.07	.08
5.8500	.08	.08	.08	.08	.08
6.0000	.08	.08	.08	.08	.08
6.1500	.08	.08	.08	.08	.08
6.3000	.09	.09	.09	.09	.09
6.4500	.09	.09	.09	.09	.10
6.6000	.10	.10	.10	.10	.10
6.7500	.10	.10	.10	.11	.11
6.9000	.11	.11	.11	.11	.11
7.0500	.11	.12	.12	.12	.12
7.2000	.12	.12	.12	.12	.12
7.3500	.13	.13	.13	.13	.13
7.5000	.13	.13	.14	.14	.14
7.6500	.14	.14	.14	.14	.14
7.8000	.15	.15	.15	.15	.15
7.9500	.15	.15	.15	.16	.16
8.1000	.16	.16	.16	.17	.17
8.2500	.18	.20	.21	.23	.25
8.4000	.27	.29	.32	.34	.37
8.5500	.39	.42	.44	.47	.50
8.7000	.53	.56	.59	.62	.65
8.8500	.68	.71	.75	.78	.81
9.0000	.85	.89	.92	.96	1.00
9.1500	1.04	1.07	1.11	1.15	1.19
9.3000	1.24	1.28	1.32	1.36	1.41
9.4500	1.45	1.50	1.54	1.59	1.64
9.6000	1.69	1.73	1.78	1.83	1.88
9.7500	1.93	1.99	2.04	2.09	2.14
9.9000	2.20	2.25	2.31	2.36	2.42
10.0500	2.48	2.54	2.61	2.67	2.75
10.2000	2.82	2.90	2.98	3.07	3.15
10.3500	3.24	3.33	3.42	3.52	3.61
10.5000	3.71	3.81	3.90	4.01	4.11
10.6500	4.21	4.32	4.43	4.53	4.64
10.8000	4.76	4.87	4.98	5.10	5.22
10.9500	5.34	5.46	5.58	5.71	5.87
11.1000	6.04	6.23	6.46	6.71	6.98
11.2500	7.28	7.59	7.92	8.26	8.60

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.4000	8.97	9.33	9.70	10.10	10.55
11.5500	11.18	12.07	13.24	14.70	16.65
11.7000	19.02	21.67	24.63	27.91	31.35
11.8500	34.98	38.95	43.35	49.23	58.14
12.0000	70.18	83.38	95.80	106.28	113.59
12.1500	116.58	114.17	107.18	98.15	89.07
12.3000	81.06	74.45	68.61	63.14	58.13
12.4500	53.33	48.50	43.82	39.46	35.38
12.6000	31.71	28.63	26.09	24.08	22.56
12.7500	21.40	20.44	19.65	18.96	18.34
12.9000	17.75	17.21	16.69	16.17	15.67
13.0500	15.22	14.79	14.40	14.06	13.78
13.2000	13.54	13.34	13.16	13.00	12.86
13.3500	12.72	12.58	12.45	12.33	12.20
13.5000	12.07	11.95	11.82	11.69	11.57
13.6500	11.45	11.32	11.19	11.07	10.94
13.8000	10.81	10.68	10.56	10.42	10.30
13.9500	10.17	10.04	9.91	9.79	9.67
14.1000	9.55	9.45	9.35	9.27	9.19
14.2500	9.12	9.05	8.98	8.92	8.86
14.4000	8.79	8.73	8.67	8.61	8.55
14.5500	8.48	8.42	8.36	8.30	8.24
14.7000	8.17	8.11	8.05	7.99	7.93
14.8500	7.87	7.80	7.74	7.67	7.61
15.0000	7.55	7.49	7.42	7.36	7.29
15.1500	7.23	7.17	7.10	7.04	6.98
15.3000	6.91	6.85	6.78	6.72	6.66
15.4500	6.59	6.53	6.46	6.40	6.33
15.6000	6.27	6.20	6.14	6.07	6.01
15.7500	5.94	5.88	5.81	5.75	5.68
15.9000	5.62	5.55	5.49	5.42	5.36
16.0500	5.30	5.24	5.18	5.14	5.09
16.2000	5.05	5.01	4.97	4.94	4.91
16.3500	4.89	4.86	4.83	4.80	4.77
16.5000	4.74	4.71	4.69	4.66	4.63
16.6500	4.60	4.57	4.54	4.51	4.49
16.8000	4.46	4.43	4.40	4.37	4.34
16.9500	4.32	4.29	4.26	4.23	4.20
17.1000	4.17	4.14	4.12	4.09	4.06
17.2500	4.03	4.00	3.97	3.94	3.91
17.4000	3.88	3.85	3.82	3.80	3.77
17.5500	3.74	3.71	3.68	3.65	3.62
17.7000	3.59	3.57	3.54	3.51	3.48
17.8500	3.45	3.42	3.39	3.37	3.34
18.0000	3.31	3.28	3.25	3.22	3.20

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
18.1500	3.18	3.16	3.15	3.14	3.13
18.3000	3.12	3.11	3.10	3.09	3.08
18.4500	3.07	3.07	3.06	3.05	3.04
18.6000	3.03	3.02	3.01	3.01	3.00
18.7500	2.99	2.98	2.97	2.96	2.96
18.9000	2.95	2.94	2.93	2.92	2.91
19.0500	2.90	2.90	2.89	2.88	2.87
19.2000	2.86	2.85	2.84	2.83	2.83
19.3500	2.82	2.81	2.80	2.79	2.78
19.5000	2.77	2.77	2.76	2.75	2.74
19.6500	2.73	2.72	2.71	2.70	2.70
19.8000	2.69	2.68	2.67	2.66	2.65
19.9500	2.64	2.64	2.63	2.62	2.61
20.1000	2.60	2.59	2.59	2.58	2.57
20.2500	2.57	2.56	2.56	2.55	2.54
20.4000	2.53	2.53	2.52	2.51	2.51
20.5500	2.50	2.50	2.49	2.48	2.48
20.7000	2.47	2.46	2.45	2.44	2.44
20.8500	2.44	2.43	2.42	2.41	2.41
21.0000	2.40	2.40	2.40	2.39	2.38
21.1500	2.37	2.36	2.36	2.35	2.34
21.3000	2.34	2.33	2.33	2.32	2.31
21.4500	2.31	2.30	2.29	2.28	2.27
21.6000	2.27	2.27	2.26	2.25	2.25
21.7500	2.24	2.23	2.23	2.22	2.22
21.9000	2.21	2.20	2.20	2.19	2.18
22.0500	2.17	2.17	2.16	2.16	2.15
22.2000	2.14	2.14	2.13	2.12	2.11
22.3500	2.10	2.10	2.09	2.09	2.08
22.5000	2.08	2.07	2.06	2.06	2.05
22.6500	2.05	2.04	2.03	2.03	2.02
22.8000	2.01	2.00	2.00	1.99	1.98
22.9500	1.98	1.97	1.96	1.96	1.95
23.1000	1.94	1.93	1.93	1.92	1.92
23.2500	1.91	1.90	1.90	1.89	1.88
23.4000	1.88	1.87	1.87	1.86	1.85
23.5500	1.85	1.84	1.83	1.82	1.82
23.7000	1.81	1.80	1.80	1.79	1.79
23.8500	1.78	1.77	1.76	1.75	1.75
24.0000	1.74	1.69	1.57	1.33	1.04
24.1500	.76	.52	.35	.24	.16
24.3000	.11	.07	.05	.03	.02
24.4500	.01	.01	.01	.00	.00
24.6000	.00				

SUMMARY FOR HYDROGRAPH ADDITION
at Node: EXIST WETLND 2

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 20	CONTROLLED TO W2		CONTROLLED TO W2	10
;-	WETLAND 2 AREA		WETLAND 2 AREA	10
ADDLINK 10	JUNC 30		JUNC 30	10

INFLOWS TO: EXIST WETLND 2

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	CONTROLLED TO W2	10	.284	12.1200	3.00
	WETLAND 2 AREA	10	.271	12.1200	2.56
	JUNC 30	10	18.846	12.1500	201.80

TOTAL FLOW INTO: EXIST WETLND 2

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	EXIST WETLND 2	10	19.400	12.1500	207.27

TOTAL NODE INFLOW...
HYG file =
HYG ID = EXIST WETLND 2
HYG Tag = 10

Peak Discharge = 207.27 cfs
Time to Peak = 12.1500 hrs
HYG Volume = 19.400 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
.0000	.00	.00	.01	.02	.03
.1500	.04	.04	.05	.05	.05
.3000	.05	.05	.05	.05	.05
.4500	.05	.05	.05	.05	.05
.6000	.05	.05	.05	.05	.05
.7500	.05	.05	.05	.05	.05
.9000	.05	.05	.05	.05	.05
1.0500	.05	.05	.05	.05	.05
1.2000	.05	.05	.05	.05	.05
1.3500	.05	.05	.05	.05	.05
1.5000	.05	.05	.05	.05	.05
1.6500	.05	.05	.05	.05	.05
1.8000	.05	.05	.05	.05	.05
1.9500	.05	.05	.05	.05	.05
2.1000	.05	.05	.05	.05	.05
2.2500	.05	.05	.05	.05	.06
2.4000	.06	.06	.06	.06	.06
2.5500	.06	.06	.06	.06	.06
2.7000	.06	.06	.06	.06	.06
2.8500	.06	.06	.06	.06	.06
3.0000	.06	.06	.06	.07	.07
3.1500	.07	.07	.07	.07	.07
3.3000	.07	.07	.07	.07	.07
3.4500	.07	.07	.08	.08	.08
3.6000	.08	.08	.08	.08	.08
3.7500	.08	.08	.08	.08	.08
3.9000	.09	.09	.09	.09	.09
4.0500	.09	.09	.09	.09	.09
4.2000	.09	.09	.09	.09	.10
4.3500	.10	.10	.10	.10	.10
4.5000	.10	.10	.10	.10	.10

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.6500	.10	.10	.11	.11	.11
4.8000	.11	.11	.11	.11	.11
4.9500	.11	.11	.11	.11	.11
5.1000	.12	.12	.12	.12	.12
5.2500	.12	.12	.12	.12	.12
5.4000	.12	.12	.12	.13	.13
5.5500	.13	.13	.13	.13	.13
5.7000	.13	.13	.13	.13	.13
5.8500	.14	.14	.14	.14	.14
6.0000	.14	.14	.14	.14	.14
6.1500	.14	.15	.15	.15	.15
6.3000	.15	.15	.16	.16	.16
6.4500	.16	.17	.17	.18	.19
6.6000	.21	.22	.24	.26	.28
6.7500	.30	.32	.34	.36	.39
6.9000	.41	.43	.45	.48	.50
7.0500	.53	.55	.58	.60	.63
7.2000	.65	.68	.71	.73	.76
7.3500	.79	.82	.85	.87	.90
7.5000	.93	.96	.99	1.03	1.06
7.6500	1.09	1.12	1.15	1.18	1.22
7.8000	1.25	1.28	1.32	1.35	1.39
7.9500	1.42	1.46	1.49	1.53	1.56
8.1000	1.60	1.65	1.69	1.74	1.79
8.2500	1.84	1.89	1.94	2.00	2.05
8.4000	2.11	2.17	2.23	2.29	2.35
8.5500	2.41	2.47	2.54	2.60	2.67
8.7000	2.73	2.80	2.87	2.94	3.01
8.8500	3.08	3.15	3.23	3.30	3.38
9.0000	3.45	3.53	3.61	3.69	3.77
9.1500	3.85	3.93	4.01	4.10	4.18
9.3000	4.27	4.35	4.44	4.53	4.62
9.4500	4.71	4.80	4.89	4.98	5.08
9.6000	5.17	5.27	5.36	5.46	5.56
9.7500	5.66	5.76	5.86	5.96	6.06
9.9000	6.16	6.27	6.37	6.48	6.59
10.0500	6.70	6.81	6.94	7.07	7.21
10.2000	7.36	7.52	7.68	7.85	8.02
10.3500	8.19	8.37	8.55	8.73	8.92
10.5000	9.11	9.29	9.48	9.68	9.87
10.6500	10.07	10.27	10.47	10.67	10.88
10.8000	11.09	11.29	11.50	11.72	11.93
10.9500	12.14	12.36	12.59	12.83	13.11
11.1000	13.44	13.81	14.24	14.73	15.27
11.2500	15.83	16.45	17.09	17.73	18.40

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.4000	19.08	19.77	20.47	21.21	22.06
11.5500	23.26	24.98	27.24	30.08	33.86
11.7000	38.43	43.49	49.11	55.25	61.60
11.8500	68.20	75.34	83.15	93.55	109.30
12.0000	130.52	153.51	174.67	192.01	203.45
12.1500	207.27	203.21	191.04	175.23	159.39
12.3000	145.59	134.04	123.74	113.99	105.00
12.4500	96.37	87.69	79.25	71.35	63.94
12.6000	57.43	51.91	47.32	43.62	40.77
12.7500	38.55	36.69	35.12	33.76	32.51
12.9000	31.34	30.26	29.22	28.20	27.23
13.0500	26.34	25.49	24.73	24.06	23.48
13.2000	22.99	22.57	22.20	21.85	21.54
13.3500	21.25	20.96	20.69	20.43	20.17
13.5000	19.95	19.74	19.53	19.31	19.10
13.6500	18.89	18.67	18.45	18.24	18.03
13.8000	17.81	17.60	17.38	17.16	16.95
13.9500	16.73	16.51	16.30	16.09	15.89
14.1000	15.69	15.52	15.36	15.22	15.09
14.2500	14.97	14.85	14.74	14.63	14.52
14.4000	14.41	14.31	14.21	14.10	14.00
14.5500	13.89	13.79	13.69	13.59	13.48
14.7000	13.37	13.27	13.17	13.06	12.96
14.8500	12.86	12.75	12.64	12.54	12.43
15.0000	12.33	12.22	12.12	12.01	11.90
15.1500	11.80	11.69	11.59	11.48	11.38
15.3000	11.27	11.16	11.06	10.95	10.85
15.4500	10.74	10.63	10.53	10.42	10.31
15.6000	10.21	10.10	10.00	9.89	9.78
15.7500	9.67	9.56	9.46	9.35	9.24
15.9000	9.13	9.03	8.92	8.81	8.71
16.0500	8.61	8.51	8.43	8.34	8.27
16.2000	8.20	8.14	8.08	8.03	7.98
16.3500	7.93	7.88	7.83	7.78	7.74
16.5000	7.69	7.65	7.60	7.55	7.50
16.6500	7.46	7.41	7.36	7.32	7.27
16.8000	7.23	7.18	7.13	7.08	7.04
16.9500	6.99	6.95	6.90	6.85	6.80
17.1000	6.76	6.71	6.67	6.62	6.57
17.2500	6.52	6.47	6.43	6.38	6.34
17.4000	6.29	6.24	6.19	6.14	6.10
17.5500	6.05	6.01	5.96	5.91	5.86
17.7000	5.81	5.77	5.73	5.68	5.63
17.8500	5.58	5.53	5.49	5.44	5.39
18.0000	5.34	5.29	5.25	5.21	5.17

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
18.1500	5.14	5.11	5.09	5.07	5.06
18.3000	5.04	5.02	5.01	4.99	4.98
18.4500	4.97	4.95	4.94	4.92	4.91
18.6000	4.89	4.88	4.87	4.85	4.84
18.7500	4.82	4.81	4.80	4.78	4.77
18.9000	4.75	4.74	4.72	4.71	4.70
19.0500	4.69	4.67	4.66	4.64	4.63
19.2000	4.61	4.60	4.59	4.57	4.56
19.3500	4.54	4.53	4.51	4.50	4.49
19.5000	4.47	4.46	4.44	4.43	4.42
19.6500	4.40	4.39	4.37	4.36	4.34
19.8000	4.33	4.32	4.31	4.29	4.27
19.9500	4.26	4.25	4.23	4.22	4.21
20.1000	4.19	4.18	4.16	4.15	4.15
20.2500	4.14	4.13	4.12	4.10	4.09
20.4000	4.08	4.07	4.06	4.05	4.04
20.5500	4.03	4.02	4.01	4.00	3.98
20.7000	3.97	3.96	3.94	3.93	3.93
20.8500	3.92	3.91	3.90	3.88	3.87
21.0000	3.87	3.86	3.85	3.84	3.83
21.1500	3.82	3.80	3.79	3.78	3.77
21.3000	3.76	3.75	3.74	3.73	3.72
21.4500	3.71	3.70	3.68	3.67	3.66
21.6000	3.65	3.64	3.63	3.62	3.61
21.7500	3.60	3.59	3.58	3.57	3.57
21.9000	3.55	3.54	3.53	3.51	3.50
22.0500	3.49	3.48	3.47	3.46	3.45
22.2000	3.44	3.43	3.42	3.41	3.39
22.3500	3.38	3.37	3.36	3.35	3.34
22.5000	3.33	3.32	3.31	3.30	3.29
22.6500	3.29	3.28	3.26	3.25	3.24
22.8000	3.23	3.21	3.20	3.19	3.18
22.9500	3.17	3.16	3.15	3.14	3.13
23.1000	3.12	3.10	3.09	3.08	3.07
23.2500	3.07	3.05	3.04	3.03	3.02
23.4000	3.01	3.01	3.00	2.99	2.97
23.5500	2.96	2.95	2.94	2.92	2.91
23.7000	2.90	2.89	2.88	2.87	2.86
23.8500	2.85	2.84	2.82	2.81	2.80
24.0000	2.78	2.72	2.51	2.14	1.67
24.1500	1.21	.83	.56	.38	.26
24.3000	.18	.12	.08	.05	.04
24.4500	.02	.02	.01	.01	.00
24.6000	.00				

SUMMARY FOR HYDROGRAPH ADDITION
at Node: EXIST WETLND 2

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 20	CONTROLLED TO W2		CONTROLLED TO W2	100
;	WETLAND 2 AREA		WETLAND 2 AREA	100
ADDLINK 10	JUNC 30		JUNC 30	100

INFLOWS TO: EXIST WETLND 2

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	CONTROLLED TO W2	100	.482	12.1200	4.94
	WETLAND 2 AREA	100	.432	12.1200	4.09
	JUNC 30	100	35.557	12.1500	383.46

TOTAL FLOW INTO: EXIST WETLND 2

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	EXIST WETLND 2	100	36.471	12.1500	392.35

TOTAL NODE INFLOW...
HYG file =
HYG ID = EXIST WETLND 2
HYG Tag = 100

Peak Discharge = 392.35 cfs
Time to Peak = 12.1500 hrs
HYG Volume = 36.471 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
.0000	.00	.00	.01	.03	.04
.1500	.06	.07	.07	.08	.08
.3000	.08	.08	.08	.08	.08
.4500	.08	.08	.08	.08	.08
.6000	.08	.08	.08	.08	.08
.7500	.08	.08	.08	.08	.08
.9000	.08	.08	.08	.08	.08
1.0500	.08	.08	.08	.08	.08
1.2000	.08	.08	.08	.08	.08
1.3500	.08	.08	.08	.08	.08
1.5000	.08	.08	.08	.08	.08
1.6500	.08	.08	.09	.09	.09
1.8000	.09	.09	.09	.09	.09
1.9500	.09	.09	.09	.09	.09
2.1000	.09	.10	.10	.10	.10
2.2500	.10	.10	.10	.10	.10
2.4000	.11	.11	.11	.11	.11
2.5500	.11	.11	.11	.12	.12
2.7000	.12	.12	.12	.12	.12
2.8500	.13	.13	.13	.13	.13
3.0000	.13	.13	.13	.14	.14
3.1500	.14	.14	.14	.14	.14
3.3000	.14	.15	.15	.15	.15
3.4500	.15	.15	.15	.16	.16
3.6000	.16	.16	.16	.16	.16
3.7500	.16	.17	.17	.17	.17
3.9000	.17	.17	.17	.18	.18
4.0500	.18	.18	.18	.18	.18
4.2000	.18	.19	.19	.19	.19
4.3500	.19	.19	.19	.19	.20
4.5000	.20	.20	.20	.21	.23

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.6500	.24	.26	.28	.31	.33
4.8000	.36	.38	.41	.44	.46
4.9500	.49	.52	.54	.57	.60
5.1000	.63	.66	.68	.71	.74
5.2500	.77	.80	.82	.85	.88
5.4000	.91	.94	.97	1.00	1.03
5.5500	1.06	1.09	1.12	1.14	1.17
5.7000	1.20	1.23	1.26	1.29	1.32
5.8500	1.35	1.38	1.42	1.45	1.48
6.0000	1.51	1.54	1.57	1.60	1.64
6.1500	1.68	1.72	1.76	1.80	1.84
6.3000	1.88	1.93	1.97	2.02	2.07
6.4500	2.11	2.16	2.21	2.26	2.31
6.6000	2.36	2.41	2.46	2.52	2.57
6.7500	2.62	2.68	2.73	2.79	2.84
6.9000	2.90	2.96	3.02	3.07	3.13
7.0500	3.19	3.25	3.31	3.37	3.43
7.2000	3.50	3.56	3.62	3.68	3.75
7.3500	3.81	3.88	3.94	4.01	4.08
7.5000	4.14	4.21	4.28	4.35	4.42
7.6500	4.49	4.56	4.63	4.70	4.78
7.8000	4.85	4.92	4.99	5.06	5.14
7.9500	5.22	5.29	5.37	5.44	5.52
8.1000	5.61	5.71	5.81	5.92	6.03
8.2500	6.15	6.27	6.40	6.52	6.65
8.4000	6.79	6.92	7.05	7.19	7.33
8.5500	7.47	7.61	7.75	7.89	8.03
8.7000	8.18	8.33	8.48	8.63	8.78
8.8500	8.93	9.09	9.24	9.40	9.56
9.0000	9.72	9.88	10.04	10.20	10.37
9.1500	10.54	10.70	10.87	11.04	11.21
9.3000	11.38	11.56	11.73	11.91	12.08
9.4500	12.26	12.44	12.62	12.80	12.98
9.6000	13.17	13.35	13.53	13.72	13.91
9.7500	14.10	14.29	14.48	14.67	14.86
9.9000	15.05	15.25	15.44	15.64	15.84
10.0500	16.04	16.27	16.51	16.76	17.03
10.2000	17.33	17.63	17.95	18.28	18.61
10.3500	18.95	19.30	19.64	19.99	20.35
10.5000	20.71	21.06	21.42	21.79	22.16
10.6500	22.53	22.90	23.28	23.65	24.03
10.8000	24.41	24.79	25.18	25.57	25.95
10.9500	26.34	26.74	27.14	27.58	28.11
11.1000	28.73	29.43	30.25	31.21	32.24
11.2500	33.33	34.53	35.75	36.98	38.26

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.4000	39.57	40.86	42.17	43.55	45.16
11.5500	47.44	50.77	55.14	60.64	67.96
11.7000	76.76	86.44	97.10	108.66	120.50
11.8500	132.64	145.64	159.73	178.89	208.70
12.0000	248.40	291.77	331.86	364.31	385.41
12.1500	392.35	382.24	357.54	326.41	295.22
12.3000	267.54	244.47	224.14	205.36	188.36
12.4500	172.25	156.30	140.93	126.66	113.34
12.6000	101.39	91.29	82.90	76.13	70.93
12.7500	66.88	63.51	60.83	58.55	56.46
12.9000	54.50	52.70	50.96	49.24	47.62
13.0500	46.11	44.69	43.40	42.27	41.29
13.2000	40.46	39.75	39.12	38.54	38.01
13.3500	37.52	37.03	36.57	36.13	35.68
13.5000	35.24	34.81	34.39	33.96	33.54
13.6500	33.13	32.71	32.29	31.88	31.47
13.8000	31.06	30.65	30.24	29.83	29.42
13.9500	29.02	28.61	28.20	27.81	27.43
14.1000	27.07	26.74	26.44	26.16	25.91
14.2500	25.68	25.45	25.23	25.02	24.82
14.4000	24.61	24.41	24.22	24.01	23.83
14.5500	23.65	23.46	23.28	23.11	22.93
14.7000	22.75	22.57	22.38	22.20	22.02
14.8500	21.85	21.66	21.48	21.30	21.12
15.0000	20.93	20.76	20.58	20.39	20.21
15.1500	20.03	19.84	19.66	19.49	19.31
15.3000	19.12	18.94	18.75	18.57	18.39
15.4500	18.21	18.03	17.84	17.66	17.48
15.6000	17.29	17.12	16.94	16.75	16.57
15.7500	16.38	16.20	16.01	15.84	15.65
15.9000	15.47	15.28	15.10	14.91	14.74
16.0500	14.57	14.41	14.26	14.12	13.99
16.2000	13.87	13.77	13.67	13.58	13.50
16.3500	13.42	13.33	13.24	13.16	13.08
16.5000	13.00	12.93	12.85	12.77	12.68
16.6500	12.60	12.52	12.44	12.37	12.29
16.8000	12.21	12.12	12.04	11.96	11.89
16.9500	11.81	11.73	11.65	11.57	11.48
17.1000	11.41	11.33	11.26	11.17	11.09
17.2500	11.01	10.92	10.85	10.77	10.69
17.4000	10.61	10.53	10.45	10.37	10.29
17.5500	10.22	10.13	10.05	9.97	9.88
17.7000	9.81	9.73	9.66	9.57	9.49
17.8500	9.41	9.32	9.25	9.17	9.09
18.0000	9.01	8.93	8.85	8.78	8.71

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
18.1500	8.66	8.62	8.58	8.55	8.52
18.3000	8.49	8.46	8.44	8.41	8.39
18.4500	8.37	8.34	8.32	8.29	8.27
18.6000	8.24	8.22	8.20	8.17	8.15
18.7500	8.12	8.10	8.08	8.05	8.03
18.9000	8.01	7.98	7.95	7.93	7.91
19.0500	7.89	7.86	7.84	7.81	7.79
19.2000	7.76	7.74	7.72	7.69	7.67
19.3500	7.64	7.62	7.60	7.58	7.55
19.5000	7.53	7.50	7.48	7.45	7.43
19.6500	7.41	7.38	7.36	7.33	7.31
19.8000	7.28	7.26	7.24	7.22	7.19
19.9500	7.16	7.14	7.12	7.10	7.07
20.1000	7.05	7.02	7.00	6.98	6.97
20.2500	6.96	6.94	6.92	6.90	6.88
20.4000	6.85	6.84	6.82	6.80	6.78
20.5500	6.77	6.75	6.73	6.72	6.69
20.7000	6.67	6.65	6.63	6.61	6.60
20.8500	6.59	6.57	6.55	6.53	6.51
21.0000	6.50	6.49	6.47	6.45	6.43
21.1500	6.41	6.39	6.37	6.35	6.33
21.3000	6.31	6.30	6.28	6.26	6.25
21.4500	6.23	6.21	6.18	6.16	6.14
21.6000	6.13	6.11	6.10	6.08	6.06
21.7500	6.04	6.02	6.01	6.00	5.99
21.9000	5.97	5.94	5.92	5.90	5.88
22.0500	5.86	5.84	5.83	5.81	5.79
22.2000	5.78	5.76	5.74	5.72	5.69
22.3500	5.67	5.65	5.64	5.63	5.61
22.5000	5.59	5.57	5.55	5.54	5.53
22.6500	5.51	5.50	5.48	5.45	5.43
22.8000	5.41	5.39	5.37	5.36	5.34
22.9500	5.32	5.31	5.29	5.27	5.25
23.1000	5.23	5.20	5.18	5.16	5.15
23.2500	5.14	5.12	5.10	5.08	5.06
23.4000	5.05	5.04	5.03	5.01	4.99
23.5500	4.96	4.94	4.92	4.90	4.88
23.7000	4.87	4.85	4.83	4.82	4.80
23.8500	4.78	4.76	4.73	4.71	4.69
24.0000	4.67	4.55	4.21	3.58	2.80
24.1500	2.03	1.39	.94	.64	.44
24.3000	.30	.20	.14	.09	.06
24.4500	.04	.03	.02	.01	.00
24.6000	.00	.00			

SUMMARY FOR HYDROGRAPH ADDITION
at Node: EXIST WETLND1

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
...	CONTROLLED TO W1		CONTROLLED TO W12	
.	WETLAND 1 AREA		WETLAND 1 AREA	2

INFLOWS TO: EXIST WETLND1

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	CONTROLLED TO W1	2	.182	12.1200	1.95
	WETLAND 1 AREA	2	.114	12.1200	1.08

TOTAL FLOW INTO: EXIST WETLND1

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	EXIST WETLND1	2	.296	12.1200	3.03

TOTAL NODE INFLOW...
HYG file =
HYG ID = EXIST WETLND1
HYG Tag = 2

Peak Discharge = 3.03 cfs
Time to Peak = 12.1200 hrs
HYG Volume = .296 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
.0300	.00	.00	.00	.01	.01
.1800	.01	.01	.01	.01	.01
.3300	.01	.01	.01	.01	.01
.4800	.01	.01	.01	.01	.01
.6300	.01	.01	.01	.01	.01
.7800	.01	.01	.01	.01	.01
.9300	.01	.01	.01	.01	.01
1.0800	.01	.01	.01	.01	.01
1.2300	.01	.01	.01	.01	.01
1.3800	.01	.01	.01	.01	.01
1.5300	.01	.01	.01	.01	.01
1.6800	.01	.01	.01	.01	.01
1.8300	.01	.01	.01	.01	.01
1.9800	.01	.01	.01	.01	.01
2.1300	.01	.01	.01	.01	.01
2.2800	.01	.01	.01	.01	.01
2.4300	.01	.01	.01	.01	.01
2.5800	.01	.01	.01	.01	.01
2.7300	.02	.02	.02	.02	.02
2.8800	.02	.02	.02	.02	.02
3.0300	.02	.02	.02	.02	.02
3.1800	.02	.02	.02	.02	.02
3.3300	.02	.02	.02	.02	.02
3.4800	.02	.02	.02	.02	.02
3.6300	.02	.02	.02	.02	.02
3.7800	.02	.02	.02	.02	.02
3.9300	.02	.02	.02	.02	.02
4.0800	.02	.02	.02	.02	.02
4.2300	.02	.02	.02	.02	.02
4.3800	.02	.02	.02	.02	.02
4.5300	.02	.02	.02	.02	.02

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.6800	.02	.02	.02	.02	.03
4.8300	.03	.03	.03	.03	.03
4.9800	.03	.03	.03	.03	.03
5.1300	.03	.03	.03	.03	.03
5.2800	.03	.03	.03	.03	.03
5.4300	.03	.03	.03	.03	.03
5.5800	.03	.03	.03	.03	.03
5.7300	.03	.03	.03	.03	.03
5.8800	.03	.03	.03	.03	.03
6.0300	.03	.03	.03	.04	.04
6.1800	.04	.04	.04	.04	.04
6.3300	.04	.04	.04	.04	.04
6.4800	.04	.04	.04	.04	.04
6.6300	.04	.04	.04	.04	.05
6.7800	.05	.05	.05	.05	.05
6.9300	.05	.05	.05	.05	.05
7.0800	.05	.05	.05	.05	.05
7.2300	.05	.05	.05	.06	.06
7.3800	.06	.06	.06	.06	.06
7.5300	.06	.06	.06	.06	.06
7.6800	.06	.06	.06	.06	.06
7.8300	.07	.07	.07	.07	.07
7.9800	.07	.07	.07	.07	.07
8.1300	.07	.07	.07	.08	.08
8.2800	.08	.08	.08	.08	.08
8.4300	.08	.08	.09	.09	.09
8.5800	.09	.09	.09	.09	.09
8.7300	.10	.10	.10	.10	.10
8.8800	.10	.10	.11	.11	.11
9.0300	.11	.11	.11	.11	.11
9.1800	.12	.12	.12	.12	.12
9.3300	.12	.12	.13	.13	.13
9.4800	.13	.13	.13	.13	.14
9.6300	.14	.14	.14	.14	.14
9.7800	.14	.15	.15	.15	.15
9.9300	.15	.15	.15	.16	.16
10.0800	.16	.16	.16	.17	.17
10.2300	.17	.17	.18	.18	.18
10.3800	.18	.19	.19	.19	.20
10.5300	.20	.20	.20	.21	.21
10.6800	.21	.22	.22	.22	.22
10.8300	.23	.23	.23	.24	.24
10.9800	.24	.24	.25	.25	.26
11.1300	.26	.27	.28	.29	.30
11.2800	.31	.32	.33	.34	.35

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.4300	.36	.37	.38	.40	.42
11.5800	.45	.49	.54	.61	.69
11.7300	.78	.87	.96	1.06	1.16
11.8800	1.26	1.38	1.54	1.81	2.15
12.0300	2.49	2.75	2.94	3.03	2.99
12.1800	2.80	2.52	2.23	1.98	1.79
12.3300	1.63	1.49	1.36	1.24	1.13
12.4800	1.01	.91	.81	.72	.64
12.6300	.58	.53	.49	.47	.45
12.7800	.43	.41	.40	.39	.38
12.9300	.37	.35	.34	.33	.32
13.0800	.31	.31	.30	.29	.29
13.2300	.28	.28	.28	.27	.27
13.3800	.27	.26	.26	.26	.26
13.5300	.25	.25	.25	.24	.24
13.6800	.24	.24	.23	.23	.23
13.8300	.22	.22	.22	.22	.21
13.9800	.21	.21	.20	.20	.20
14.1300	.20	.20	.19	.19	.19
14.2800	.19	.19	.19	.19	.18
14.4300	.18	.18	.18	.18	.18
14.5800	.18	.17	.17	.17	.17
14.7300	.17	.17	.17	.16	.16
14.8800	.16	.16	.16	.16	.16
15.0300	.15	.15	.15	.15	.15
15.1800	.15	.15	.15	.14	.14
15.3300	.14	.14	.14	.14	.14
15.4800	.13	.13	.13	.13	.13
15.6300	.13	.13	.12	.12	.12
15.7800	.12	.12	.12	.12	.11
15.9300	.11	.11	.11	.11	.11
16.0800	.11	.11	.11	.10	.10
16.2300	.10	.10	.10	.10	.10
16.3800	.10	.10	.10	.10	.10
16.5300	.10	.10	.10	.09	.09
16.6800	.09	.09	.09	.09	.09
16.8300	.09	.09	.09	.09	.09
16.9800	.09	.09	.09	.09	.08
17.1300	.08	.08	.08	.08	.08
17.2800	.08	.08	.08	.08	.08
17.4300	.08	.08	.08	.08	.08
17.5800	.08	.07	.07	.07	.07
17.7300	.07	.07	.07	.07	.07
17.8800	.07	.07	.07	.07	.07
18.0300	.07	.07	.07	.06	.06

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
18.1800	.06	.06	.06	.06	.06
18.3300	.06	.06	.06	.06	.06
18.4800	.06	.06	.06	.06	.06
18.6300	.06	.06	.06	.06	.06
18.7800	.06	.06	.06	.06	.06
18.9300	.06	.06	.06	.06	.06
19.0800	.06	.06	.06	.06	.06
19.2300	.06	.06	.06	.06	.06
19.3800	.06	.06	.06	.06	.06
19.5300	.06	.06	.06	.06	.06
19.6800	.06	.05	.05	.05	.05
19.8300	.05	.05	.05	.05	.05
19.9800	.05	.05	.05	.05	.05
20.1300	.05	.05	.05	.05	.05
20.2800	.05	.05	.05	.05	.05
20.4300	.05	.05	.05	.05	.05
20.5800	.05	.05	.05	.05	.05
20.7300	.05	.05	.05	.05	.05
20.8800	.05	.05	.05	.05	.05
21.0300	.05	.05	.05	.05	.05
21.1800	.05	.05	.05	.05	.05
21.3300	.05	.05	.05	.05	.05
21.4800	.05	.05	.05	.05	.05
21.6300	.05	.05	.05	.05	.04
21.7800	.04	.04	.04	.04	.04
21.9300	.04	.04	.04	.04	.04
22.0800	.04	.04	.04	.04	.04
22.2300	.04	.04	.04	.04	.04
22.3800	.04	.04	.04	.04	.04
22.5300	.04	.04	.04	.04	.04
22.6800	.04	.04	.04	.04	.04
22.8300	.04	.04	.04	.04	.04
22.9800	.04	.04	.04	.04	.04
23.1300	.04	.04	.04	.04	.04
23.2800	.04	.04	.04	.04	.04
23.4300	.04	.04	.04	.04	.04
23.5800	.04	.04	.04	.04	.04
23.7300	.04	.04	.04	.04	.04
23.8800	.04	.04	.03	.03	.03
24.0300	.03	.03	.02	.02	.01
24.1800	.01	.00	.00	.00	.00

SUMMARY FOR HYDROGRAPH ADDITION
at Node: EXIST WETLND1

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
...	CONTROLLED TO W1		CONTROLLED TO W1	10
,	WETLAND 1 AREA		WETLAND 1 AREA	10

INFLOWS TO: EXIST WETLND1

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	CONTROLLED TO W1	10	.289	12.1200	3.02
	WETLAND 1 AREA	10	.169	12.1200	1.60

TOTAL FLOW INTO: EXIST WETLND1

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	EXIST WETLND1	10	.458	12.1200	4.62

TOTAL NODE INFLOW...
HYG file =
HYG ID = EXIST WETLND1
HYG Tag = 10

Peak Discharge = 4.62 cfs
Time to Peak = 12.1200 hrs
HYG Volume = .458 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
.0300	.00	.00	.01	.01	.01
.1800	.02	.02	.02	.02	.02
.3300	.02	.02	.02	.02	.02
.4800	.02	.02	.02	.02	.02
.6300	.02	.02	.02	.02	.02
.7800	.02	.02	.02	.02	.02
.9300	.02	.02	.02	.02	.02
1.0800	.02	.02	.02	.02	.02
1.2300	.02	.02	.02	.02	.02
1.3800	.02	.02	.02	.02	.02
1.5300	.02	.02	.02	.02	.02
1.6800	.02	.02	.02	.02	.02
1.8300	.02	.02	.02	.02	.02
1.9800	.02	.02	.02	.02	.02
2.1300	.02	.02	.02	.02	.02
2.2800	.02	.02	.02	.02	.02
2.4300	.02	.02	.02	.02	.02
2.5800	.02	.02	.02	.02	.02
2.7300	.02	.02	.02	.02	.02
2.8800	.03	.03	.03	.03	.03
3.0300	.03	.03	.03	.03	.03
3.1800	.03	.03	.03	.03	.03
3.3300	.03	.03	.03	.03	.03
3.4800	.03	.03	.03	.03	.03
3.6300	.03	.03	.03	.03	.03
3.7800	.04	.04	.04	.04	.04
3.9300	.04	.04	.04	.04	.04
4.0800	.04	.04	.04	.04	.04
4.2300	.04	.04	.04	.04	.04
4.3800	.04	.04	.04	.04	.04
4.5300	.04	.04	.04	.05	.05

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.6800	.05	.05	.05	.05	.05
4.8300	.05	.05	.05	.05	.05
4.9800	.05	.05	.05	.05	.05
5.1300	.05	.05	.05	.05	.05
5.2800	.05	.05	.05	.05	.05
5.4300	.06	.06	.06	.06	.06
5.5800	.06	.06	.06	.06	.06
5.7300	.06	.06	.06	.06	.06
5.8800	.06	.06	.06	.06	.06
6.0300	.06	.06	.06	.06	.06
6.1800	.07	.07	.07	.07	.07
6.3300	.07	.07	.07	.07	.07
6.4800	.07	.07	.07	.08	.08
6.6300	.08	.08	.08	.08	.08
6.7800	.08	.08	.08	.08	.09
6.9300	.09	.09	.09	.09	.09
7.0800	.09	.09	.09	.09	.09
7.2300	.09	.10	.10	.10	.10
7.3800	.10	.10	.10	.10	.10
7.5300	.10	.11	.11	.11	.11
7.6800	.11	.11	.11	.11	.11
7.8300	.11	.11	.12	.12	.12
7.9800	.12	.12	.12	.12	.12
8.1300	.12	.13	.13	.13	.13
8.2800	.13	.13	.14	.14	.14
8.4300	.14	.14	.15	.15	.15
8.5800	.15	.15	.16	.16	.16
8.7300	.16	.16	.17	.17	.17
8.8800	.17	.17	.18	.18	.18
9.0300	.18	.18	.19	.19	.19
9.1800	.19	.20	.20	.20	.20
9.3300	.20	.21	.21	.21	.21
9.4800	.21	.22	.22	.22	.22
9.6300	.23	.23	.23	.23	.23
9.7800	.24	.24	.24	.24	.25
9.9300	.25	.25	.25	.25	.26
10.0800	.26	.26	.27	.27	.27
10.2300	.28	.28	.28	.29	.29
10.3800	.30	.30	.31	.31	.31
10.5300	.32	.32	.33	.33	.34
10.6800	.34	.35	.35	.35	.36
10.8300	.36	.37	.37	.38	.38
10.9800	.39	.39	.39	.40	.41
11.1300	.42	.43	.44	.46	.47
11.2800	.49	.50	.52	.54	.55

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.4300	.57	.58	.60	.62	.65
11.5800	.70	.77	.85	.95	1.08
11.7300	1.21	1.35	1.50	1.65	1.80
11.8800	1.96	2.13	2.38	2.79	3.31
12.0300	3.81	4.22	4.50	4.62	4.56
12.1800	4.26	3.83	3.39	3.01	2.71
12.3300	2.47	2.25	2.05	1.87	1.70
12.4800	1.53	1.37	1.22	1.09	.97
12.6300	.88	.80	.75	.71	.67
12.7800	.65	.63	.61	.59	.57
12.9300	.55	.53	.52	.50	.49
13.0800	.47	.46	.45	.44	.43
13.2300	.43	.42	.42	.41	.41
13.3800	.40	.40	.39	.39	.39
13.5300	.38	.38	.37	.37	.36
13.6800	.36	.36	.35	.35	.34
13.8300	.34	.33	.33	.33	.32
13.9800	.32	.31	.31	.30	.30
14.1300	.30	.29	.29	.29	.29
14.2800	.28	.28	.28	.28	.28
14.4300	.27	.27	.27	.27	.27
14.5800	.26	.26	.26	.26	.26
14.7300	.25	.25	.25	.25	.25
14.8800	.24	.24	.24	.24	.23
15.0300	.23	.23	.23	.23	.22
15.1800	.22	.22	.22	.22	.21
15.3300	.21	.21	.21	.21	.20
15.4800	.20	.20	.20	.20	.19
15.6300	.19	.19	.19	.19	.18
15.7800	.18	.18	.18	.17	.17
15.9300	.17	.17	.17	.16	.16
16.0800	.16	.16	.16	.16	.16
16.2300	.15	.15	.15	.15	.15
16.3800	.15	.15	.15	.15	.15
16.5300	.14	.14	.14	.14	.14
16.6800	.14	.14	.14	.14	.14
16.8300	.14	.13	.13	.13	.13
16.9800	.13	.13	.13	.13	.13
17.1300	.13	.13	.12	.12	.12
17.2800	.12	.12	.12	.12	.12
17.4300	.12	.12	.12	.11	.11
17.5800	.11	.11	.11	.11	.11
17.7300	.11	.11	.11	.11	.10
17.8800	.10	.10	.10	.10	.10
18.0300	.10	.10	.10	.10	.10

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
18.1800	.10	.10	.10	.10	.09
18.3300	.09	.09	.09	.09	.09
18.4800	.09	.09	.09	.09	.09
18.6300	.09	.09	.09	.09	.09
18.7800	.09	.09	.09	.09	.09
18.9300	.09	.09	.09	.09	.09
19.0800	.09	.09	.09	.09	.09
19.2300	.09	.09	.09	.09	.09
19.3800	.09	.08	.08	.08	.08
19.5300	.08	.08	.08	.08	.08
19.6800	.08	.08	.08	.08	.08
19.8300	.08	.08	.08	.08	.08
19.9800	.08	.08	.08	.08	.08
20.1300	.08	.08	.08	.08	.08
20.2800	.08	.08	.08	.08	.08
20.4300	.08	.08	.08	.08	.08
20.5800	.08	.08	.08	.07	.07
20.7300	.07	.07	.07	.07	.07
20.8800	.07	.07	.07	.07	.07
21.0300	.07	.07	.07	.07	.07
21.1800	.07	.07	.07	.07	.07
21.3300	.07	.07	.07	.07	.07
21.4800	.07	.07	.07	.07	.07
21.6300	.07	.07	.07	.07	.07
21.7800	.07	.07	.07	.07	.07
21.9300	.07	.07	.07	.07	.07
22.0800	.07	.07	.06	.06	.06
22.2300	.06	.06	.06	.06	.06
22.3800	.06	.06	.06	.06	.06
22.5300	.06	.06	.06	.06	.06
22.6800	.06	.06	.06	.06	.06
22.8300	.06	.06	.06	.06	.06
22.9800	.06	.06	.06	.06	.06
23.1300	.06	.06	.06	.06	.06
23.2800	.06	.06	.06	.06	.06
23.4300	.06	.06	.06	.06	.06
23.5800	.06	.05	.05	.05	.05
23.7300	.05	.05	.05	.05	.05
23.8800	.05	.05	.05	.05	.05
24.0300	.05	.04	.04	.03	.02
24.1800	.01	.01	.00	.00	.00
24.3300	.00				

SUMMARY FOR HYDROGRAPH ADDITION
at Node: EXIST WETLND1

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
...	CONTROLLED TO W1		CONTROLLED TO W1	100
'	WETLAND 1 AREA		WETLAND 1 AREA	100

INFLOWS TO: EXIST WETLND1

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	CONTROLLED TO W1	100	.487	12.1200	4.95
	WETLAND 1 AREA	100	.270	12.1200	2.55

TOTAL FLOW INTO: EXIST WETLND1

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	EXIST WETLND1	100	.757	12.1200	7.50

TOTAL NODE INFLOW...
HYG file =
HYG ID = EXIST WETLND1
HYG Tag = 100

Peak Discharge = 7.50 cfs
Time to Peak = 12.1200 hrs
HYG Volume = .757 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
.0000	.00	.00	.00	.01	.02
.1500	.02	.03	.03	.03	.03
.3000	.03	.03	.03	.03	.03
.4500	.03	.03	.03	.03	.03
.6000	.03	.03	.03	.03	.03
.7500	.03	.03	.03	.03	.03
.9000	.03	.03	.03	.03	.03
1.0500	.03	.03	.03	.03	.03
1.2000	.03	.03	.03	.03	.03
1.3500	.03	.03	.03	.03	.03
1.5000	.03	.03	.03	.03	.03
1.6500	.03	.03	.03	.03	.03
1.8000	.03	.04	.04	.04	.04
1.9500	.04	.04	.04	.04	.04
2.1000	.04	.04	.04	.04	.04
2.2500	.04	.04	.04	.04	.04
2.4000	.05	.05	.05	.05	.05
2.5500	.05	.05	.05	.05	.05
2.7000	.05	.05	.05	.05	.05
2.8500	.05	.05	.06	.06	.06
3.0000	.06	.06	.06	.06	.06
3.1500	.06	.06	.06	.06	.06
3.3000	.06	.06	.06	.07	.07
3.4500	.07	.07	.07	.07	.07
3.6000	.07	.07	.07	.07	.07
3.7500	.07	.07	.07	.07	.08
3.9000	.08	.08	.08	.08	.08
4.0500	.08	.08	.08	.08	.08
4.2000	.08	.08	.08	.08	.08
4.3500	.09	.09	.09	.09	.09
4.5000	.09	.09	.09	.09	.09

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.6500	.09	.09	.09	.09	.09
4.8000	.09	.10	.10	.10	.10
4.9500	.10	.10	.10	.10	.10
5.1000	.10	.10	.10	.10	.10
5.2500	.10	.10	.10	.11	.11
5.4000	.11	.11	.11	.11	.11
5.5500	.11	.11	.11	.11	.11
5.7000	.11	.11	.11	.11	.12
5.8500	.12	.12	.12	.12	.12
6.0000	.12	.12	.12	.12	.12
6.1500	.12	.12	.13	.13	.13
6.3000	.13	.13	.13	.13	.13
6.4500	.14	.14	.14	.14	.14
6.6000	.14	.14	.15	.15	.15
6.7500	.15	.15	.15	.15	.16
6.9000	.16	.16	.16	.16	.16
7.0500	.17	.17	.17	.17	.17
7.2000	.17	.17	.18	.18	.18
7.3500	.18	.18	.18	.18	.19
7.5000	.19	.19	.19	.19	.19
7.6500	.20	.20	.20	.20	.20
7.8000	.20	.20	.21	.21	.21
7.9500	.21	.21	.21	.22	.22
8.1000	.22	.22	.22	.23	.23
8.2500	.23	.24	.24	.24	.25
8.4000	.25	.25	.26	.26	.26
8.5500	.27	.27	.27	.28	.28
8.7000	.28	.29	.29	.29	.30
8.8500	.30	.30	.31	.31	.31
9.0000	.32	.32	.32	.33	.33
9.1500	.33	.34	.34	.34	.35
9.3000	.35	.35	.36	.36	.36
9.4500	.37	.37	.37	.38	.38
9.6000	.38	.39	.39	.40	.40
9.7500	.40	.41	.41	.41	.42
9.9000	.42	.42	.43	.43	.43
10.0500	.44	.44	.45	.45	.46
10.2000	.46	.47	.48	.48	.49
10.3500	.50	.50	.51	.52	.52
10.5000	.53	.54	.55	.55	.56
10.6500	.57	.57	.58	.59	.59
10.8000	.60	.61	.62	.62	.63
10.9500	.64	.64	.65	.66	.67
11.1000	.69	.70	.72	.74	.76
11.2500	.79	.81	.84	.86	.89

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.4000	.92	.94	.97	1.00	1.03
11.5500	1.08	1.17	1.27	1.40	1.57
11.7000	1.78	1.99	2.22	2.47	2.71
11.8500	2.95	3.21	3.48	3.89	4.56
12.0000	5.39	6.21	6.86	7.30	7.50
12.1500	7.38	6.91	6.20	5.48	4.86
12.3000	4.38	3.98	3.63	3.31	3.02
12.4500	2.75	2.47	2.20	1.97	1.75
12.6000	1.56	1.41	1.29	1.20	1.14
12.7500	1.09	1.04	1.01	.97	.94
12.9000	.91	.89	.86	.83	.81
13.0500	.78	.76	.74	.72	.71
13.2000	.70	.69	.68	.67	.66
13.3500	.66	.65	.64	.63	.63
13.5000	.62	.61	.61	.60	.59
13.6500	.59	.58	.57	.56	.56
13.8000	.55	.54	.54	.53	.52
13.9500	.52	.51	.50	.50	.49
14.1000	.48	.48	.47	.47	.46
14.2500	.46	.46	.45	.45	.45
14.4000	.44	.44	.44	.43	.43
14.5500	.43	.42	.42	.42	.41
14.7000	.41	.41	.40	.40	.40
14.8500	.39	.39	.39	.38	.38
15.0000	.38	.37	.37	.37	.36
15.1500	.36	.36	.35	.35	.35
15.3000	.34	.34	.34	.33	.33
15.4500	.33	.32	.32	.32	.31
15.6000	.31	.31	.30	.30	.30
15.7500	.29	.29	.29	.28	.28
15.9000	.28	.27	.27	.27	.26
16.0500	.26	.26	.26	.25	.25
16.2000	.25	.25	.25	.24	.24
16.3500	.24	.24	.24	.24	.24
16.5000	.23	.23	.23	.23	.23
16.6500	.23	.22	.22	.22	.22
16.8000	.22	.22	.22	.21	.21
16.9500	.21	.21	.21	.21	.21
17.1000	.20	.20	.20	.20	.20
17.2500	.20	.20	.19	.19	.19
17.4000	.19	.19	.19	.19	.18
17.5500	.18	.18	.18	.18	.18
17.7000	.18	.17	.17	.17	.17
17.8500	.17	.17	.17	.16	.16
18.0000	.16	.16	.16	.16	.16

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
18.1500	.16	.15	.15	.15	.15
18.3000	.15	.15	.15	.15	.15
18.4500	.15	.15	.15	.15	.15
18.6000	.15	.15	.15	.15	.15
18.7500	.15	.15	.15	.14	.14
18.9000	.14	.14	.14	.14	.14
19.0500	.14	.14	.14	.14	.14
19.2000	.14	.14	.14	.14	.14
19.3500	.14	.14	.14	.14	.14
19.5000	.13	.13	.13	.13	.13
19.6500	.13	.13	.13	.13	.13
19.8000	.13	.13	.13	.13	.13
19.9500	.13	.13	.13	.13	.13
20.1000	.13	.13	.13	.13	.13
20.2500	.12	.12	.12	.12	.12
20.4000	.12	.12	.12	.12	.12
20.5500	.12	.12	.12	.12	.12
20.7000	.12	.12	.12	.12	.12
20.8500	.12	.12	.12	.12	.12
21.0000	.12	.12	.12	.12	.12
21.1500	.11	.11	.11	.11	.11
21.3000	.11	.11	.11	.11	.11
21.4500	.11	.11	.11	.11	.11
21.6000	.11	.11	.11	.11	.11
21.7500	.11	.11	.11	.11	.11
21.9000	.11	.11	.11	.11	.11
22.0500	.10	.10	.10	.10	.10
22.2000	.10	.10	.10	.10	.10
22.3500	.10	.10	.10	.10	.10
22.5000	.10	.10	.10	.10	.10
22.6500	.10	.10	.10	.10	.10
22.8000	.10	.10	.10	.10	.10
22.9500	.10	.09	.09	.09	.09
23.1000	.09	.09	.09	.09	.09
23.2500	.09	.09	.09	.09	.09
23.4000	.09	.09	.09	.09	.09
23.5500	.09	.09	.09	.09	.09
23.7000	.09	.09	.09	.09	.09
23.8500	.09	.08	.08	.08	.08
24.0000	.08	.08	.07	.06	.04
24.1500	.03	.02	.01	.01	.00
24.3000	.00	.00	.00		

SUMMARY FOR HYDROGRAPH ADDITION
at Node: JUNC 10

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
SHEET FLOW	UNCONTROLLED 1		UNCONTROLLED 1	2

INFLOWS TO: JUNC 10

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	UNCONTROLLED 1	2	.346	12.1500	3.90

TOTAL FLOW INTO: JUNC 10

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	JUNC 10	2	.346	12.1500	3.90

TOTAL NODE INFLOW...
HYG file =
HYG ID = JUNC 10
HYG Tag = 2

Peak Discharge =	3.90	cfs
Time to Peak =	12.1500	hrs
HYG Volume =	.346	ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
7.9500	.00	.00	.00	.00	.00
8.1000	.00	.00	.00	.00	.01
8.2500	.01	.01	.01	.01	.01
8.4000	.01	.01	.01	.01	.01
8.5500	.01	.01	.02	.02	.02
8.7000	.02	.02	.02	.02	.02
8.8500	.02	.02	.03	.03	.03
9.0000	.03	.03	.03	.03	.03
9.1500	.04	.04	.04	.04	.04
9.3000	.04	.04	.05	.05	.05
9.4500	.05	.05	.05	.05	.06
9.6000	.06	.06	.06	.06	.06
9.7500	.07	.07	.07	.07	.07
9.9000	.07	.08	.08	.08	.08
10.0500	.08	.09	.09	.09	.09
10.2000	.10	.10	.10	.10	.11
10.3500	.11	.11	.12	.12	.12
10.5000	.13	.13	.13	.14	.14
10.6500	.14	.15	.15	.15	.16
10.8000	.16	.16	.17	.17	.18
10.9500	.18	.18	.19	.19	.20
11.1000	.20	.21	.22	.23	.24
11.2500	.25	.26	.27	.28	.29
11.4000	.30	.32	.33	.34	.36
11.5500	.38	.41	.46	.51	.58
11.7000	.67	.77	.87	.98	1.10
11.8500	1.23	1.36	1.51	1.73	2.08
12.0000	2.53	3.00	3.39	3.70	3.89
12.1500	3.90	3.71	3.38	3.03	2.72
12.3000	2.48	2.27	2.09	1.92	1.77
12.4500	1.62	1.46	1.31	1.17	1.05

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
12.6000	.94	.85	.78	.73	.69
12.7500	.66	.63	.61	.60	.58
12.9000	.56	.54	.53	.51	.50
13.0500	.48	.47	.46	.45	.44
13.2000	.43	.43	.42	.42	.41
13.3500	.41	.40	.40	.40	.39
13.5000	.39	.38	.38	.38	.37
13.6500	.37	.36	.36	.35	.35
13.8000	.35	.34	.34	.33	.33
13.9500	.33	.32	.32	.31	.31
14.1000	.31	.30	.30	.30	.29
14.2500	.29	.29	.29	.29	.28
14.4000	.28	.28	.28	.28	.27
14.5500	.27	.27	.27	.27	.26
14.7000	.26	.26	.26	.26	.25
14.8500	.25	.25	.25	.25	.24
15.0000	.24	.24	.24	.24	.23
15.1500	.23	.23	.23	.23	.22
15.3000	.22	.22	.22	.22	.21
15.4500	.21	.21	.21	.20	.20
15.6000	.20	.20	.20	.19	.19
15.7500	.19	.19	.19	.18	.18
15.9000	.18	.18	.18	.17	.17
16.0500	.17	.17	.17	.16	.16
16.2000	.16	.16	.16	.16	.16
16.3500	.16	.16	.15	.15	.15
16.5000	.15	.15	.15	.15	.15
16.6500	.15	.15	.15	.14	.14
16.8000	.14	.14	.14	.14	.14
16.9500	.14	.14	.14	.14	.13
17.1000	.13	.13	.13	.13	.13
17.2500	.13	.13	.13	.13	.13
17.4000	.12	.12	.12	.12	.12
17.5500	.12	.12	.12	.12	.12
17.7000	.12	.11	.11	.11	.11
17.8500	.11	.11	.11	.11	.11
18.0000	.11	.10	.10	.10	.10
18.1500	.10	.10	.10	.10	.10
18.3000	.10	.10	.10	.10	.10
18.4500	.10	.10	.10	.10	.10
18.6000	.10	.10	.10	.10	.10
18.7500	.10	.10	.10	.10	.10
18.9000	.09	.09	.09	.09	.09
19.0500	.09	.09	.09	.09	.09
19.2000	.09	.09	.09	.09	.09

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
19.3500	.09	.09	.09	.09	.09
19.5000	.09	.09	.09	.09	.09
19.6500	.09	.09	.09	.09	.09
19.8000	.09	.09	.09	.09	.09
19.9500	.08	.08	.08	.08	.08
20.1000	.08	.08	.08	.08	.08
20.2500	.08	.08	.08	.08	.08
20.4000	.08	.08	.08	.08	.08
20.5500	.08	.08	.08	.08	.08
20.7000	.08	.08	.08	.08	.08
20.8500	.08	.08	.08	.08	.08
21.0000	.08	.08	.08	.08	.08
21.1500	.08	.08	.08	.08	.08
21.3000	.08	.07	.07	.07	.07
21.4500	.07	.07	.07	.07	.07
21.6000	.07	.07	.07	.07	.07
21.7500	.07	.07	.07	.07	.07
21.9000	.07	.07	.07	.07	.07
22.0500	.07	.07	.07	.07	.07
22.2000	.07	.07	.07	.07	.07
22.3500	.07	.07	.07	.07	.07
22.5000	.07	.07	.07	.07	.07
22.6500	.07	.07	.07	.07	.06
22.8000	.06	.06	.06	.06	.06
22.9500	.06	.06	.06	.06	.06
23.1000	.06	.06	.06	.06	.06
23.2500	.06	.06	.06	.06	.06
23.4000	.06	.06	.06	.06	.06
23.5500	.06	.06	.06	.06	.06
23.7000	.06	.06	.06	.06	.06
23.8500	.06	.06	.06	.06	.06
24.0000	.06	.05	.05	.04	.03
24.1500	.02	.01	.01	.00	.00
24.3000	.00	.00	.00		

SUMMARY FOR HYDROGRAPH ADDITION
at Node: JUNC 10

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
SHEET FLOW	UNCONTROLLED 1		UNCONTROLLED 1	10

INFLOWS TO: JUNC 10

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	UNCONTROLLED 1	10	.617	12.1200	6.88

TOTAL FLOW INTO: JUNC 10

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	JUNC 10	10	.617	12.1200	6.88

TOTAL NODE INFLOW...
HYG file =
HYG ID = JUNC 10
HYG Tag = 10

Peak Discharge = 6.88 cfs
Time to Peak = 12.1200 hrs
HYG Volume = .617 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
6.2400	.00	.00	.00	.00	.00
6.3900	.00	.00	.00	.00	.01
6.5400	.01	.01	.01	.01	.01
6.6900	.01	.01	.01	.01	.01
6.8400	.01	.01	.01	.02	.02
6.9900	.02	.02	.02	.02	.02
7.1400	.02	.02	.02	.02	.02
7.2900	.03	.03	.03	.03	.03
7.4400	.03	.03	.03	.03	.03
7.5900	.04	.04	.04	.04	.04
7.7400	.04	.04	.04	.04	.04
7.8900	.05	.05	.05	.05	.05
8.0400	.05	.05	.05	.06	.06
8.1900	.06	.06	.06	.06	.07
8.3400	.07	.07	.07	.07	.08
8.4900	.08	.08	.08	.08	.09
8.6400	.09	.09	.09	.09	.10
8.7900	.10	.10	.10	.11	.11
8.9400	.11	.11	.12	.12	.12
9.0900	.12	.13	.13	.13	.13
9.2400	.14	.14	.14	.15	.15
9.3900	.15	.15	.16	.16	.16
9.5400	.17	.17	.17	.18	.18
9.6900	.18	.19	.19	.19	.20
9.8400	.20	.20	.21	.21	.21
9.9900	.22	.22	.22	.23	.23
10.1400	.24	.24	.25	.25	.26
10.2900	.26	.27	.27	.28	.29
10.4400	.29	.30	.30	.31	.32
10.5900	.32	.33	.34	.34	.35
10.7400	.35	.36	.37	.38	.38

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
10.8900	.39	.40	.40	.41	.42
11.0400	.43	.44	.45	.46	.48
11.1900	.49	.51	.53	.55	.57
11.3400	.59	.62	.64	.66	.68
11.4900	.71	.74	.78	.85	.93
11.6400	1.04	1.18	1.34	1.52	1.72
11.7900	1.93	2.14	2.36	2.60	2.87
11.9400	3.25	3.87	4.66	5.45	6.12
12.0900	6.61	6.88	6.86	6.48	5.86
12.2400	5.23	4.67	4.23	3.88	3.55
12.3900	3.26	2.98	2.72	2.45	2.20
12.5400	1.96	1.75	1.57	1.42	1.30
12.6900	1.21	1.15	1.10	1.05	1.02
12.8400	.99	.96	.93	.90	.87
12.9900	.85	.82	.80	.77	.75
13.1400	.74	.72	.71	.70	.69
13.2900	.69	.68	.67	.66	.66
13.4400	.65	.64	.64	.63	.62
13.5900	.62	.61	.60	.60	.59
13.7400	.58	.57	.57	.56	.55
13.8900	.55	.54	.53	.53	.52
14.0400	.51	.51	.50	.49	.49
14.1900	.49	.48	.48	.47	.47
14.3400	.47	.46	.46	.46	.45
14.4900	.45	.45	.44	.44	.44
14.6400	.43	.43	.43	.42	.42
14.7900	.42	.41	.41	.41	.40
14.9400	.40	.40	.39	.39	.39
15.0900	.38	.38	.38	.37	.37
15.2400	.37	.36	.36	.36	.35
15.3900	.35	.35	.34	.34	.34
15.5400	.33	.33	.33	.32	.32
15.6900	.31	.31	.31	.30	.30
15.8400	.30	.29	.29	.29	.28
15.9900	.28	.28	.27	.27	.27
16.1400	.27	.26	.26	.26	.26
16.2900	.26	.25	.25	.25	.25
16.4400	.25	.25	.25	.24	.24
16.5900	.24	.24	.24	.24	.24
16.7400	.23	.23	.23	.23	.23
16.8900	.23	.22	.22	.22	.22
17.0400	.22	.22	.22	.21	.21
17.1900	.21	.21	.21	.21	.21
17.3400	.20	.20	.20	.20	.20
17.4900	.20	.19	.19	.19	.19

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
17.6400	.19	.19	.19	.18	.18
17.7900	.18	.18	.18	.18	.17
17.9400	.17	.17	.17	.17	.17
18.0900	.17	.16	.16	.16	.16
18.2400	.16	.16	.16	.16	.16
18.3900	.16	.16	.16	.16	.16
18.5400	.16	.16	.16	.16	.16
18.6900	.16	.15	.15	.15	.15
18.8400	.15	.15	.15	.15	.15
18.9900	.15	.15	.15	.15	.15
19.1400	.15	.15	.15	.15	.15
19.2900	.15	.15	.15	.14	.14
19.4400	.14	.14	.14	.14	.14
19.5900	.14	.14	.14	.14	.14
19.7400	.14	.14	.14	.14	.14
19.8900	.14	.14	.14	.14	.14
20.0400	.14	.13	.13	.13	.13
20.1900	.13	.13	.13	.13	.13
20.3400	.13	.13	.13	.13	.13
20.4900	.13	.13	.13	.13	.13
20.6400	.13	.13	.13	.13	.13
20.7900	.13	.13	.13	.13	.12
20.9400	.12	.12	.12	.12	.12
21.0900	.12	.12	.12	.12	.12
21.2400	.12	.12	.12	.12	.12
21.3900	.12	.12	.12	.12	.12
21.5400	.12	.12	.12	.12	.12
21.6900	.12	.12	.12	.11	.11
21.8400	.11	.11	.11	.11	.11
21.9900	.11	.11	.11	.11	.11
22.1400	.11	.11	.11	.11	.11
22.2900	.11	.11	.11	.11	.11
22.4400	.11	.11	.11	.11	.11
22.5900	.11	.11	.11	.10	.10
22.7400	.10	.10	.10	.10	.10
22.8900	.10	.10	.10	.10	.10
23.0400	.10	.10	.10	.10	.10
23.1900	.10	.10	.10	.10	.10
23.3400	.10	.10	.10	.10	.10
23.4900	.10	.10	.09	.09	.09
23.6400	.09	.09	.09	.09	.09
23.7900	.09	.09	.09	.09	.09
23.9400	.09	.09	.09	.09	.08
24.0900	.06	.04	.03	.02	.01
24.2400	.01	.00	.00	.00	.00

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs	
24.3900	.00

SUMMARY FOR HYDROGRAPH ADDITION
at Node: JUNC 10

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
SHEET FLOW	UNCONTROLLED 1		UNCONTROLLED 1	100

INFLOWS TO: JUNC 10

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	UNCONTROLLED 1	100	1.140	12.1200	12.41

TOTAL FLOW INTO: JUNC 10

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	JUNC 10	100	1.140	12.1200	12.41

TOTAL NODE INFLOW...
HYG file =
HYG ID = JUNC 10
HYG Tag = 100

Peak Discharge	=	12.41 cfs
Time to Peak	=	12.1200 hrs
HYG Volume	=	1.140 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.3500	.00	.00	.00	.00	.00
4.5000	.00	.01	.01	.01	.01
4.6500	.01	.01	.01	.01	.01
4.8000	.01	.01	.01	.02	.02
4.9500	.02	.02	.02	.02	.02
5.1000	.02	.02	.02	.02	.03
5.2500	.03	.03	.03	.03	.03
5.4000	.03	.03	.03	.03	.04
5.5500	.04	.04	.04	.04	.04
5.7000	.04	.04	.04	.04	.05
5.8500	.05	.05	.05	.05	.05
6.0000	.05	.05	.05	.05	.06
6.1500	.06	.06	.06	.06	.06
6.3000	.06	.07	.07	.07	.07
6.4500	.07	.07	.07	.08	.08
6.6000	.08	.08	.08	.08	.09
6.7500	.09	.09	.09	.09	.10
6.9000	.10	.10	.10	.10	.11
7.0500	.11	.11	.11	.11	.12
7.2000	.12	.12	.12	.12	.13
7.3500	.13	.13	.13	.13	.14
7.5000	.14	.14	.14	.15	.15
7.6500	.15	.15	.15	.16	.16
7.8000	.16	.16	.17	.17	.17
7.9500	.17	.18	.18	.18	.18
8.1000	.19	.19	.19	.20	.20
8.2500	.21	.21	.21	.22	.22
8.4000	.23	.23	.24	.24	.24
8.5500	.25	.25	.26	.26	.27
8.7000	.27	.28	.28	.29	.29
8.8500	.30	.30	.31	.31	.32

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
9.0000	.32	.33	.33	.34	.34
9.1500	.35	.35	.36	.37	.37
9.3000	.38	.38	.39	.39	.40
9.4500	.41	.41	.42	.42	.43
9.6000	.44	.44	.45	.45	.46
9.7500	.47	.47	.48	.48	.49
9.9000	.50	.50	.51	.52	.52
10.0500	.53	.54	.54	.55	.56
10.2000	.57	.58	.59	.60	.61
10.3500	.63	.64	.65	.66	.67
10.5000	.68	.69	.71	.72	.73
10.6500	.74	.75	.77	.78	.79
10.8000	.80	.81	.83	.84	.85
10.9500	.86	.88	.89	.91	.92
11.1000	.95	.97	1.00	1.03	1.07
11.2500	1.10	1.14	1.19	1.23	1.27
11.4000	1.31	1.35	1.40	1.44	1.49
11.5500	1.58	1.71	1.87	2.07	2.34
11.7000	2.66	2.99	3.36	3.75	4.14
11.8500	4.55	4.98	5.45	6.13	7.24
12.0000	8.65	10.04	11.18	12.00	12.41
12.1500	12.29	11.56	10.42	9.26	8.23
12.3000	7.44	6.79	6.21	5.68	5.19
12.4500	4.73	4.25	3.80	3.40	3.03
12.6000	2.71	2.44	2.24	2.08	1.97
12.7500	1.89	1.81	1.75	1.69	1.64
12.9000	1.59	1.54	1.50	1.45	1.40
13.0500	1.36	1.32	1.29	1.26	1.24
13.2000	1.22	1.20	1.19	1.17	1.16
13.3500	1.15	1.13	1.12	1.11	1.10
13.5000	1.08	1.07	1.06	1.05	1.04
13.6500	1.03	1.01	1.00	.99	.98
13.8000	.97	.95	.94	.93	.92
13.9500	.91	.89	.88	.87	.86
14.1000	.85	.84	.83	.82	.82
14.2500	.81	.80	.80	.79	.79
14.4000	.78	.78	.77	.76	.76
14.5500	.75	.75	.74	.73	.73
14.7000	.72	.72	.71	.71	.70
14.8500	.69	.69	.68	.68	.67
15.0000	.67	.66	.65	.65	.64
15.1500	.64	.63	.62	.62	.61
15.3000	.61	.60	.60	.59	.58
15.4500	.58	.57	.57	.56	.55
15.6000	.55	.54	.54	.53	.53

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
15.7500	.52	.51	.51	.50	.50
15.9000	.49	.48	.48	.47	.47
16.0500	.46	.46	.45	.45	.44
16.2000	.44	.44	.43	.43	.43
16.3500	.43	.42	.42	.42	.42
16.5000	.41	.41	.41	.41	.40
16.6500	.40	.40	.40	.39	.39
16.8000	.39	.39	.38	.38	.38
16.9500	.38	.37	.37	.37	.37
17.1000	.36	.36	.36	.36	.35
17.2500	.35	.35	.34	.34	.34
17.4000	.34	.33	.33	.33	.33
17.5500	.32	.32	.32	.32	.31
17.7000	.31	.31	.31	.30	.30
17.8500	.30	.30	.29	.29	.29
18.0000	.29	.28	.28	.28	.28
18.1500	.28	.27	.27	.27	.27
18.3000	.27	.27	.27	.27	.27
18.4500	.27	.27	.27	.26	.26
18.6000	.26	.26	.26	.26	.26
18.7500	.26	.26	.26	.26	.26
18.9000	.26	.25	.25	.25	.25
19.0500	.25	.25	.25	.25	.25
19.2000	.25	.25	.25	.25	.24
19.3500	.24	.24	.24	.24	.24
19.5000	.24	.24	.24	.24	.24
19.6500	.24	.24	.23	.23	.23
19.8000	.23	.23	.23	.23	.23
19.9500	.23	.23	.23	.23	.23
20.1000	.22	.22	.22	.22	.22
20.2500	.22	.22	.22	.22	.22
20.4000	.22	.22	.22	.22	.22
20.5500	.22	.22	.21	.21	.21
20.7000	.21	.21	.21	.21	.21
20.8500	.21	.21	.21	.21	.21
21.0000	.21	.21	.21	.21	.21
21.1500	.20	.20	.20	.20	.20
21.3000	.20	.20	.20	.20	.20
21.4500	.20	.20	.20	.20	.20
21.6000	.20	.19	.19	.19	.19
21.7500	.19	.19	.19	.19	.19
21.9000	.19	.19	.19	.19	.19
22.0500	.19	.19	.19	.19	.18
22.2000	.18	.18	.18	.18	.18
22.3500	.18	.18	.18	.18	.18

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
22.5000	.18	.18	.18	.18	.18
22.6500	.18	.18	.17	.17	.17
22.8000	.17	.17	.17	.17	.17
22.9500	.17	.17	.17	.17	.17
23.1000	.17	.17	.16	.16	.16
23.2500	.16	.16	.16	.16	.16
23.4000	.16	.16	.16	.16	.16
23.5500	.16	.16	.16	.16	.16
23.7000	.16	.15	.15	.15	.15
23.8500	.15	.15	.15	.15	.15
24.0000	.15	.14	.13	.10	.07
24.1500	.05	.03	.02	.01	.01
24.3000	.01	.00	.00	.00	.00

SUMMARY FOR HYDROGRAPH ADDITION
at Node: JUNC 20

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
SHEET.FLOW	UN CONTROLLED 1		UN CONTROLLED 1	2

INFLOWS TO: JUNC 20

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	UN CONTROLLED 1	2	.000	12.0600	.01

TOTAL FLOW INTO: JUNC 20

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	JUNC 20	2	.000	12.0600	.01

TOTAL NODE INFLOW...
HYG file =
HYG ID = JUNC 20
HYG Tag = 2

Peak Discharge = .01 cfs
Time to Peak = 12.0600 hrs
HYG Volume = .000 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.6400	.00	.00	.00	.00	.00
11.7900	.00	.00	.00	.00	.00
11.9400	.00	.00	.01	.01	.01
12.0900	.01	.01	.01	.01	.01
12.2400	.01	.01	.01	.01	.00
12.3900	.00	.00	.00	.00	.00
12.5400	.00	.00	.00	.00	.00
12.6900	.00	.00	.00	.00	.00
12.8400	.00	.00	.00	.00	.00
12.9900	.00	.00	.00	.00	.00
13.1400	.00	.00	.00	.00	.00
13.2900	.00	.00	.00		

SUMMARY FOR HYDROGRAPH ADDITION
at Node: JUNC 20

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
SHEET.FLOW	UN CONTROLLED 1		UN CONTROLLED 1	10

INFLOWS TO: JUNC 20

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	UN CONTROLLED 1	10	.001	12.0600	.01

TOTAL FLOW INTO: JUNC 20

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	JUNC 20	10	.001	12.0600	.01

TOTAL NODE INFLOW...
HYG file =
HYG ID = JUNC 20
HYG Tag = 10

Peak Discharge = .01 cfs
Time to Peak = 12.0600 hrs
HYG Volume = .001 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.1600	.00	.00	.00	.00	.00
11.3100	.00	.00	.00	.00	.00
11.4600	.00	.00	.00	.00	.00
11.6100	.00	.00	.00	.00	.00
11.7600	.00	.00	.00	.01	.01
11.9100	.01	.01	.01	.01	.01
12.0600	.01	.02	.02	.02	.02
12.2100	.01	.01	.01	.01	.01
12.3600	.01	.01	.01	.01	.01
12.5100	.01	.00	.00	.00	.00
12.6600	.00	.00	.00	.00	.00
12.8100	.00	.00	.00	.00	.00
12.9600	.00	.00	.00	.00	.00
13.1100	.00	.00	.00	.00	.00
13.2600	.00	.00	.00	.00	.00
13.4100	.00	.00	.00	.00	.00
13.5600	.00	.00	.00	.00	.00
13.7100	.00	.00	.00	.00	.00
13.8600	.00	.00	.00	.00	.00
14.0100	.00	.00	.00	.00	.00
14.1600	.00	.00	.00	.00	.00
14.3100	.00	.00	.00	.00	.00
14.4600	.00	.00	.00	.00	.00
14.6100	.00	.00	.00	.00	.00
14.7600	.00	.00	.00	.00	.00
14.9100	.00	.00	.00	.00	.00
15.0600	.00	.00			

SUMMARY FOR HYDROGRAPH ADDITION
at Node: JUNC 20

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
SHEET.FLOW	UN CONTROLLED 1		UN CONTROLLED 1	100

INFLOWS TO: JUNC 20

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	UN CONTROLLED 1	100	.002	12.1200	.03

TOTAL FLOW INTO: JUNC 20

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	JUNC 20	100	.002	12.1200	.03

TOTAL NODE INFLOW...
HYG file =
HYG ID = JUNC 20
HYG Tag = 100

Peak Discharge = .03 cfs
Time to Peak = 12.1200 hrs
HYG Volume = .002 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
9.7800	.00	.00	.00	.00	.00
9.9300	.00	.00	.00	.00	.00
10.0800	.00	.00	.00	.00	.00
10.2300	.00	.00	.00	.00	.00
10.3800	.00	.00	.00	.00	.00
10.5300	.00	.00	.00	.00	.00
10.6800	.00	.00	.00	.00	.00
10.8300	.00	.00	.00	.00	.00
10.9800	.00	.00	.00	.00	.00
11.1300	.00	.00	.00	.00	.00
11.2800	.00	.00	.00	.00	.00
11.4300	.00	.00	.00	.00	.00
11.5800	.00	.00	.01	.01	.01
11.7300	.01	.01	.01	.01	.01
11.8800	.01	.01	.02	.02	.02
12.0300	.03	.03	.03	.03	.03
12.1800	.03	.03	.02	.02	.02
12.3300	.02	.02	.02	.01	.01
12.4800	.01	.01	.01	.01	.01
12.6300	.01	.01	.01	.01	.01
12.7800	.00	.00	.00	.00	.00
12.9300	.00	.00	.00	.00	.00
13.0800	.00	.00	.00	.00	.00
13.2300	.00	.00	.00	.00	.00
13.3800	.00	.00	.00	.00	.00
13.5300	.00	.00	.00	.00	.00
13.6800	.00	.00	.00	.00	.00
13.8300	.00	.00	.00	.00	.00
13.9800	.00	.00	.00	.00	.00
14.1300	.00	.00	.00	.00	.00
14.2800	.00	.00	.00	.00	.00

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
14.4300	.00	.00	.00	.00	.00
14.5800	.00	.00	.00	.00	.00
14.7300	.00	.00	.00	.00	.00
14.8800	.00	.00	.00	.00	.00
15.0300	.00	.00	.00	.00	.00
15.1800	.00	.00	.00	.00	.00
15.3300	.00	.00	.00	.00	.00
15.4800	.00	.00	.00	.00	.00
15.6300	.00	.00	.00	.00	.00
15.7800	.00	.00	.00	.00	.00
15.9300	.00	.00	.00	.00	.00
16.0800	.00	.00	.00	.00	.00
16.2300	.00	.00	.00	.00	.00
16.3800	.00	.00	.00	.00	.00
16.5300	.00	.00	.00	.00	.00
16.6800	.00	.00	.00	.00	.00
16.8300	.00	.00	.00	.00	.00
16.9800	.00	.00	.00		

SUMMARY FOR HYDROGRAPH ADDITION
at Node: JUNC 30

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 160	OFFSITE UPSTREAM		OFFSITE UPSTREAM2	
ADDLINK 50	JUNC 50		JUNC 50	2
...	EXIST WETLND1		EXIST WETLND1	2

INFLOWS TO: JUNC 30

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	OFFSITE UPSTREAM	2	10.033	12.1500	110.00
	JUNC 50	2	.000	.0300	.00
	EXIST WETLND1	2	.296	12.1200	3.03

TOTAL FLOW INTO: JUNC 30

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	JUNC 30	2	10.329	12.1500	112.99

TOTAL NODE INFLOW...
HYG file =
HYG ID = JUNC 30
HYG Tag = 2

Peak Discharge = 112.99 cfs
Time to Peak = 12.1500 hrs
HYG Volume = 10.329 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
.0300	.00	.00	.00	.01	.01
.1800	.01	.01	.01	.01	.01
.3300	.01	.01	.01	.01	.01
.4800	.01	.01	.01	.01	.01
.6300	.01	.01	.01	.01	.01
.7800	.01	.01	.01	.01	.01
.9300	.01	.01	.01	.01	.01
1.0800	.01	.01	.01	.01	.01
1.2300	.01	.01	.01	.01	.01
1.3800	.01	.01	.01	.01	.01
1.5300	.01	.01	.01	.01	.01
1.6800	.01	.01	.01	.01	.01
1.8300	.01	.01	.01	.01	.01
1.9800	.01	.01	.01	.01	.01
2.1300	.01	.01	.01	.01	.01
2.2800	.01	.01	.01	.01	.01
2.4300	.01	.01	.01	.01	.01
2.5800	.01	.01	.01	.01	.01
2.7300	.02	.02	.02	.02	.02
2.8800	.02	.02	.02	.02	.02
3.0300	.02	.02	.02	.02	.02
3.1800	.02	.02	.02	.02	.02
3.3300	.02	.02	.02	.02	.02
3.4800	.02	.02	.02	.02	.02
3.6300	.02	.02	.02	.02	.02
3.7800	.02	.02	.02	.02	.02
3.9300	.02	.02	.02	.02	.02
4.0800	.02	.02	.02	.02	.02
4.2300	.02	.02	.02	.02	.02
4.3800	.02	.02	.02	.02	.02
4.5300	.02	.02	.02	.02	.02

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.6800	.02	.02	.02	.02	.03
4.8300	.03	.03	.03	.03	.03
4.9800	.03	.03	.03	.03	.03
5.1300	.03	.03	.03	.03	.03
5.2800	.03	.03	.03	.03	.03
5.4300	.03	.03	.03	.03	.03
5.5800	.03	.03	.03	.03	.03
5.7300	.03	.03	.03	.03	.03
5.8800	.03	.03	.03	.03	.03
6.0300	.03	.03	.03	.04	.04
6.1800	.04	.04	.04	.04	.04
6.3300	.04	.04	.04	.04	.04
6.4800	.04	.04	.04	.04	.04
6.6300	.04	.04	.04	.04	.05
6.7800	.05	.05	.05	.05	.05
6.9300	.05	.05	.05	.05	.05
7.0800	.05	.05	.05	.05	.05
7.2300	.05	.05	.05	.06	.06
7.3800	.06	.06	.06	.06	.06
7.5300	.06	.06	.06	.06	.06
7.6800	.06	.06	.06	.06	.06
7.8300	.07	.07	.07	.07	.07
7.9800	.07	.07	.07	.07	.07
8.1300	.07	.07	.08	.08	.09
8.2800	.10	.12	.13	.15	.17
8.4300	.19	.21	.24	.26	.28
8.5800	.31	.33	.36	.38	.41
8.7300	.44	.47	.50	.53	.56
8.8800	.59	.62	.65	.69	.72
9.0300	.75	.79	.82	.86	.90
9.1800	.93	.97	1.01	1.05	1.09
9.3300	1.13	1.17	1.21	1.25	1.30
9.4800	1.34	1.39	1.43	1.48	1.52
9.6300	1.57	1.62	1.66	1.71	1.76
9.7800	1.81	1.86	1.91	1.97	2.02
9.9300	2.07	2.12	2.18	2.23	2.29
10.0800	2.35	2.41	2.48	2.55	2.62
10.2300	2.70	2.77	2.86	2.94	3.02
10.3800	3.11	3.20	3.29	3.38	3.47
10.5300	3.57	3.66	3.76	3.86	3.96
10.6800	4.06	4.17	4.27	4.38	4.49
10.8300	4.60	4.71	4.82	4.93	5.05
10.9800	5.17	5.29	5.42	5.56	5.73
11.1300	5.92	6.13	6.37	6.64	6.92
11.2800	7.22	7.54	7.86	8.20	8.55

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.4300	8.90	9.26	9.64	10.08	10.68
11.5800	11.53	12.65	14.05	15.92	18.19
11.7300	20.73	23.59	26.76	30.08	33.59
11.8800	37.43	41.69	47.38	55.97	67.59
12.0300	80.40	92.49	102.75	109.95	112.99
12.1800	110.80	104.16	95.46	86.69	78.91
12.3300	72.49	66.83	61.51	56.64	51.97
12.4800	47.28	42.73	38.49	34.51	30.93
12.6300	27.93	25.45	23.48	21.99	20.86
12.7800	19.92	19.15	18.48	17.87	17.30
12.9300	16.77	16.26	15.75	15.28	14.83
13.0800	14.41	14.03	13.71	13.43	13.19
13.2300	13.00	12.83	12.67	12.53	12.40
13.3800	12.26	12.14	12.01	11.89	11.76
13.5300	11.64	11.52	11.40	11.27	11.15
13.6800	11.03	10.91	10.78	10.66	10.54
13.8300	10.41	10.29	10.16	10.04	9.91
13.9800	9.79	9.66	9.54	9.42	9.31
14.1300	9.21	9.12	9.03	8.96	8.89
14.2800	8.82	8.76	8.69	8.63	8.57
14.4300	8.51	8.45	8.39	8.33	8.27
14.5800	8.21	8.15	8.09	8.03	7.97
14.7300	7.91	7.85	7.79	7.73	7.67
14.8800	7.61	7.54	7.48	7.42	7.36
15.0300	7.30	7.24	7.17	7.11	7.05
15.1800	6.99	6.93	6.87	6.80	6.74
15.3300	6.68	6.62	6.55	6.49	6.43
15.4800	6.37	6.30	6.24	6.18	6.11
15.6300	6.05	5.99	5.92	5.86	5.80
15.7800	5.73	5.67	5.61	5.54	5.48
15.9300	5.41	5.35	5.29	5.22	5.17
16.0800	5.11	5.06	5.01	4.97	4.92
16.2300	4.89	4.85	4.82	4.79	4.77
16.3800	4.74	4.71	4.68	4.65	4.62
16.5300	4.60	4.57	4.54	4.51	4.48
16.6800	4.46	4.43	4.40	4.38	4.35
16.8300	4.32	4.29	4.26	4.24	4.21
16.9800	4.18	4.15	4.12	4.10	4.07
17.1300	4.04	4.02	3.99	3.96	3.93
17.2800	3.90	3.87	3.85	3.82	3.79
17.4300	3.76	3.73	3.70	3.68	3.65
17.5800	3.62	3.59	3.56	3.53	3.51
17.7300	3.48	3.45	3.42	3.39	3.37
17.8800	3.34	3.31	3.28	3.26	3.23
18.0300	3.20	3.17	3.14	3.12	3.10

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
18.1800	3.09	3.07	3.06	3.05	3.04
18.3300	3.03	3.02	3.01	3.01	3.00
18.4800	2.99	2.98	2.97	2.96	2.96
18.6300	2.95	2.94	2.93	2.92	2.91
18.7800	2.91	2.90	2.89	2.88	2.87
18.9300	2.86	2.86	2.85	2.84	2.83
19.0800	2.82	2.82	2.81	2.80	2.79
19.2300	2.78	2.77	2.77	2.76	2.75
19.3800	2.74	2.73	2.72	2.72	2.71
19.5300	2.70	2.69	2.68	2.67	2.67
19.6800	2.66	2.65	2.64	2.63	2.62
19.8300	2.61	2.61	2.60	2.59	2.58
19.9800	2.57	2.56	2.56	2.55	2.54
20.1300	2.53	2.52	2.52	2.51	2.51
20.2800	2.50	2.49	2.49	2.48	2.47
20.4300	2.46	2.46	2.45	2.45	2.44
20.5800	2.43	2.43	2.42	2.42	2.41
20.7300	2.40	2.39	2.39	2.38	2.38
20.8800	2.37	2.36	2.36	2.35	2.35
21.0300	2.34	2.34	2.33	2.32	2.32
21.1800	2.31	2.30	2.29	2.29	2.28
21.3300	2.28	2.27	2.26	2.26	2.25
21.4800	2.24	2.23	2.23	2.22	2.21
21.6300	2.21	2.21	2.20	2.19	2.18
21.7800	2.18	2.17	2.17	2.17	2.16
21.9300	2.15	2.14	2.13	2.13	2.12
22.0800	2.12	2.11	2.10	2.10	2.09
22.2300	2.09	2.08	2.07	2.06	2.05
22.3800	2.05	2.04	2.04	2.03	2.03
22.5300	2.02	2.01	2.01	2.00	2.00
22.6800	1.99	1.98	1.98	1.97	1.96
22.8300	1.95	1.95	1.94	1.94	1.93
22.9800	1.92	1.92	1.91	1.90	1.89
23.1300	1.89	1.88	1.87	1.87	1.86
23.2800	1.86	1.85	1.84	1.84	1.83
23.4300	1.83	1.82	1.82	1.81	1.80
23.5800	1.79	1.79	1.78	1.77	1.77
23.7300	1.76	1.75	1.75	1.74	1.74
23.8800	1.73	1.72	1.71	1.70	1.69
24.0300	1.65	1.53	1.30	1.02	.74
24.1800	.51	.34	.23	.16	.11
24.3300	.07	.05	.03	.02	.01
24.4800	.01	.01	.00	.00	.00

SUMMARY FOR HYDROGRAPH ADDITION
at Node: JUNC 30

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 160	OFFSITE UPSTREAM		OFFSITE UPSTREAM	10
ADDLINK 50	JUNC 50		JUNC 50	10
...	EXIST WETLND1		EXIST WETLND1	10

INFLOWS TO: JUNC 30

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	OFFSITE UPSTREAM	10	18.115	12.1500	197.16
	JUNC 50	10	.272	12.3900	6.01
	EXIST WETLND1	10	.458	12.1200	4.62

TOTAL FLOW INTO: JUNC 30

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	JUNC 30	10	18.846	12.1500	201.80

TOTAL NODE INFLOW...
HYG file =
HYG ID = JUNC 30
HYG Tag = 10

Peak Discharge = 201.80 cfs
Time to Peak = 12.1500 hrs
HYG Volume = 18.846 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
.0300	.00	.00	.01	.01	.01
.1800	.02	.02	.02	.02	.02
.3300	.02	.02	.02	.02	.02
.4800	.02	.02	.02	.02	.02
.6300	.02	.02	.02	.02	.02
.7800	.02	.02	.02	.02	.02
.9300	.02	.02	.02	.02	.02
1.0800	.02	.02	.02	.02	.02
1.2300	.02	.02	.02	.02	.02
1.3800	.02	.02	.02	.02	.02
1.5300	.02	.02	.02	.02	.02
1.6800	.02	.02	.02	.02	.02
1.8300	.02	.02	.02	.02	.02
1.9800	.02	.02	.02	.02	.02
2.1300	.02	.02	.02	.02	.02
2.2800	.02	.02	.02	.02	.02
2.4300	.02	.02	.02	.02	.02
2.5800	.02	.02	.02	.02	.02
2.7300	.02	.02	.02	.02	.02
2.8800	.03	.03	.03	.03	.03
3.0300	.03	.03	.03	.03	.03
3.1800	.03	.03	.03	.03	.03
3.3300	.03	.03	.03	.03	.03
3.4800	.03	.03	.03	.03	.03
3.6300	.03	.03	.03	.03	.03
3.7800	.04	.04	.04	.04	.04
3.9300	.04	.04	.04	.04	.04
4.0800	.04	.04	.04	.04	.04
4.2300	.04	.04	.04	.04	.04
4.3800	.04	.04	.04	.04	.04
4.5300	.04	.04	.04	.05	.05

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.6800	.05	.05	.05	.05	.05
4.8300	.05	.05	.05	.05	.05
4.9800	.05	.05	.05	.05	.05
5.1300	.05	.05	.05	.05	.05
5.2800	.05	.05	.05	.05	.05
5.4300	.06	.06	.06	.06	.06
5.5800	.06	.06	.06	.06	.06
5.7300	.06	.06	.06	.06	.06
5.8800	.06	.06	.06	.06	.06
6.0300	.06	.06	.06	.06	.06
6.1800	.07	.07	.07	.07	.07
6.3300	.07	.07	.07	.07	.07
6.4800	.08	.08	.09	.10	.11
6.6300	.13	.15	.16	.18	.20
6.7800	.22	.24	.26	.28	.30
6.9300	.33	.35	.37	.39	.42
7.0800	.44	.46	.49	.51	.54
7.2300	.56	.59	.62	.64	.67
7.3800	.70	.72	.75	.78	.81
7.5300	.84	.87	.90	.93	.96
7.6800	.99	1.02	1.05	1.08	1.11
7.8300	1.15	1.18	1.21	1.24	1.28
7.9800	1.31	1.35	1.38	1.42	1.46
8.1300	1.50	1.54	1.58	1.63	1.68
8.2800	1.73	1.78	1.83	1.89	1.94
8.4300	2.00	2.05	2.11	2.17	2.23
8.5800	2.29	2.35	2.41	2.47	2.54
8.7300	2.60	2.67	2.74	2.81	2.87
8.8800	2.94	3.02	3.09	3.16	3.24
9.0300	3.31	3.38	3.46	3.54	3.62
9.1800	3.70	3.78	3.86	3.94	4.02
9.3300	4.11	4.19	4.28	4.37	4.45
9.4800	4.54	4.63	4.72	4.81	4.91
9.6300	5.00	5.09	5.19	5.28	5.38
9.7800	5.47	5.57	5.67	5.77	5.87
9.9300	5.97	6.07	6.18	6.28	6.39
10.0800	6.50	6.62	6.75	6.89	7.04
10.2300	7.19	7.35	7.51	7.67	7.84
10.3800	8.02	8.19	8.36	8.54	8.73
10.5300	8.91	9.09	9.29	9.47	9.66
10.6800	9.86	10.06	10.25	10.45	10.65
10.8300	10.86	11.06	11.27	11.48	11.69
10.9800	11.90	12.12	12.36	12.63	12.95
11.1300	13.31	13.72	14.20	14.72	15.26
11.2800	15.86	16.48	17.10	17.75	18.42

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.4300	19.09	19.77	20.49	21.32	22.47
11.5800	24.14	26.32	29.06	32.72	37.14
11.7300	42.04	47.48	53.44	59.62	66.04
11.8800	72.99	80.60	90.69	105.95	126.55
12.0300	148.93	169.60	186.61	197.89	201.80
12.1800	198.08	186.44	171.15	155.77	142.33
12.3300	131.07	121.03	111.52	102.75	94.32
12.4800	85.85	77.60	69.88	62.63	56.26
12.6300	50.86	46.36	42.72	39.92	37.73
12.7800	35.91	34.37	33.03	31.80	30.65
12.9300	29.59	28.58	27.58	26.63	25.75
13.0800	24.93	24.18	23.52	22.95	22.47
13.2300	22.05	21.69	21.35	21.04	20.76
13.3800	20.48	20.21	19.95	19.70	19.49
13.5300	19.28	19.07	18.86	18.65	18.45
13.6800	18.23	18.02	17.82	17.61	17.40
13.8300	17.19	16.98	16.76	16.55	16.35
13.9800	16.13	15.92	15.72	15.52	15.33
14.1300	15.16	15.01	14.87	14.74	14.62
14.2800	14.51	14.40	14.29	14.19	14.08
14.4300	13.98	13.88	13.78	13.67	13.57
14.5800	13.47	13.37	13.27	13.17	13.07
14.7300	12.97	12.86	12.76	12.66	12.56
14.8800	12.46	12.35	12.25	12.15	12.04
15.0300	11.94	11.84	11.74	11.63	11.53
15.1800	11.42	11.32	11.22	11.12	11.01
15.3300	10.91	10.80	10.70	10.60	10.50
15.4800	10.39	10.29	10.18	10.08	9.97
15.6300	9.87	9.77	9.66	9.56	9.45
15.7800	9.34	9.24	9.14	9.03	8.93
15.9300	8.82	8.72	8.61	8.51	8.41
16.0800	8.32	8.23	8.15	8.08	8.01
16.2300	7.95	7.90	7.84	7.80	7.75
16.3800	7.70	7.65	7.61	7.56	7.51
16.5300	7.47	7.43	7.38	7.33	7.29
16.6800	7.24	7.20	7.15	7.11	7.06
16.8300	7.01	6.97	6.92	6.88	6.84
16.9800	6.79	6.74	6.69	6.65	6.60
17.1300	6.56	6.52	6.47	6.42	6.37
17.2800	6.33	6.28	6.24	6.19	6.14
17.4300	6.10	6.05	6.00	5.96	5.92
17.5800	5.87	5.82	5.77	5.73	5.68
17.7300	5.64	5.60	5.55	5.50	5.45
17.8800	5.40	5.36	5.32	5.27	5.22
18.0300	5.18	5.13	5.09	5.05	5.02

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
18.1800	5.00	4.98	4.96	4.94	4.92
18.3300	4.91	4.89	4.88	4.87	4.85
18.4800	4.84	4.82	4.81	4.79	4.78
18.6300	4.77	4.76	4.74	4.73	4.71
18.7800	4.70	4.69	4.67	4.66	4.65
18.9300	4.63	4.62	4.60	4.59	4.58
19.0800	4.56	4.55	4.54	4.52	4.51
19.2300	4.50	4.48	4.47	4.45	4.44
19.3800	4.42	4.41	4.40	4.39	4.37
19.5300	4.36	4.34	4.33	4.32	4.30
19.6800	4.29	4.27	4.26	4.25	4.23
19.8300	4.22	4.21	4.19	4.18	4.16
19.9800	4.15	4.14	4.12	4.11	4.10
20.1300	4.08	4.07	4.06	4.05	4.05
20.2800	4.04	4.02	4.01	4.00	3.99
20.4300	3.97	3.96	3.95	3.94	3.94
20.5800	3.93	3.92	3.91	3.89	3.88
20.7300	3.87	3.85	3.85	3.84	3.83
20.8800	3.82	3.81	3.80	3.79	3.78
21.0300	3.77	3.77	3.76	3.74	3.73
21.1800	3.72	3.71	3.69	3.68	3.67
21.3300	3.66	3.66	3.65	3.64	3.63
21.4800	3.61	3.60	3.58	3.57	3.57
21.6300	3.56	3.55	3.54	3.53	3.52
21.7800	3.51	3.50	3.49	3.49	3.47
21.9300	3.46	3.45	3.44	3.42	3.41
22.0800	3.40	3.39	3.38	3.37	3.36
22.2300	3.35	3.34	3.33	3.32	3.30
22.3800	3.29	3.29	3.28	3.27	3.26
22.5300	3.25	3.23	3.23	3.22	3.21
22.6800	3.20	3.19	3.18	3.17	3.15
22.8300	3.14	3.13	3.12	3.11	3.10
22.9800	3.09	3.08	3.07	3.06	3.05
23.1300	3.03	3.02	3.01	3.00	3.00
23.2800	2.99	2.97	2.96	2.95	2.94
23.4300	2.94	2.93	2.92	2.91	2.89
23.5800	2.88	2.87	2.86	2.85	2.84
23.7300	2.83	2.82	2.81	2.80	2.79
23.8800	2.78	2.76	2.75	2.74	2.72
24.0300	2.66	2.46	2.09	1.64	1.19
24.1800	.82	.55	.38	.26	.18
24.3300	.12	.08	.05	.04	.02
24.4800	.02	.01	.01	.00	.00

SUMMARY FOR HYDROGRAPH ADDITION
at Node: JUNC 30

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 160	OFFSITE UPSTREAM		OFFSITE UPSTREAM	100
ADDLINK 50	JUNC 50		JUNC 50	100
...	EXIST WETLND1		EXIST WETLND1	100

INFLOWS TO: JUNC 30

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	OFFSITE UPSTREAM	100	33.818	12.1500	359.03
	JUNC 50	100	.983	12.2400	20.02
	EXIST WETLND1	100	.757	12.1200	7.50

TOTAL FLOW INTO: JUNC 30

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	JUNC 30	100	35.557	12.1500	383.46

TOTAL NODE INFLOW...
HYG file =
HYG ID = JUNC 30
HYG Tag = 100

Peak Discharge = 383.46 cfs
Time to Peak = 12.1500 hrs
HYG Volume = 35.557 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
.0000	.00	.00	.00	.01	.02
.1500	.02	.03	.03	.03	.03
.3000	.03	.03	.03	.03	.03
.4500	.03	.03	.03	.03	.03
.6000	.03	.03	.03	.03	.03
.7500	.03	.03	.03	.03	.03
.9000	.03	.03	.03	.03	.03
1.0500	.03	.03	.03	.03	.03
1.2000	.03	.03	.03	.03	.03
1.3500	.03	.03	.03	.03	.03
1.5000	.03	.03	.03	.03	.03
1.6500	.03	.03	.03	.03	.03
1.8000	.03	.04	.04	.04	.04
1.9500	.04	.04	.04	.04	.04
2.1000	.04	.04	.04	.04	.04
2.2500	.04	.04	.04	.04	.04
2.4000	.05	.05	.05	.05	.05
2.5500	.05	.05	.05	.05	.05
2.7000	.05	.05	.05	.05	.05
2.8500	.05	.05	.06	.06	.06
3.0000	.06	.06	.06	.06	.06
3.1500	.06	.06	.06	.06	.06
3.3000	.06	.06	.06	.07	.07
3.4500	.07	.07	.07	.07	.07
3.6000	.07	.07	.07	.07	.07
3.7500	.07	.07	.07	.07	.08
3.9000	.08	.08	.08	.08	.08
4.0500	.08	.08	.08	.08	.08
4.2000	.08	.08	.08	.08	.08
4.3500	.09	.09	.09	.09	.09
4.5000	.09	.09	.09	.10	.11

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.6500	.13	.15	.17	.19	.22
4.8000	.24	.27	.29	.32	.34
4.9500	.37	.40	.42	.45	.48
5.1000	.50	.53	.56	.59	.61
5.2500	.64	.67	.70	.73	.75
5.4000	.78	.81	.84	.87	.89
5.5500	.92	.95	.98	1.01	1.04
5.7000	1.07	1.10	1.13	1.16	1.19
5.8500	1.21	1.24	1.27	1.30	1.33
6.0000	1.36	1.39	1.43	1.46	1.49
6.1500	1.53	1.57	1.60	1.64	1.68
6.3000	1.73	1.77	1.82	1.86	1.90
6.4500	1.95	2.00	2.04	2.09	2.14
6.6000	2.19	2.24	2.29	2.34	2.39
6.7500	2.44	2.50	2.55	2.60	2.65
6.9000	2.71	2.77	2.82	2.88	2.93
7.0500	2.99	3.05	3.11	3.17	3.23
7.2000	3.29	3.35	3.41	3.47	3.53
7.3500	3.60	3.66	3.72	3.79	3.85
7.5000	3.92	3.99	4.05	4.12	4.19
7.6500	4.25	4.32	4.39	4.46	4.53
7.8000	4.60	4.67	4.74	4.81	4.89
7.9500	4.96	5.04	5.11	5.18	5.26
8.1000	5.35	5.44	5.54	5.65	5.75
8.2500	5.87	5.99	6.11	6.23	6.36
8.4000	6.49	6.61	6.74	6.88	7.01
8.5500	7.15	7.28	7.42	7.56	7.70
8.7000	7.84	7.99	8.13	8.28	8.42
8.8500	8.57	8.72	8.88	9.03	9.18
9.0000	9.34	9.49	9.65	9.81	9.97
9.1500	10.14	10.30	10.46	10.63	10.79
9.3000	10.96	11.13	11.30	11.48	11.65
9.4500	11.82	11.99	12.17	12.35	12.53
9.6000	12.71	12.88	13.06	13.25	13.43
9.7500	13.61	13.80	13.99	14.17	14.36
9.9000	14.55	14.74	14.93	15.12	15.32
10.0500	15.52	15.74	15.97	16.21	16.48
10.2000	16.77	17.07	17.38	17.70	18.03
10.3500	18.35	18.69	19.03	19.37	19.72
10.5000	20.07	20.42	20.77	21.13	21.49
10.6500	21.85	22.21	22.58	22.94	23.31
10.8000	23.69	24.06	24.44	24.82	25.20
10.9500	25.58	25.96	26.36	26.79	27.30
11.1000	27.90	28.58	29.38	30.32	31.32
11.2500	32.39	33.55	34.75	35.94	37.19

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.4000	38.46	39.73	41.01	42.36	43.92
11.5500	46.14	49.36	53.61	58.95	66.07
11.7000	74.62	84.04	94.43	105.69	117.24
11.8500	129.09	141.78	155.54	174.20	203.21
12.0000	241.91	284.30	323.60	355.52	376.39
12.1500	383.46	373.92	350.08	319.81	289.37
12.3000	262.27	239.68	219.76	201.37	184.72
12.4500	168.94	153.32	138.28	124.29	111.23
12.6000	99.51	89.59	81.34	74.68	69.56
12.7500	65.57	62.25	59.62	57.38	55.32
12.9000	53.40	51.63	49.93	48.24	46.65
13.0500	45.17	43.77	42.50	41.40	40.44
13.2000	39.62	38.92	38.31	37.74	37.22
13.3500	36.73	36.25	35.80	35.36	34.93
13.5000	34.49	34.07	33.66	33.24	32.83
13.6500	32.42	32.01	31.60	31.20	30.80
13.8000	30.39	30.00	29.60	29.19	28.79
13.9500	28.40	28.00	27.60	27.22	26.84
14.1000	26.49	26.17	25.87	25.60	25.35
14.2500	25.13	24.90	24.69	24.48	24.28
14.4000	24.08	23.88	23.69	23.49	23.31
14.5500	23.13	22.95	22.78	22.61	22.43
14.7000	22.25	22.07	21.90	21.72	21.55
14.8500	21.37	21.19	21.01	20.84	20.66
15.0000	20.48	20.31	20.13	19.95	19.77
15.1500	19.59	19.41	19.24	19.06	18.89
15.3000	18.70	18.53	18.35	18.17	17.99
15.4500	17.82	17.64	17.46	17.28	17.10
15.6000	16.92	16.75	16.57	16.39	16.21
15.7500	16.03	15.85	15.67	15.49	15.31
15.9000	15.13	14.95	14.77	14.59	14.42
16.0500	14.25	14.10	13.95	13.81	13.69
16.2000	13.57	13.47	13.37	13.28	13.20
16.3500	13.13	13.04	12.96	12.88	12.80
16.5000	12.72	12.65	12.57	12.49	12.41
16.6500	12.33	12.25	12.17	12.10	12.02
16.8000	11.94	11.86	11.78	11.70	11.63
16.9500	11.56	11.48	11.40	11.32	11.24
17.1000	11.16	11.09	11.01	10.93	10.85
17.2500	10.77	10.69	10.61	10.54	10.46
17.4000	10.38	10.30	10.22	10.14	10.07
17.5500	9.99	9.91	9.83	9.75	9.67
17.7000	9.60	9.52	9.45	9.37	9.28
17.8500	9.20	9.12	9.05	8.98	8.90
18.0000	8.82	8.73	8.66	8.59	8.53

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
18.1500	8.47	8.43	8.40	8.37	8.34
18.3000	8.31	8.28	8.25	8.23	8.21
18.4500	8.19	8.16	8.14	8.11	8.09
18.6000	8.06	8.04	8.02	8.00	7.97
18.7500	7.95	7.92	7.90	7.88	7.86
18.9000	7.83	7.81	7.78	7.76	7.74
19.0500	7.72	7.69	7.67	7.64	7.62
19.2000	7.60	7.58	7.55	7.53	7.50
19.3500	7.48	7.45	7.43	7.41	7.39
19.5000	7.36	7.34	7.31	7.29	7.27
19.6500	7.25	7.22	7.20	7.17	7.15
19.8000	7.13	7.11	7.08	7.06	7.03
19.9500	7.01	6.99	6.96	6.94	6.92
20.1000	6.89	6.87	6.85	6.83	6.82
20.2500	6.81	6.79	6.77	6.75	6.73
20.4000	6.71	6.69	6.67	6.65	6.64
20.5500	6.62	6.60	6.59	6.57	6.55
20.7000	6.53	6.50	6.48	6.47	6.46
20.8500	6.44	6.43	6.41	6.39	6.37
21.0000	6.36	6.35	6.33	6.31	6.29
21.1500	6.27	6.25	6.23	6.21	6.20
21.3000	6.18	6.16	6.15	6.13	6.11
21.4500	6.09	6.07	6.05	6.03	6.01
21.6000	5.99	5.98	5.97	5.95	5.93
21.7500	5.91	5.89	5.88	5.87	5.86
21.9000	5.84	5.82	5.79	5.77	5.75
22.0500	5.74	5.72	5.70	5.69	5.67
22.2000	5.65	5.64	5.62	5.59	5.57
22.3500	5.55	5.53	5.52	5.51	5.49
22.5000	5.47	5.45	5.43	5.42	5.41
22.6500	5.39	5.38	5.36	5.34	5.32
22.8000	5.29	5.28	5.26	5.24	5.22
22.9500	5.21	5.19	5.18	5.16	5.14
23.1000	5.11	5.09	5.07	5.05	5.04
23.2500	5.03	5.01	4.99	4.97	4.95
23.4000	4.94	4.93	4.92	4.90	4.88
23.5500	4.86	4.84	4.82	4.80	4.78
23.7000	4.76	4.75	4.73	4.71	4.70
23.8500	4.68	4.66	4.63	4.61	4.59
24.0000	4.56	4.46	4.13	3.51	2.75
24.1500	2.00	1.37	.93	.63	.43
24.3000	.30	.20	.13	.09	.06
24.4500	.04	.03	.02	.01	.00
24.6000	.00	.00			

SUMMARY FOR HYDROGRAPH ADDITION
at Node: JUNC 40

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
....	EXIST WETLND 2		EXIST WETLND 2	2

INFLOWS TO: JUNC 40

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	EXIST WETLND 2	2	10.688	12.1500	116.58

TOTAL FLOW INTO: JUNC 40

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	JUNC 40	2	10.688	12.1500	116.58

TOTAL NODE INFLOW...
HYG file =
HYG ID = JUNC 40
HYG Tag = 2

Peak Discharge	=	116.58 cfs
Time to Peak	=	12.1500 hrs
HYG Volume	=	10.688 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
.0000	.00	.00	.00	.01	.02
.1500	.02	.03	.03	.03	.03
.3000	.03	.04	.04	.04	.04
.4500	.04	.04	.04	.04	.04
.6000	.04	.04	.04	.04	.04
.7500	.04	.04	.04	.04	.04
.9000	.04	.04	.04	.04	.04
1.0500	.04	.04	.04	.04	.04
1.2000	.04	.04	.04	.04	.04
1.3500	.04	.04	.04	.04	.04
1.5000	.04	.04	.04	.04	.04
1.6500	.04	.04	.04	.04	.04
1.8000	.04	.04	.04	.04	.04
1.9500	.04	.04	.04	.04	.04
2.1000	.04	.04	.04	.04	.04
2.2500	.04	.04	.04	.04	.04
2.4000	.04	.04	.04	.04	.04
2.5500	.04	.04	.04	.04	.04
2.7000	.04	.04	.04	.04	.04
2.8500	.04	.04	.04	.04	.04
3.0000	.04	.04	.04	.04	.04
3.1500	.04	.04	.04	.04	.04
3.3000	.04	.04	.04	.04	.04
3.4500	.04	.04	.04	.04	.04
3.6000	.04	.04	.04	.04	.04
3.7500	.04	.04	.05	.05	.05
3.9000	.05	.05	.05	.05	.05
4.0500	.05	.05	.05	.05	.05
4.2000	.05	.05	.05	.05	.05
4.3500	.05	.05	.05	.05	.05
4.5000	.05	.05	.06	.06	.06

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.6500	.06	.06	.06	.06	.06
4.8000	.06	.06	.06	.06	.06
4.9500	.06	.06	.06	.06	.06
5.1000	.06	.06	.06	.06	.07
5.2500	.07	.07	.07	.07	.07
5.4000	.07	.07	.07	.07	.07
5.5500	.07	.07	.07	.07	.07
5.7000	.07	.07	.07	.07	.08
5.8500	.08	.08	.08	.08	.08
6.0000	.08	.08	.08	.08	.08
6.1500	.08	.08	.08	.08	.08
6.3000	.09	.09	.09	.09	.09
6.4500	.09	.09	.09	.09	.10
6.6000	.10	.10	.10	.10	.10
6.7500	.10	.10	.10	.11	.11
6.9000	.11	.11	.11	.11	.11
7.0500	.11	.12	.12	.12	.12
7.2000	.12	.12	.12	.12	.12
7.3500	.13	.13	.13	.13	.13
7.5000	.13	.13	.14	.14	.14
7.6500	.14	.14	.14	.14	.14
7.8000	.15	.15	.15	.15	.15
7.9500	.15	.15	.15	.16	.16
8.1000	.16	.16	.16	.17	.17
8.2500	.18	.20	.21	.23	.25
8.4000	.27	.29	.32	.34	.37
8.5500	.39	.42	.44	.47	.50
8.7000	.53	.56	.59	.62	.65
8.8500	.68	.71	.75	.78	.81
9.0000	.85	.89	.92	.96	1.00
9.1500	1.04	1.07	1.11	1.15	1.19
9.3000	1.24	1.28	1.32	1.36	1.41
9.4500	1.45	1.50	1.54	1.59	1.64
9.6000	1.69	1.73	1.78	1.83	1.88
9.7500	1.93	1.99	2.04	2.09	2.14
9.9000	2.20	2.25	2.31	2.36	2.42
10.0500	2.48	2.54	2.61	2.67	2.75
10.2000	2.82	2.90	2.98	3.07	3.15
10.3500	3.24	3.33	3.42	3.52	3.61
10.5000	3.71	3.81	3.90	4.01	4.11
10.6500	4.21	4.32	4.43	4.53	4.64
10.8000	4.76	4.87	4.98	5.10	5.22
10.9500	5.34	5.46	5.58	5.71	5.87
11.1000	6.04	6.23	6.46	6.71	6.98
11.2500	7.28	7.59	7.92	8.26	8.60

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.4000	8.97	9.33	9.70	10.10	10.55
11.5500	11.18	12.07	13.24	14.70	16.65
11.7000	19.02	21.67	24.63	27.91	31.35
11.8500	34.98	38.95	43.35	49.23	58.14
12.0000	70.18	83.38	95.80	106.28	113.59
12.1500	116.58	114.17	107.18	98.15	89.07
12.3000	81.06	74.45	68.61	63.14	58.13
12.4500	53.33	48.50	43.82	39.46	35.38
12.6000	31.71	28.63	26.09	24.08	22.56
12.7500	21.40	20.44	19.65	18.96	18.34
12.9000	17.75	17.21	16.69	16.17	15.67
13.0500	15.22	14.79	14.40	14.06	13.78
13.2000	13.54	13.34	13.16	13.00	12.86
13.3500	12.72	12.58	12.45	12.33	12.20
13.5000	12.07	11.95	11.82	11.69	11.57
13.6500	11.45	11.32	11.19	11.07	10.94
13.8000	10.81	10.68	10.56	10.42	10.30
13.9500	10.17	10.04	9.91	9.79	9.67
14.1000	9.55	9.45	9.35	9.27	9.19
14.2500	9.12	9.05	8.98	8.92	8.86
14.4000	8.79	8.73	8.67	8.61	8.55
14.5500	8.48	8.42	8.36	8.30	8.24
14.7000	8.17	8.11	8.05	7.99	7.93
14.8500	7.87	7.80	7.74	7.67	7.61
15.0000	7.55	7.49	7.42	7.36	7.29
15.1500	7.23	7.17	7.10	7.04	6.98
15.3000	6.91	6.85	6.78	6.72	6.66
15.4500	6.59	6.53	6.46	6.40	6.33
15.6000	6.27	6.20	6.14	6.07	6.01
15.7500	5.94	5.88	5.81	5.75	5.68
15.9000	5.62	5.55	5.49	5.42	5.36
16.0500	5.30	5.24	5.18	5.14	5.09
16.2000	5.05	5.01	4.97	4.94	4.91
16.3500	4.89	4.86	4.83	4.80	4.77
16.5000	4.74	4.71	4.69	4.66	4.63
16.6500	4.60	4.57	4.54	4.51	4.49
16.8000	4.46	4.43	4.40	4.37	4.34
16.9500	4.32	4.29	4.26	4.23	4.20
17.1000	4.17	4.14	4.12	4.09	4.06
17.2500	4.03	4.00	3.97	3.94	3.91
17.4000	3.88	3.85	3.82	3.80	3.77
17.5500	3.74	3.71	3.68	3.65	3.62
17.7000	3.59	3.57	3.54	3.51	3.48
17.8500	3.45	3.42	3.39	3.37	3.34
18.0000	3.31	3.28	3.25	3.22	3.20

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
18.1500	3.18	3.16	3.15	3.14	3.13
18.3000	3.12	3.11	3.10	3.09	3.08
18.4500	3.07	3.07	3.06	3.05	3.04
18.6000	3.03	3.02	3.01	3.01	3.00
18.7500	2.99	2.98	2.97	2.96	2.96
18.9000	2.95	2.94	2.93	2.92	2.91
19.0500	2.90	2.90	2.89	2.88	2.87
19.2000	2.86	2.85	2.84	2.83	2.83
19.3500	2.82	2.81	2.80	2.79	2.78
19.5000	2.77	2.77	2.76	2.75	2.74
19.6500	2.73	2.72	2.71	2.70	2.70
19.8000	2.69	2.68	2.67	2.66	2.65
19.9500	2.64	2.64	2.63	2.62	2.61
20.1000	2.60	2.59	2.59	2.58	2.57
20.2500	2.57	2.56	2.56	2.55	2.54
20.4000	2.53	2.53	2.52	2.51	2.51
20.5500	2.50	2.50	2.49	2.48	2.48
20.7000	2.47	2.46	2.45	2.44	2.44
20.8500	2.44	2.43	2.42	2.41	2.41
21.0000	2.40	2.40	2.40	2.39	2.38
21.1500	2.37	2.36	2.36	2.35	2.34
21.3000	2.34	2.33	2.33	2.32	2.31
21.4500	2.31	2.30	2.29	2.28	2.27
21.6000	2.27	2.27	2.26	2.25	2.25
21.7500	2.24	2.23	2.23	2.22	2.22
21.9000	2.21	2.20	2.20	2.19	2.18
22.0500	2.17	2.17	2.16	2.16	2.15
22.2000	2.14	2.14	2.13	2.12	2.11
22.3500	2.10	2.10	2.09	2.09	2.08
22.5000	2.08	2.07	2.06	2.06	2.05
22.6500	2.05	2.04	2.03	2.03	2.02
22.8000	2.01	2.00	2.00	1.99	1.98
22.9500	1.98	1.97	1.96	1.96	1.95
23.1000	1.94	1.93	1.93	1.92	1.92
23.2500	1.91	1.90	1.90	1.89	1.88
23.4000	1.88	1.87	1.87	1.86	1.85
23.5500	1.85	1.84	1.83	1.82	1.82
23.7000	1.81	1.80	1.80	1.79	1.79
23.8500	1.78	1.77	1.76	1.75	1.75
24.0000	1.74	1.69	1.57	1.33	1.04
24.1500	.76	.52	.35	.24	.16
24.3000	.11	.07	.05	.03	.02
24.4500	.01	.01	.01	.00	.00
24.6000	.00				

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.6500	.10	.10	.11	.11	.11
4.8000	.11	.11	.11	.11	.11
4.9500	.11	.11	.11	.11	.11
5.1000	.12	.12	.12	.12	.12
5.2500	.12	.12	.12	.12	.12
5.4000	.12	.12	.12	.13	.13
5.5500	.13	.13	.13	.13	.13
5.7000	.13	.13	.13	.13	.13
5.8500	.14	.14	.14	.14	.14
6.0000	.14	.14	.14	.14	.14
6.1500	.14	.15	.15	.15	.15
6.3000	.15	.15	.16	.16	.16
6.4500	.16	.17	.17	.18	.19
6.6000	.21	.22	.24	.26	.28
6.7500	.30	.32	.34	.36	.39
6.9000	.41	.43	.45	.48	.50
7.0500	.53	.55	.58	.60	.63
7.2000	.65	.68	.71	.73	.76
7.3500	.79	.82	.85	.87	.90
7.5000	.93	.96	.99	1.03	1.06
7.6500	1.09	1.12	1.15	1.18	1.22
7.8000	1.25	1.28	1.32	1.35	1.39
7.9500	1.42	1.46	1.49	1.53	1.56
8.1000	1.60	1.65	1.69	1.74	1.79
8.2500	1.84	1.89	1.94	2.00	2.05
8.4000	2.11	2.17	2.23	2.29	2.35
8.5500	2.41	2.47	2.54	2.60	2.67
8.7000	2.73	2.80	2.87	2.94	3.01
8.8500	3.08	3.15	3.23	3.30	3.38
9.0000	3.45	3.53	3.61	3.69	3.77
9.1500	3.85	3.93	4.01	4.10	4.18
9.3000	4.27	4.35	4.44	4.53	4.62
9.4500	4.71	4.80	4.89	4.98	5.08
9.6000	5.17	5.27	5.36	5.46	5.56
9.7500	5.66	5.76	5.86	5.96	6.06
9.9000	6.16	6.27	6.37	6.48	6.59
10.0500	6.70	6.81	6.94	7.07	7.21
10.2000	7.36	7.52	7.68	7.85	8.02
10.3500	8.19	8.37	8.55	8.73	8.92
10.5000	9.11	9.29	9.48	9.68	9.87
10.6500	10.07	10.27	10.47	10.67	10.88
10.8000	11.09	11.29	11.50	11.72	11.93
10.9500	12.14	12.36	12.59	12.83	13.11
11.1000	13.44	13.81	14.24	14.73	15.27
11.2500	15.83	16.45	17.09	17.73	18.40

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.4000	19.08	19.77	20.47	21.21	22.06
11.5500	23.26	24.98	27.24	30.08	33.86
11.7000	38.43	43.49	49.11	55.25	61.60
11.8500	68.20	75.34	83.15	93.55	109.30
12.0000	130.52	153.51	174.67	192.01	203.45
12.1500	207.27	203.21	191.04	175.23	159.39
12.3000	145.59	134.04	123.74	113.99	105.00
12.4500	96.37	87.69	79.25	71.35	63.94
12.6000	57.43	51.91	47.32	43.62	40.77
12.7500	38.55	36.69	35.12	33.76	32.51
12.9000	31.34	30.26	29.22	28.20	27.23
13.0500	26.34	25.49	24.73	24.06	23.48
13.2000	22.99	22.57	22.20	21.85	21.54
13.3500	21.25	20.96	20.69	20.43	20.17
13.5000	19.95	19.74	19.53	19.31	19.10
13.6500	18.89	18.67	18.45	18.24	18.03
13.8000	17.81	17.60	17.38	17.16	16.95
13.9500	16.73	16.51	16.30	16.09	15.89
14.1000	15.69	15.52	15.36	15.22	15.09
14.2500	14.97	14.85	14.74	14.63	14.52
14.4000	14.41	14.31	14.21	14.10	14.00
14.5500	13.89	13.79	13.69	13.59	13.48
14.7000	13.37	13.27	13.17	13.06	12.96
14.8500	12.86	12.75	12.64	12.54	12.43
15.0000	12.33	12.22	12.12	12.01	11.90
15.1500	11.80	11.69	11.59	11.48	11.38
15.3000	11.27	11.16	11.06	10.95	10.85
15.4500	10.74	10.63	10.53	10.42	10.31
15.6000	10.21	10.10	10.00	9.89	9.78
15.7500	9.67	9.56	9.46	9.35	9.24
15.9000	9.13	9.03	8.92	8.81	8.71
16.0500	8.61	8.51	8.43	8.34	8.27
16.2000	8.20	8.14	8.08	8.03	7.98
16.3500	7.93	7.88	7.83	7.78	7.74
16.5000	7.69	7.65	7.60	7.55	7.50
16.6500	7.46	7.41	7.36	7.32	7.27
16.8000	7.23	7.18	7.13	7.08	7.04
16.9500	6.99	6.95	6.90	6.85	6.80
17.1000	6.76	6.71	6.67	6.62	6.57
17.2500	6.52	6.47	6.43	6.38	6.34
17.4000	6.29	6.24	6.19	6.14	6.10
17.5500	6.05	6.01	5.96	5.91	5.86
17.7000	5.81	5.77	5.73	5.68	5.63
17.8500	5.58	5.53	5.49	5.44	5.39
18.0000	5.34	5.29	5.25	5.21	5.17

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
18.1500	5.14	5.11	5.09	5.07	5.06
18.3000	5.04	5.02	5.01	4.99	4.98
18.4500	4.97	4.95	4.94	4.92	4.91
18.6000	4.89	4.88	4.87	4.85	4.84
18.7500	4.82	4.81	4.80	4.78	4.77
18.9000	4.75	4.74	4.72	4.71	4.70
19.0500	4.69	4.67	4.66	4.64	4.63
19.2000	4.61	4.60	4.59	4.57	4.56
19.3500	4.54	4.53	4.51	4.50	4.49
19.5000	4.47	4.46	4.44	4.43	4.42
19.6500	4.40	4.39	4.37	4.36	4.34
19.8000	4.33	4.32	4.31	4.29	4.27
19.9500	4.26	4.25	4.23	4.22	4.21
20.1000	4.19	4.18	4.16	4.15	4.15
20.2500	4.14	4.13	4.12	4.10	4.09
20.4000	4.08	4.07	4.06	4.05	4.04
20.5500	4.03	4.02	4.01	4.00	3.98
20.7000	3.97	3.96	3.94	3.93	3.93
20.8500	3.92	3.91	3.90	3.88	3.87
21.0000	3.87	3.86	3.85	3.84	3.83
21.1500	3.82	3.80	3.79	3.78	3.77
21.3000	3.76	3.75	3.74	3.73	3.72
21.4500	3.71	3.70	3.68	3.67	3.66
21.6000	3.65	3.64	3.63	3.62	3.61
21.7500	3.60	3.59	3.58	3.57	3.57
21.9000	3.55	3.54	3.53	3.51	3.50
22.0500	3.49	3.48	3.47	3.46	3.45
22.2000	3.44	3.43	3.42	3.41	3.39
22.3500	3.38	3.37	3.36	3.35	3.34
22.5000	3.33	3.32	3.31	3.30	3.29
22.6500	3.29	3.28	3.26	3.25	3.24
22.8000	3.23	3.21	3.20	3.19	3.18
22.9500	3.17	3.16	3.15	3.14	3.13
23.1000	3.12	3.10	3.09	3.08	3.07
23.2500	3.07	3.05	3.04	3.03	3.02
23.4000	3.01	3.01	3.00	2.99	2.97
23.5500	2.96	2.95	2.94	2.92	2.91
23.7000	2.90	2.89	2.88	2.87	2.86
23.8500	2.85	2.84	2.82	2.81	2.80
24.0000	2.78	2.72	2.51	2.14	1.67
24.1500	1.21	.83	.56	.38	.26
24.3000	.18	.12	.08	.05	.04
24.4500	.02	.02	.01	.01	.00
24.6000	.00				

SUMMARY FOR HYDROGRAPH ADDITION
at Node: JUNC 40

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
....	EXIST WETLND 2		EXIST WETLND 2	100

INFLOWS TO: JUNC 40

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	EXIST WETLND 2	100	36.471	12.1500	392.35

TOTAL FLOW INTO: JUNC 40

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	JUNC 40	100	36.471	12.1500	392.35

TOTAL NODE INFLOW...
HYG file =
HYG ID = JUNC 40
HYG Tag = 100

Peak Discharge = 392.35 cfs
Time to Peak = 12.1500 hrs
HYG Volume = 36.471 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
.0000	.00	.00	.01	.03	.04
.1500	.06	.07	.07	.08	.08
.3000	.08	.08	.08	.08	.08
.4500	.08	.08	.08	.08	.08
.6000	.08	.08	.08	.08	.08
.7500	.08	.08	.08	.08	.08
.9000	.08	.08	.08	.08	.08
1.0500	.08	.08	.08	.08	.08
1.2000	.08	.08	.08	.08	.08
1.3500	.08	.08	.08	.08	.08
1.5000	.08	.08	.08	.08	.08
1.6500	.08	.08	.09	.09	.09
1.8000	.09	.09	.09	.09	.09
1.9500	.09	.09	.09	.09	.09
2.1000	.09	.10	.10	.10	.10
2.2500	.10	.10	.10	.10	.10
2.4000	.11	.11	.11	.11	.11
2.5500	.11	.11	.11	.12	.12
2.7000	.12	.12	.12	.12	.12
2.8500	.13	.13	.13	.13	.13
3.0000	.13	.13	.13	.14	.14
3.1500	.14	.14	.14	.14	.14
3.3000	.14	.15	.15	.15	.15
3.4500	.15	.15	.15	.16	.16
3.6000	.16	.16	.16	.16	.16
3.7500	.16	.17	.17	.17	.17
3.9000	.17	.17	.17	.18	.18
4.0500	.18	.18	.18	.18	.18
4.2000	.18	.19	.19	.19	.19
4.3500	.19	.19	.19	.19	.20
4.5000	.20	.20	.20	.21	.23

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.6500	.24	.26	.28	.31	.33
4.8000	.36	.38	.41	.44	.46
4.9500	.49	.52	.54	.57	.60
5.1000	.63	.66	.68	.71	.74
5.2500	.77	.80	.82	.85	.88
5.4000	.91	.94	.97	1.00	1.03
5.5500	1.06	1.09	1.12	1.14	1.17
5.7000	1.20	1.23	1.26	1.29	1.32
5.8500	1.35	1.38	1.42	1.45	1.48
6.0000	1.51	1.54	1.57	1.60	1.64
6.1500	1.68	1.72	1.76	1.80	1.84
6.3000	1.88	1.93	1.97	2.02	2.07
6.4500	2.11	2.16	2.21	2.26	2.31
6.6000	2.36	2.41	2.46	2.52	2.57
6.7500	2.62	2.68	2.73	2.79	2.84
6.9000	2.90	2.96	3.02	3.07	3.13
7.0500	3.19	3.25	3.31	3.37	3.43
7.2000	3.50	3.56	3.62	3.68	3.75
7.3500	3.81	3.88	3.94	4.01	4.08
7.5000	4.14	4.21	4.28	4.35	4.42
7.6500	4.49	4.56	4.63	4.70	4.78
7.8000	4.85	4.92	4.99	5.06	5.14
7.9500	5.22	5.29	5.37	5.44	5.52
8.1000	5.61	5.71	5.81	5.92	6.03
8.2500	6.15	6.27	6.40	6.52	6.65
8.4000	6.79	6.92	7.05	7.19	7.33
8.5500	7.47	7.61	7.75	7.89	8.03
8.7000	8.18	8.33	8.48	8.63	8.78
8.8500	8.93	9.09	9.24	9.40	9.56
9.0000	9.72	9.88	10.04	10.20	10.37
9.1500	10.54	10.70	10.87	11.04	11.21
9.3000	11.38	11.56	11.73	11.91	12.08
9.4500	12.26	12.44	12.62	12.80	12.98
9.6000	13.17	13.35	13.53	13.72	13.91
9.7500	14.10	14.29	14.48	14.67	14.86
9.9000	15.05	15.25	15.44	15.64	15.84
10.0500	16.04	16.27	16.51	16.76	17.03
10.2000	17.33	17.63	17.95	18.28	18.61
10.3500	18.95	19.30	19.64	19.99	20.35
10.5000	20.71	21.06	21.42	21.79	22.16
10.6500	22.53	22.90	23.28	23.65	24.03
10.8000	24.41	24.79	25.18	25.57	25.95
10.9500	26.34	26.74	27.14	27.58	28.11
11.1000	28.73	29.43	30.25	31.21	32.24
11.2500	33.33	34.53	35.75	36.98	38.26

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.4000	39.57	40.86	42.17	43.55	45.16
11.5500	47.44	50.77	55.14	60.64	67.96
11.7000	76.76	86.44	97.10	108.66	120.50
11.8500	132.64	145.64	159.73	178.89	208.70
12.0000	248.40	291.77	331.86	364.31	385.41
12.1500	392.35	382.24	357.54	326.41	295.22
12.3000	267.54	244.47	224.14	205.36	188.36
12.4500	172.25	156.30	140.93	126.66	113.34
12.6000	101.39	91.29	82.90	76.13	70.93
12.7500	66.88	63.51	60.83	58.55	56.46
12.9000	54.50	52.70	50.96	49.24	47.62
13.0500	46.11	44.69	43.40	42.27	41.29
13.2000	40.46	39.75	39.12	38.54	38.01
13.3500	37.52	37.03	36.57	36.13	35.68
13.5000	35.24	34.81	34.39	33.96	33.54
13.6500	33.13	32.71	32.29	31.88	31.47
13.8000	31.06	30.65	30.24	29.83	29.42
13.9500	29.02	28.61	28.20	27.81	27.43
14.1000	27.07	26.74	26.44	26.16	25.91
14.2500	25.68	25.45	25.23	25.02	24.82
14.4000	24.61	24.41	24.22	24.01	23.83
14.5500	23.65	23.46	23.28	23.11	22.93
14.7000	22.75	22.57	22.38	22.20	22.02
14.8500	21.85	21.66	21.48	21.30	21.12
15.0000	20.93	20.76	20.58	20.39	20.21
15.1500	20.03	19.84	19.66	19.49	19.31
15.3000	19.12	18.94	18.75	18.57	18.39
15.4500	18.21	18.03	17.84	17.66	17.48
15.6000	17.29	17.12	16.94	16.75	16.57
15.7500	16.38	16.20	16.01	15.84	15.65
15.9000	15.47	15.28	15.10	14.91	14.74
16.0500	14.57	14.41	14.26	14.12	13.99
16.2000	13.87	13.77	13.67	13.58	13.50
16.3500	13.42	13.33	13.24	13.16	13.08
16.5000	13.00	12.93	12.85	12.77	12.68
16.6500	12.60	12.52	12.44	12.37	12.29
16.8000	12.21	12.12	12.04	11.96	11.89
16.9500	11.81	11.73	11.65	11.57	11.48
17.1000	11.41	11.33	11.26	11.17	11.09
17.2500	11.01	10.92	10.85	10.77	10.69
17.4000	10.61	10.53	10.45	10.37	10.29
17.5500	10.22	10.13	10.05	9.97	9.88
17.7000	9.81	9.73	9.66	9.57	9.49
17.8500	9.41	9.32	9.25	9.17	9.09
18.0000	9.01	8.93	8.85	8.78	8.71

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
18.1500	8.66	8.62	8.58	8.55	8.52
18.3000	8.49	8.46	8.44	8.41	8.39
18.4500	8.37	8.34	8.32	8.29	8.27
18.6000	8.24	8.22	8.20	8.17	8.15
18.7500	8.12	8.10	8.08	8.05	8.03
18.9000	8.01	7.98	7.95	7.93	7.91
19.0500	7.89	7.86	7.84	7.81	7.79
19.2000	7.76	7.74	7.72	7.69	7.67
19.3500	7.64	7.62	7.60	7.58	7.55
19.5000	7.53	7.50	7.48	7.45	7.43
19.6500	7.41	7.38	7.36	7.33	7.31
19.8000	7.28	7.26	7.24	7.22	7.19
19.9500	7.16	7.14	7.12	7.10	7.07
20.1000	7.05	7.02	7.00	6.98	6.97
20.2500	6.96	6.94	6.92	6.90	6.88
20.4000	6.85	6.84	6.82	6.80	6.78
20.5500	6.77	6.75	6.73	6.72	6.69
20.7000	6.67	6.65	6.63	6.61	6.60
20.8500	6.59	6.57	6.55	6.53	6.51
21.0000	6.50	6.49	6.47	6.45	6.43
21.1500	6.41	6.39	6.37	6.35	6.33
21.3000	6.31	6.30	6.28	6.26	6.25
21.4500	6.23	6.21	6.18	6.16	6.14
21.6000	6.13	6.11	6.10	6.08	6.06
21.7500	6.04	6.02	6.01	6.00	5.99
21.9000	5.97	5.94	5.92	5.90	5.88
22.0500	5.86	5.84	5.83	5.81	5.79
22.2000	5.78	5.76	5.74	5.72	5.69
22.3500	5.67	5.65	5.64	5.63	5.61
22.5000	5.59	5.57	5.55	5.54	5.53
22.6500	5.51	5.50	5.48	5.45	5.43
22.8000	5.41	5.39	5.37	5.36	5.34
22.9500	5.32	5.31	5.29	5.27	5.25
23.1000	5.23	5.20	5.18	5.16	5.15
23.2500	5.14	5.12	5.10	5.08	5.06
23.4000	5.05	5.04	5.03	5.01	4.99
23.5500	4.96	4.94	4.92	4.90	4.88
23.7000	4.87	4.85	4.83	4.82	4.80
23.8500	4.78	4.76	4.73	4.71	4.69
24.0000	4.67	4.55	4.21	3.58	2.80
24.1500	2.03	1.39	.94	.64	.44
24.3000	.30	.20	.14	.09	.06
24.4500	.04	.03	.02	.01	.00
24.6000	.00	.00			

SUMMARY FOR HYDROGRAPH ADDITION
at Node: JUNC 50

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ROUTE 30	PROPOSEDBASININ		ROUTE 30	2

INFLOWS TO: JUNC 50

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	ROUTE 30	2	.000	.0600	.00

TOTAL FLOW INTO: JUNC 50

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	JUNC 50	2	.000	.0300	.00

TOTAL NODE INFLOW...
HYG file =
HYG ID = JUNC 50
HYG Tag = 2

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs			
.0000	.00	.00	.00

SUMMARY FOR HYDROGRAPH ADDITION
at Node: JUNC 50

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ROUTE 30	PROPOSEDBASININ		ROUTE 30	10

INFLOWS TO: JUNC 50

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	ROUTE 30	10	.272	12.3900	6.01

TOTAL FLOW INTO: JUNC 50

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	JUNC 50	10	.272	12.3900	6.01

TOTAL NODE INFLOW...
HYG file =
HYG ID = JUNC 50
HYG Tag = 10

Peak Discharge	=	6.01 cfs
Time to Peak	=	12.3900 hrs
HYG Volume	=	.272 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
12.1200	.00	.08	1.62	2.85	3.78
12.2700	4.55	5.32	5.77	5.98	6.01
12.4200	5.90	5.70	5.41	5.07	4.68
12.5700	4.28	4.03	3.77	3.50	3.23
12.7200	2.98	2.73	2.51	2.29	2.10
12.8700	1.91	1.74	1.58	1.43	1.29
13.0200	1.16	1.03	.92	.81	.71
13.1700	.62	.53	.45	.37	.31
13.3200	.24	.19	.13	.09	.04
13.4700	.00				

SUMMARY FOR HYDROGRAPH ADDITION
at Node: JUNC 50

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ROUTE 30	PROPOSEDBASININ		ROUTE 30	100

INFLOWS TO: JUNC 50

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	ROUTE 30	100	.983	12.2400	20.02

TOTAL FLOW INTO: JUNC 50

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	JUNC 50	100	.983	12.2400	20.02

TOTAL NODE INFLOW...
HYG file =
HYG ID = JUNC 50
HYG Tag = 100

Peak Discharge = 20.02 cfs
Time to Peak = 12.2400 hrs
HYG Volume = .983 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.9100	.00	.48	1.93	3.53	6.02
12.0600	9.14	12.07	14.70	17.05	18.94
12.2100	19.89	20.02	19.54	18.70	17.67
12.3600	16.55	15.51	14.54	13.56	12.55
12.5100	11.54	10.54	9.56	8.62	7.74
12.6600	6.92	6.18	5.52	4.94	4.44
12.8100	4.13	3.89	3.67	3.46	3.26
12.9600	3.07	2.89	2.72	2.56	2.40
13.1100	2.26	2.12	1.99	1.87	1.76
13.2600	1.65	1.56	1.47	1.39	1.31
13.4100	1.24	1.17	1.11	1.06	1.00
13.5600	.95	.90	.85	.81	.77
13.7100	.73	.69	.65	.62	.58
13.8600	.55	.51	.48	.45	.42
14.0100	.38	.35	.32	.30	.27
14.1600	.24	.21	.19	.17	.14
14.3100	.12	.10	.08	.06	.04
14.4600	.02	.01	.00		

SUMMARY FOR HYDROGRAPH ADDITION
at Node: JUNC 60

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
SHEET..FLOW	UNCONTROLL	PHRD	UNCONTROLL	PHRD2

INFLOWS TO: JUNC 60

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	UNCONTROLL PHRD	2	.039	12.1200	.44

TOTAL FLOW INTO: JUNC 60

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	JUNC 60	2	.039	12.1200	.44

TOTAL NODE INFLOW...
HYG file =
HYG ID = JUNC 60
HYG Tag = 2

Peak Discharge = .44 cfs
Time to Peak = 12.1200 hrs
HYG Volume = .039 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
7.1400	.00	.00	.00	.00	.00
7.2900	.00	.00	.00	.00	.00
7.4400	.00	.00	.00	.00	.00
7.5900	.00	.00	.00	.00	.00
7.7400	.00	.00	.00	.00	.00
7.8900	.00	.00	.00	.00	.00
8.0400	.00	.00	.00	.00	.00
8.1900	.00	.00	.00	.00	.00
8.3400	.00	.00	.00	.00	.00
8.4900	.00	.00	.00	.00	.00
8.6400	.01	.01	.01	.01	.01
8.7900	.01	.01	.01	.01	.01
8.9400	.01	.01	.01	.01	.01
9.0900	.01	.01	.01	.01	.01
9.2400	.01	.01	.01	.01	.01
9.3900	.01	.01	.01	.01	.01
9.5400	.01	.01	.01	.01	.01
9.6900	.01	.01	.01	.01	.01
9.8400	.01	.01	.01	.01	.01
9.9900	.01	.01	.01	.01	.01
10.1400	.01	.01	.01	.02	.02
10.2900	.02	.02	.02	.02	.02
10.4400	.02	.02	.02	.02	.02
10.5900	.02	.02	.02	.02	.02
10.7400	.02	.02	.02	.02	.02
10.8900	.02	.02	.02	.03	.03
11.0400	.03	.03	.03	.03	.03
11.1900	.03	.03	.03	.03	.04
11.3400	.04	.04	.04	.04	.04
11.4900	.04	.05	.05	.05	.06
11.6400	.06	.07	.08	.09	.11

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.7900	.12	.13	.15	.16	.18
11.9400	.20	.24	.29	.34	.39
12.0900	.42	.44	.43	.41	.37
12.2400	.33	.30	.27	.25	.23
12.3900	.21	.19	.17	.16	.14
12.5400	.13	.11	.10	.09	.08
12.6900	.08	.07	.07	.07	.07
12.8400	.06	.06	.06	.06	.06
12.9900	.05	.05	.05	.05	.05
13.1400	.05	.05	.05	.04	.04
13.2900	.04	.04	.04	.04	.04
13.4400	.04	.04	.04	.04	.04
13.5900	.04	.04	.04	.04	.04
13.7400	.04	.04	.04	.04	.04
13.8900	.03	.03	.03	.03	.03
14.0400	.03	.03	.03	.03	.03
14.1900	.03	.03	.03	.03	.03
14.3400	.03	.03	.03	.03	.03
14.4900	.03	.03	.03	.03	.03
14.6400	.03	.03	.03	.03	.03
14.7900	.03	.03	.03	.03	.03
14.9400	.03	.03	.03	.02	.02
15.0900	.02	.02	.02	.02	.02
15.2400	.02	.02	.02	.02	.02
15.3900	.02	.02	.02	.02	.02
15.5400	.02	.02	.02	.02	.02
15.6900	.02	.02	.02	.02	.02
15.8400	.02	.02	.02	.02	.02
15.9900	.02	.02	.02	.02	.02
16.1400	.02	.02	.02	.02	.02
16.2900	.02	.02	.02	.02	.02
16.4400	.02	.02	.02	.02	.02
16.5900	.02	.02	.02	.02	.02
16.7400	.01	.01	.01	.01	.01
16.8900	.01	.01	.01	.01	.01
17.0400	.01	.01	.01	.01	.01
17.1900	.01	.01	.01	.01	.01
17.3400	.01	.01	.01	.01	.01
17.4900	.01	.01	.01	.01	.01
17.6400	.01	.01	.01	.01	.01
17.7900	.01	.01	.01	.01	.01
17.9400	.01	.01	.01	.01	.01
18.0900	.01	.01	.01	.01	.01
18.2400	.01	.01	.01	.01	.01
18.3900	.01	.01	.01	.01	.01

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
18.5400	.01	.01	.01	.01	.01
18.6900	.01	.01	.01	.01	.01
18.8400	.01	.01	.01	.01	.01
18.9900	.01	.01	.01	.01	.01
19.1400	.01	.01	.01	.01	.01
19.2900	.01	.01	.01	.01	.01
19.4400	.01	.01	.01	.01	.01
19.5900	.01	.01	.01	.01	.01
19.7400	.01	.01	.01	.01	.01
19.8900	.01	.01	.01	.01	.01
20.0400	.01	.01	.01	.01	.01
20.1900	.01	.01	.01	.01	.01
20.3400	.01	.01	.01	.01	.01
20.4900	.01	.01	.01	.01	.01
20.6400	.01	.01	.01	.01	.01
20.7900	.01	.01	.01	.01	.01
20.9400	.01	.01	.01	.01	.01
21.0900	.01	.01	.01	.01	.01
21.2400	.01	.01	.01	.01	.01
21.3900	.01	.01	.01	.01	.01
21.5400	.01	.01	.01	.01	.01
21.6900	.01	.01	.01	.01	.01
21.8400	.01	.01	.01	.01	.01
21.9900	.01	.01	.01	.01	.01
22.1400	.01	.01	.01	.01	.01
22.2900	.01	.01	.01	.01	.01
22.4400	.01	.01	.01	.01	.01
22.5900	.01	.01	.01	.01	.01
22.7400	.01	.01	.01	.01	.01
22.8900	.01	.01	.01	.01	.01
23.0400	.01	.01	.01	.01	.01
23.1900	.01	.01	.01	.01	.01
23.3400	.01	.01	.01	.01	.01
23.4900	.01	.01	.01	.01	.01
23.6400	.01	.01	.01	.01	.01
23.7900	.01	.01	.01	.01	.01
23.9400	.01	.01	.01	.01	.00
24.0900	.00	.00	.00	.00	.00

SUMMARY FOR HYDROGRAPH ADDITION
at Node: JUNC 60

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
SHEET..FLOW	UNCONTROLL	PHRD	UNCONTROLL PHRD	10

INFLOWS TO: JUNC 60

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	UNCONTROLL PHRD	10	.066	12.1200	.73

TOTAL FLOW INTO: JUNC 60

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	JUNC 60	10	.066	12.1200	.73

TOTAL NODE INFLOW...
HYG file =
HYG ID = JUNC 60
HYG Tag = 10

Peak Discharge	=	.73 cfs
Time to Peak	=	12.1200 hrs
HYG Volume	=	.066 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
5.4000	.00	.00	.00	.00	.00
5.5500	.00	.00	.00	.00	.00
5.7000	.00	.00	.00	.00	.00
5.8500	.00	.00	.00	.00	.00
6.0000	.00	.00	.00	.00	.00
6.1500	.00	.00	.00	.00	.00
6.3000	.00	.00	.00	.00	.00
6.4500	.00	.00	.00	.00	.00
6.6000	.00	.00	.00	.00	.00
6.7500	.00	.00	.00	.00	.00
6.9000	.00	.00	.00	.00	.00
7.0500	.01	.01	.01	.01	.01
7.2000	.01	.01	.01	.01	.01
7.3500	.01	.01	.01	.01	.01
7.5000	.01	.01	.01	.01	.01
7.6500	.01	.01	.01	.01	.01
7.8000	.01	.01	.01	.01	.01
7.9500	.01	.01	.01	.01	.01
8.1000	.01	.01	.01	.01	.01
8.2500	.01	.01	.01	.01	.01
8.4000	.01	.01	.01	.01	.01
8.5500	.01	.01	.01	.01	.01
8.7000	.01	.01	.01	.02	.02
8.8500	.02	.02	.02	.02	.02
9.0000	.02	.02	.02	.02	.02
9.1500	.02	.02	.02	.02	.02
9.3000	.02	.02	.02	.02	.02
9.4500	.02	.02	.02	.02	.02
9.6000	.02	.02	.02	.02	.02
9.7500	.03	.03	.03	.03	.03
9.9000	.03	.03	.03	.03	.03

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
10.0500	.03	.03	.03	.03	.03
10.2000	.03	.03	.03	.03	.03
10.3500	.03	.04	.04	.04	.04
10.5000	.04	.04	.04	.04	.04
10.6500	.04	.04	.04	.04	.04
10.8000	.04	.05	.05	.05	.05
10.9500	.05	.05	.05	.05	.05
11.1000	.05	.05	.06	.06	.06
11.2500	.06	.06	.07	.07	.07
11.4000	.07	.08	.08	.08	.09
11.5500	.09	.10	.11	.12	.13
11.7000	.15	.17	.19	.22	.24
11.8500	.26	.29	.32	.36	.42
12.0000	.50	.59	.65	.70	.73
12.1500	.72	.68	.61	.54	.48
12.3000	.44	.40	.37	.34	.31
12.4500	.28	.25	.22	.20	.18
12.6000	.16	.14	.13	.12	.12
12.7500	.11	.11	.10	.10	.10
12.9000	.09	.09	.09	.09	.08
13.0500	.08	.08	.08	.07	.07
13.2000	.07	.07	.07	.07	.07
13.3500	.07	.07	.07	.07	.07
13.5000	.06	.06	.06	.06	.06
13.6500	.06	.06	.06	.06	.06
13.8000	.06	.06	.06	.06	.05
13.9500	.05	.05	.05	.05	.05
14.1000	.05	.05	.05	.05	.05
14.2500	.05	.05	.05	.05	.05
14.4000	.05	.05	.05	.05	.05
14.5500	.04	.04	.04	.04	.04
14.7000	.04	.04	.04	.04	.04
14.8500	.04	.04	.04	.04	.04
15.0000	.04	.04	.04	.04	.04
15.1500	.04	.04	.04	.04	.04
15.3000	.04	.04	.04	.04	.03
15.4500	.03	.03	.03	.03	.03
15.6000	.03	.03	.03	.03	.03
15.7500	.03	.03	.03	.03	.03
15.9000	.03	.03	.03	.03	.03
16.0500	.03	.03	.03	.03	.03
16.2000	.03	.03	.03	.03	.03
16.3500	.03	.03	.03	.02	.02
16.5000	.02	.02	.02	.02	.02
16.6500	.02	.02	.02	.02	.02

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
16.8000	.02	.02	.02	.02	.02
16.9500	.02	.02	.02	.02	.02
17.1000	.02	.02	.02	.02	.02
17.2500	.02	.02	.02	.02	.02
17.4000	.02	.02	.02	.02	.02
17.5500	.02	.02	.02	.02	.02
17.7000	.02	.02	.02	.02	.02
17.8500	.02	.02	.02	.02	.02
18.0000	.02	.02	.02	.02	.02
18.1500	.02	.02	.02	.02	.02
18.3000	.02	.02	.02	.02	.02
18.4500	.02	.02	.02	.02	.02
18.6000	.02	.02	.02	.02	.02
18.7500	.02	.02	.02	.02	.02
18.9000	.02	.02	.02	.02	.02
19.0500	.01	.01	.01	.01	.01
19.2000	.01	.01	.01	.01	.01
19.3500	.01	.01	.01	.01	.01
19.5000	.01	.01	.01	.01	.01
19.6500	.01	.01	.01	.01	.01
19.8000	.01	.01	.01	.01	.01
19.9500	.01	.01	.01	.01	.01
20.1000	.01	.01	.01	.01	.01
20.2500	.01	.01	.01	.01	.01
20.4000	.01	.01	.01	.01	.01
20.5500	.01	.01	.01	.01	.01
20.7000	.01	.01	.01	.01	.01
20.8500	.01	.01	.01	.01	.01
21.0000	.01	.01	.01	.01	.01
21.1500	.01	.01	.01	.01	.01
21.3000	.01	.01	.01	.01	.01
21.4500	.01	.01	.01	.01	.01
21.6000	.01	.01	.01	.01	.01
21.7500	.01	.01	.01	.01	.01
21.9000	.01	.01	.01	.01	.01
22.0500	.01	.01	.01	.01	.01
22.2000	.01	.01	.01	.01	.01
22.3500	.01	.01	.01	.01	.01
22.5000	.01	.01	.01	.01	.01
22.6500	.01	.01	.01	.01	.01
22.8000	.01	.01	.01	.01	.01
22.9500	.01	.01	.01	.01	.01
23.1000	.01	.01	.01	.01	.01
23.2500	.01	.01	.01	.01	.01
23.4000	.01	.01	.01	.01	.01

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
23.5500	.01	.01	.01	.01	.01
23.7000	.01	.01	.01	.01	.01
23.8500	.01	.01	.01	.01	.01
24.0000	.01	.01	.01	.01	.00
24.1500	.00	.00	.00	.00	

SUMMARY FOR HYDROGRAPH ADDITION
at Node: JUNC 60

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
SHEET..FLOW	UNCONTROLL	PHRD	UNCONTROLL	PHRD 100

INFLOWS TO: JUNC 60

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	UNCONTROLL	PHRD 100	.118	12.1200	1.25

TOTAL FLOW INTO: JUNC 60

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	JUNC 60	100	.118	12.1200	1.25

TOTAL NODE INFLOW...
HYG file =
HYG ID = JUNC 60
HYG Tag = 100

Peak Discharge	=	1.25 cfs
Time to Peak	=	12.1200 hrs
HYG Volume	=	.118 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
3.6300	.00	.00	.00	.00	.00
3.7800	.00	.00	.00	.00	.00
3.9300	.00	.00	.00	.00	.00
4.0800	.00	.00	.00	.00	.00
4.2300	.00	.00	.00	.00	.00
4.3800	.00	.00	.00	.00	.00
4.5300	.00	.00	.00	.00	.00
4.6800	.00	.00	.00	.00	.00
4.8300	.00	.00	.01	.01	.01
4.9800	.01	.01	.01	.01	.01
5.1300	.01	.01	.01	.01	.01
5.2800	.01	.01	.01	.01	.01
5.4300	.01	.01	.01	.01	.01
5.5800	.01	.01	.01	.01	.01
5.7300	.01	.01	.01	.01	.01
5.8800	.01	.01	.01	.01	.01
6.0300	.01	.01	.01	.01	.01
6.1800	.01	.01	.01	.01	.01
6.3300	.01	.01	.01	.01	.01
6.4800	.01	.01	.01	.01	.01
6.6300	.01	.01	.01	.01	.01
6.7800	.01	.01	.01	.01	.01
6.9300	.01	.02	.02	.02	.02
7.0800	.02	.02	.02	.02	.02
7.2300	.02	.02	.02	.02	.02
7.3800	.02	.02	.02	.02	.02
7.5300	.02	.02	.02	.02	.02
7.6800	.02	.02	.02	.02	.02
7.8300	.02	.02	.02	.02	.02
7.9800	.02	.02	.02	.02	.02
8.1300	.02	.03	.03	.03	.03

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
8.2800	.03	.03	.03	.03	.03
8.4300	.03	.03	.03	.03	.03
8.5800	.03	.03	.03	.03	.03
8.7300	.03	.04	.04	.04	.04
8.8800	.04	.04	.04	.04	.04
9.0300	.04	.04	.04	.04	.04
9.1800	.04	.04	.04	.04	.05
9.3300	.05	.05	.05	.05	.05
9.4800	.05	.05	.05	.05	.05
9.6300	.05	.05	.05	.05	.05
9.7800	.05	.06	.06	.06	.06
9.9300	.06	.06	.06	.06	.06
10.0800	.06	.06	.06	.06	.07
10.2300	.07	.07	.07	.07	.07
10.3800	.07	.07	.07	.08	.08
10.5300	.08	.08	.08	.08	.08
10.6800	.08	.08	.09	.09	.09
10.8300	.09	.09	.09	.09	.09
10.9800	.10	.10	.10	.10	.10
11.1300	.11	.11	.11	.12	.12
11.2800	.12	.13	.13	.14	.14
11.4300	.14	.15	.15	.16	.17
11.5800	.18	.20	.22	.25	.28
11.7300	.32	.35	.39	.43	.47
11.8800	.52	.56	.63	.74	.89
12.0300	1.03	1.14	1.22	1.25	1.24
12.1800	1.16	1.05	.93	.82	.74
12.3300	.68	.62	.57	.52	.47
12.4800	.42	.38	.34	.30	.27
12.6300	.24	.22	.21	.20	.19
12.7800	.18	.17	.17	.16	.16
12.9300	.15	.15	.14	.14	.13
13.0800	.13	.13	.12	.12	.12
13.2300	.12	.12	.12	.11	.11
13.3800	.11	.11	.11	.11	.11
13.5300	.11	.10	.10	.10	.10
13.6800	.10	.10	.10	.10	.10
13.8300	.09	.09	.09	.09	.09
13.9800	.09	.09	.09	.08	.08
14.1300	.08	.08	.08	.08	.08
14.2800	.08	.08	.08	.08	.08
14.4300	.08	.08	.08	.07	.07
14.5800	.07	.07	.07	.07	.07
14.7300	.07	.07	.07	.07	.07
14.8800	.07	.07	.07	.07	.07

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
15.0300	.06	.06	.06	.06	.06
15.1800	.06	.06	.06	.06	.06
15.3300	.06	.06	.06	.06	.06
15.4800	.06	.06	.06	.05	.05
15.6300	.05	.05	.05	.05	.05
15.7800	.05	.05	.05	.05	.05
15.9300	.05	.05	.05	.05	.05
16.0800	.04	.04	.04	.04	.04
16.2300	.04	.04	.04	.04	.04
16.3800	.04	.04	.04	.04	.04
16.5300	.04	.04	.04	.04	.04
16.6800	.04	.04	.04	.04	.04
16.8300	.04	.04	.04	.04	.04
16.9800	.04	.04	.04	.04	.04
17.1300	.04	.04	.03	.03	.03
17.2800	.03	.03	.03	.03	.03
17.4300	.03	.03	.03	.03	.03
17.5800	.03	.03	.03	.03	.03
17.7300	.03	.03	.03	.03	.03
17.8800	.03	.03	.03	.03	.03
18.0300	.03	.03	.03	.03	.03
18.1800	.03	.03	.03	.03	.03
18.3300	.03	.03	.03	.03	.03
18.4800	.03	.03	.03	.03	.03
18.6300	.03	.03	.03	.03	.03
18.7800	.03	.03	.03	.03	.02
18.9300	.02	.02	.02	.02	.02
19.0800	.02	.02	.02	.02	.02
19.2300	.02	.02	.02	.02	.02
19.3800	.02	.02	.02	.02	.02
19.5300	.02	.02	.02	.02	.02
19.6800	.02	.02	.02	.02	.02
19.8300	.02	.02	.02	.02	.02
19.9800	.02	.02	.02	.02	.02
20.1300	.02	.02	.02	.02	.02
20.2800	.02	.02	.02	.02	.02
20.4300	.02	.02	.02	.02	.02
20.5800	.02	.02	.02	.02	.02
20.7300	.02	.02	.02	.02	.02
20.8800	.02	.02	.02	.02	.02
21.0300	.02	.02	.02	.02	.02
21.1800	.02	.02	.02	.02	.02
21.3300	.02	.02	.02	.02	.02
21.4800	.02	.02	.02	.02	.02
21.6300	.02	.02	.02	.02	.02

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
21.7800	.02	.02	.02	.02	.02
21.9300	.02	.02	.02	.02	.02
22.0800	.02	.02	.02	.02	.02
22.2300	.02	.02	.02	.02	.02
22.3800	.02	.02	.02	.02	.02
22.5300	.02	.02	.02	.02	.02
22.6800	.02	.02	.02	.02	.02
22.8300	.02	.02	.02	.02	.02
22.9800	.02	.02	.02	.02	.02
23.1300	.02	.02	.02	.02	.02
23.2800	.02	.02	.02	.02	.02
23.4300	.02	.02	.02	.02	.02
23.5800	.02	.02	.02	.02	.02
23.7300	.02	.02	.02	.01	.01
23.8800	.01	.01	.01	.01	.01
24.0300	.01	.01	.01	.01	.00
24.1800	.00	.00	.00	.00	

SUMMARY FOR HYDROGRAPH ADDITION
at Node: PHIPPS RD OUTLET

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 70	CONTROLLED TO PH		CONTROLLED TO PH2	
....	JUNC 40		JUNC 40	2

INFLOWS TO: PHIPPS RD OUTLET

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	CONTROLLED TO PH	2	.283	12.1200	3.03
	JUNC 40	2	10.688	12.1500	116.58

TOTAL FLOW INTO: PHIPPS RD OUTLET

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	PHIPPS RD OUTLET	2	10.971	12.1500	119.58

TOTAL NODE INFLOW...
HYG file =
HYG ID = PHIPPS RD OUTLET
HYG Tag = 2

Peak Discharge = 119.58 cfs
Time to Peak = 12.1500 hrs
HYG Volume = 10.971 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
.0000	.00	.00	.00	.01	.02
.1500	.02	.03	.03	.03	.03
.3000	.03	.04	.04	.04	.04
.4500	.04	.04	.04	.04	.04
.6000	.04	.04	.04	.04	.04
.7500	.04	.04	.04	.04	.04
.9000	.04	.04	.04	.04	.04
1.0500	.04	.04	.04	.04	.04
1.2000	.04	.04	.04	.04	.04
1.3500	.04	.04	.04	.04	.04
1.5000	.04	.04	.04	.04	.04
1.6500	.04	.04	.04	.04	.04
1.8000	.04	.04	.04	.04	.04
1.9500	.04	.04	.04	.04	.04
2.1000	.04	.04	.04	.04	.04
2.2500	.04	.04	.04	.04	.04
2.4000	.04	.04	.04	.04	.04
2.5500	.04	.04	.04	.04	.04
2.7000	.04	.04	.04	.04	.04
2.8500	.04	.04	.04	.04	.04
3.0000	.04	.04	.04	.04	.04
3.1500	.04	.04	.04	.04	.04
3.3000	.04	.04	.04	.04	.04
3.4500	.04	.04	.04	.04	.04
3.6000	.04	.04	.04	.04	.04
3.7500	.05	.05	.05	.05	.05
3.9000	.05	.05	.05	.05	.05
4.0500	.05	.05	.05	.05	.05
4.2000	.05	.05	.05	.06	.06
4.3500	.06	.06	.06	.06	.06
4.5000	.06	.06	.06	.06	.06

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.6500	.06	.07	.07	.07	.07
4.8000	.07	.07	.07	.07	.07
4.9500	.07	.07	.07	.07	.07
5.1000	.07	.08	.08	.08	.08
5.2500	.08	.08	.08	.08	.08
5.4000	.08	.08	.08	.08	.09
5.5500	.09	.09	.09	.09	.09
5.7000	.09	.09	.09	.09	.09
5.8500	.09	.09	.09	.10	.10
6.0000	.10	.10	.10	.10	.10
6.1500	.10	.10	.10	.11	.11
6.3000	.11	.11	.11	.11	.11
6.4500	.12	.12	.12	.12	.12
6.6000	.12	.13	.13	.13	.13
6.7500	.13	.13	.13	.14	.14
6.9000	.14	.14	.14	.15	.15
7.0500	.15	.15	.15	.15	.16
7.2000	.16	.16	.16	.16	.16
7.3500	.17	.17	.17	.17	.17
7.5000	.18	.18	.18	.18	.18
7.6500	.18	.19	.19	.19	.19
7.8000	.19	.20	.20	.20	.20
7.9500	.20	.21	.21	.21	.21
8.1000	.21	.22	.22	.23	.23
8.2500	.24	.26	.28	.29	.32
8.4000	.34	.36	.38	.41	.44
8.5500	.46	.49	.52	.55	.58
8.7000	.61	.64	.67	.70	.73
8.8500	.76	.80	.83	.87	.90
9.0000	.94	.98	1.01	1.05	1.09
9.1500	1.13	1.17	1.21	1.26	1.30
9.3000	1.34	1.38	1.43	1.47	1.52
9.4500	1.56	1.61	1.66	1.71	1.76
9.6000	1.81	1.85	1.91	1.96	2.01
9.7500	2.06	2.11	2.17	2.22	2.28
9.9000	2.33	2.39	2.45	2.50	2.56
10.0500	2.62	2.68	2.75	2.82	2.90
10.2000	2.97	3.06	3.14	3.23	3.32
10.3500	3.41	3.50	3.59	3.69	3.79
10.5000	3.89	3.99	4.09	4.20	4.30
10.6500	4.41	4.52	4.63	4.74	4.85
10.8000	4.97	5.08	5.20	5.32	5.44
10.9500	5.56	5.69	5.81	5.95	6.11
11.1000	6.28	6.48	6.71	6.98	7.26
11.2500	7.56	7.89	8.23	8.57	8.93

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.4000	9.30	9.67	10.06	10.46	10.93
11.5500	11.58	12.51	13.71	15.22	17.24
11.7000	19.69	22.42	25.48	28.86	32.39
11.8500	36.11	40.19	44.70	50.75	59.93
12.0000	72.31	85.86	98.55	109.22	116.62
12.1500	119.58	116.98	109.72	100.40	91.07
12.3000	82.87	76.09	70.12	64.51	59.38
12.4500	54.47	49.53	44.74	40.28	36.11
12.6000	32.36	29.22	26.63	24.58	23.03
12.7500	21.85	20.88	20.07	19.37	18.73
12.9000	18.13	17.58	17.05	16.51	16.01
13.0500	15.55	15.11	14.71	14.37	14.08
13.2000	13.83	13.63	13.45	13.28	13.14
13.3500	13.00	12.86	12.72	12.59	12.46
13.5000	12.33	12.20	12.08	11.95	11.82
13.6500	11.69	11.56	11.43	11.30	11.17
13.8000	11.04	10.91	10.78	10.65	10.52
13.9500	10.39	10.25	10.12	10.00	9.87
14.1000	9.75	9.65	9.55	9.47	9.39
14.2500	9.32	9.24	9.17	9.11	9.04
14.4000	8.98	8.92	8.86	8.79	8.73
14.5500	8.66	8.60	8.54	8.48	8.41
14.7000	8.35	8.28	8.22	8.16	8.09
14.8500	8.03	7.97	7.90	7.84	7.77
15.0000	7.71	7.64	7.58	7.51	7.45
15.1500	7.38	7.32	7.25	7.19	7.12
15.3000	7.06	6.99	6.93	6.86	6.80
15.4500	6.73	6.66	6.60	6.53	6.47
15.6000	6.40	6.33	6.27	6.20	6.13
15.7500	6.07	6.00	5.93	5.87	5.80
15.9000	5.73	5.67	5.60	5.53	5.47
16.0500	5.41	5.35	5.29	5.24	5.20
16.2000	5.15	5.11	5.08	5.05	5.02
16.3500	4.99	4.96	4.93	4.90	4.87
16.5000	4.84	4.81	4.78	4.75	4.72
16.6500	4.69	4.66	4.64	4.61	4.58
16.8000	4.55	4.52	4.49	4.46	4.43
16.9500	4.41	4.38	4.35	4.32	4.29
17.1000	4.26	4.23	4.20	4.17	4.14
17.2500	4.11	4.08	4.05	4.03	4.00
17.4000	3.96	3.93	3.90	3.87	3.85
17.5500	3.82	3.79	3.76	3.73	3.70
17.7000	3.67	3.64	3.61	3.58	3.55
17.8500	3.52	3.49	3.46	3.44	3.41
18.0000	3.37	3.34	3.31	3.29	3.26

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
18.1500	3.25	3.23	3.22	3.21	3.19
18.3000	3.18	3.17	3.16	3.15	3.15
18.4500	3.14	3.13	3.12	3.11	3.10
18.6000	3.09	3.09	3.08	3.07	3.06
18.7500	3.05	3.04	3.03	3.02	3.02
18.9000	3.01	3.00	2.99	2.98	2.97
19.0500	2.96	2.95	2.95	2.94	2.93
19.2000	2.92	2.91	2.90	2.89	2.88
19.3500	2.87	2.87	2.86	2.85	2.84
19.5000	2.83	2.82	2.81	2.80	2.80
19.6500	2.79	2.78	2.77	2.76	2.75
19.8000	2.74	2.74	2.73	2.72	2.71
19.9500	2.70	2.69	2.68	2.67	2.66
20.1000	2.66	2.65	2.64	2.63	2.63
20.2500	2.62	2.62	2.61	2.60	2.59
20.4000	2.58	2.58	2.57	2.56	2.56
20.5500	2.55	2.55	2.54	2.53	2.53
20.7000	2.52	2.51	2.50	2.50	2.49
20.8500	2.49	2.48	2.47	2.46	2.46
21.0000	2.45	2.45	2.44	2.44	2.43
21.1500	2.42	2.41	2.41	2.40	2.39
21.3000	2.39	2.38	2.37	2.37	2.36
21.4500	2.35	2.35	2.34	2.33	2.32
21.6000	2.32	2.31	2.31	2.30	2.29
21.7500	2.28	2.28	2.27	2.27	2.26
21.9000	2.26	2.25	2.24	2.23	2.23
22.0500	2.22	2.21	2.21	2.20	2.19
22.2000	2.19	2.18	2.17	2.16	2.16
22.3500	2.15	2.14	2.14	2.13	2.13
22.5000	2.12	2.11	2.10	2.10	2.09
22.6500	2.09	2.08	2.08	2.07	2.06
22.8000	2.05	2.04	2.04	2.03	2.02
22.9500	2.02	2.01	2.01	2.00	1.99
23.1000	1.98	1.97	1.96	1.96	1.95
23.2500	1.95	1.94	1.94	1.93	1.92
23.4000	1.92	1.91	1.91	1.90	1.89
23.5500	1.88	1.88	1.87	1.86	1.85
23.7000	1.85	1.84	1.83	1.83	1.82
23.8500	1.82	1.81	1.80	1.79	1.78
24.0000	1.77	1.73	1.60	1.36	1.06
24.1500	.77	.53	.35	.24	.17
24.3000	.11	.07	.05	.03	.02
24.4500	.01	.01	.01	.00	.00
24.6000	.00				

SUMMARY FOR HYDROGRAPH ADDITION
at Node: PHIPPS RD OUTLET

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 70	CONTROLLED TO PH		CONTROLLED TO PH	10
...	JUNC 40		JUNC 40	10

INFLOWS TO: PHIPPS RD OUTLET

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	CONTROLLED TO PH	10	.449	12.1200	4.69
	JUNC 40	10	19.400	12.1500	207.27

TOTAL FLOW INTO: PHIPPS RD OUTLET

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	PHIPPS RD OUTLET	10	19.850	12.1500	211.91

TOTAL NODE INFLOW...
HYG file =
HYG ID = PHIPPS RD OUTLET
HYG Tag = 10

Peak Discharge = 211.91 cfs
Time to Peak = 12.1500 hrs
HYG Volume = 19.850 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
.0000	.00	.00	.01	.02	.03
.1500	.04	.04	.05	.05	.05
.3000	.05	.05	.05	.05	.05
.4500	.05	.05	.05	.05	.05
.6000	.05	.05	.05	.05	.05
.7500	.05	.05	.05	.05	.05
.9000	.05	.05	.05	.05	.05
1.0500	.05	.05	.05	.05	.05
1.2000	.05	.05	.05	.05	.05
1.3500	.05	.05	.05	.05	.05
1.5000	.05	.05	.05	.05	.05
1.6500	.05	.05	.05	.05	.05
1.8000	.05	.05	.05	.05	.05
1.9500	.05	.05	.05	.05	.05
2.1000	.05	.05	.05	.05	.05
2.2500	.05	.05	.05	.05	.06
2.4000	.06	.06	.06	.06	.06
2.5500	.06	.06	.06	.06	.06
2.7000	.06	.06	.06	.06	.06
2.8500	.06	.07	.07	.07	.07
3.0000	.07	.07	.07	.07	.07
3.1500	.07	.08	.08	.08	.08
3.3000	.08	.08	.08	.08	.08
3.4500	.09	.09	.09	.09	.09
3.6000	.09	.09	.09	.09	.10
3.7500	.10	.10	.10	.10	.10
3.9000	.10	.10	.10	.11	.11
4.0500	.11	.11	.11	.11	.11
4.2000	.11	.11	.12	.12	.12
4.3500	.12	.12	.12	.12	.12
4.5000	.13	.13	.13	.13	.13

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.6500	.13	.13	.13	.13	.14
4.8000	.14	.14	.14	.14	.14
4.9500	.14	.14	.15	.15	.15
5.1000	.15	.15	.15	.15	.15
5.2500	.15	.16	.16	.16	.16
5.4000	.16	.16	.16	.16	.17
5.5500	.17	.17	.17	.17	.17
5.7000	.17	.17	.18	.18	.18
5.8500	.18	.18	.18	.18	.18
6.0000	.19	.19	.19	.19	.19
6.1500	.19	.20	.20	.20	.20
6.3000	.20	.21	.21	.21	.22
6.4500	.22	.22	.23	.24	.25
6.6000	.27	.29	.30	.32	.34
6.7500	.37	.39	.41	.43	.45
6.9000	.48	.50	.53	.55	.57
7.0500	.60	.63	.65	.68	.70
7.2000	.73	.76	.79	.81	.84
7.3500	.87	.90	.93	.96	.99
7.5000	1.02	1.05	1.08	1.12	1.15
7.6500	1.18	1.21	1.25	1.28	1.31
7.8000	1.35	1.38	1.42	1.45	1.49
7.9500	1.52	1.56	1.60	1.63	1.67
8.1000	1.71	1.76	1.80	1.85	1.90
8.2500	1.95	2.01	2.06	2.12	2.18
8.4000	2.24	2.29	2.35	2.42	2.48
8.5500	2.54	2.61	2.68	2.74	2.81
8.7000	2.88	2.95	3.02	3.09	3.16
8.8500	3.24	3.31	3.39	3.46	3.54
9.0000	3.62	3.70	3.78	3.86	3.94
9.1500	4.03	4.11	4.20	4.28	4.37
9.3000	4.46	4.54	4.63	4.73	4.82
9.4500	4.91	5.00	5.10	5.19	5.29
9.6000	5.38	5.48	5.58	5.68	5.78
9.7500	5.88	5.98	6.09	6.19	6.29
9.9000	6.40	6.50	6.61	6.72	6.83
10.0500	6.94	7.06	7.19	7.32	7.47
10.2000	7.63	7.79	7.95	8.13	8.30
10.3500	8.48	8.66	8.84	9.03	9.22
10.5000	9.41	9.60	9.80	10.00	10.20
10.6500	10.40	10.60	10.81	11.01	11.22
10.8000	11.44	11.65	11.86	12.08	12.30
10.9500	12.52	12.74	12.97	13.22	13.51
11.1000	13.84	14.22	14.66	15.17	15.72
11.2500	16.30	16.93	17.58	18.24	18.93

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.4000	19.63	20.33	21.05	21.80	22.68
11.5500	23.91	25.68	28.01	30.92	34.81
11.7000	39.51	44.70	50.46	56.75	63.25
11.8500	70.01	77.31	85.29	95.95	112.12
12.0000	133.86	157.37	178.94	196.57	208.14
12.1500	211.91	207.55	194.94	178.68	162.45
12.3000	148.35	136.56	126.03	116.09	106.92
12.4500	98.11	89.25	80.64	72.59	65.05
12.6000	58.42	52.81	48.14	44.38	41.49
12.7500	39.24	37.35	35.76	34.38	33.11
12.9000	31.92	30.82	29.77	28.73	27.75
13.0500	26.84	25.98	25.20	24.52	23.93
13.2000	23.43	23.01	22.63	22.28	21.96
13.3500	21.67	21.38	21.10	20.83	20.57
13.5000	20.35	20.13	19.91	19.69	19.47
13.6500	19.26	19.04	18.82	18.60	18.38
13.8000	18.16	17.94	17.72	17.50	17.28
13.9500	17.06	16.84	16.62	16.41	16.20
14.1000	16.00	15.83	15.66	15.52	15.38
14.2500	15.26	15.14	15.03	14.92	14.81
14.4000	14.70	14.59	14.49	14.38	14.27
14.5500	14.17	14.06	13.95	13.85	13.75
14.7000	13.64	13.53	13.42	13.32	13.21
14.8500	13.11	13.00	12.89	12.78	12.68
15.0000	12.57	12.46	12.36	12.25	12.14
15.1500	12.03	11.92	11.81	11.71	11.60
15.3000	11.49	11.38	11.27	11.16	11.06
15.4500	10.95	10.84	10.73	10.62	10.51
15.6000	10.40	10.30	10.19	10.08	9.97
15.7500	9.86	9.75	9.64	9.53	9.42
15.9000	9.31	9.20	9.09	8.98	8.88
16.0500	8.77	8.68	8.59	8.51	8.43
16.2000	8.36	8.29	8.24	8.18	8.13
16.3500	8.09	8.04	7.98	7.93	7.89
16.5000	7.84	7.79	7.75	7.70	7.65
16.6500	7.60	7.55	7.51	7.46	7.42
16.8000	7.37	7.32	7.27	7.22	7.17
16.9500	7.13	7.08	7.03	6.98	6.93
17.1000	6.89	6.84	6.80	6.75	6.70
17.2500	6.65	6.60	6.55	6.51	6.46
17.4000	6.41	6.36	6.31	6.26	6.22
17.5500	6.17	6.12	6.07	6.02	5.97
17.7000	5.93	5.88	5.84	5.79	5.73
17.8500	5.69	5.64	5.59	5.55	5.50
18.0000	5.45	5.40	5.35	5.31	5.27

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
18.1500	5.24	5.21	5.19	5.17	5.15
18.3000	5.14	5.12	5.10	5.09	5.08
18.4500	5.06	5.05	5.03	5.02	5.00
18.6000	4.99	4.98	4.96	4.95	4.93
18.7500	4.92	4.90	4.89	4.88	4.86
18.9000	4.85	4.83	4.82	4.80	4.79
19.0500	4.78	4.76	4.75	4.73	4.72
19.2000	4.70	4.69	4.68	4.66	4.64
19.3500	4.63	4.61	4.60	4.59	4.58
19.5000	4.56	4.54	4.53	4.51	4.50
19.6500	4.49	4.47	4.46	4.44	4.43
19.8000	4.41	4.40	4.39	4.37	4.36
19.9500	4.34	4.33	4.31	4.30	4.29
20.1000	4.27	4.26	4.24	4.23	4.23
20.2500	4.22	4.21	4.20	4.18	4.17
20.4000	4.16	4.15	4.13	4.12	4.11
20.5500	4.10	4.09	4.08	4.07	4.06
20.7000	4.05	4.03	4.02	4.01	4.00
20.8500	4.00	3.98	3.97	3.96	3.95
21.0000	3.94	3.94	3.93	3.92	3.90
21.1500	3.89	3.88	3.86	3.85	3.84
21.3000	3.83	3.82	3.81	3.80	3.79
21.4500	3.78	3.77	3.75	3.74	3.73
21.6000	3.72	3.71	3.70	3.69	3.68
21.7500	3.67	3.66	3.65	3.64	3.63
21.9000	3.62	3.61	3.60	3.58	3.57
22.0500	3.56	3.55	3.54	3.53	3.52
22.2000	3.51	3.50	3.49	3.47	3.46
22.3500	3.44	3.43	3.43	3.42	3.41
22.5000	3.40	3.38	3.37	3.36	3.36
22.6500	3.35	3.34	3.33	3.31	3.30
22.8000	3.29	3.28	3.27	3.25	3.24
22.9500	3.23	3.22	3.21	3.20	3.19
23.1000	3.18	3.16	3.15	3.14	3.13
23.2500	3.12	3.11	3.10	3.09	3.08
23.4000	3.07	3.06	3.06	3.04	3.03
23.5500	3.02	3.00	2.99	2.98	2.97
23.7000	2.96	2.95	2.94	2.93	2.92
23.8500	2.91	2.89	2.88	2.86	2.85
24.0000	2.84	2.77	2.56	2.17	1.69
24.1500	1.23	.84	.57	.39	.26
24.3000	.18	.12	.08	.05	.04
24.4500	.02	.02	.01	.01	.00
24.6000	.00				

SUMMARY FOR HYDROGRAPH ADDITION
at Node: PHIPPS RD OUTLET

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 70	CONTROLLED TO PH		CONTROLLED TO PH	100
....	JUNC 40		JUNC 40	100

INFLOWS TO: PHIPPS RD OUTLET

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	CONTROLLED TO PH	100	.756	12.1200	7.68
	JUNC 40	100	36.471	12.1500	392.35

TOTAL FLOW INTO: PHIPPS RD OUTLET

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	PHIPPS RD OUTLET	100	37.227	12.1500	399.92

TOTAL NODE INFLOW...
HYG file =
HYG ID = PHIPPS RD OUTLET
HYG Tag = 100

Peak Discharge	=	399.92 cfs
Time to Peak	=	12.1500 hrs
HYG Volume	=	37.227 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
.0000	.00	.00	.01	.03	.04
.1500	.06	.07	.07	.08	.08
.3000	.08	.08	.08	.08	.08
.4500	.08	.08	.08	.08	.08
.6000	.08	.08	.08	.08	.08
.7500	.08	.08	.08	.08	.08
.9000	.08	.08	.08	.08	.08
1.0500	.08	.08	.08	.08	.08
1.2000	.08	.08	.08	.08	.08
1.3500	.08	.08	.08	.08	.08
1.5000	.08	.08	.08	.08	.08
1.6500	.08	.09	.09	.09	.09
1.8000	.09	.09	.09	.09	.10
1.9500	.10	.10	.10	.10	.10
2.1000	.10	.11	.11	.11	.11
2.2500	.11	.12	.12	.12	.12
2.4000	.12	.13	.13	.13	.13
2.5500	.13	.14	.14	.14	.14
2.7000	.14	.15	.15	.15	.15
2.8500	.15	.16	.16	.16	.16
3.0000	.16	.17	.17	.17	.17
3.1500	.17	.18	.18	.18	.18
3.3000	.18	.19	.19	.19	.19
3.4500	.19	.20	.20	.20	.20
3.6000	.20	.21	.21	.21	.21
3.7500	.21	.22	.22	.22	.22
3.9000	.23	.23	.23	.23	.23
4.0500	.24	.24	.24	.24	.24
4.2000	.25	.25	.25	.25	.25
4.3500	.26	.26	.26	.26	.26
4.5000	.27	.27	.27	.28	.30

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.6500	.31	.33	.36	.38	.41
4.8000	.43	.46	.49	.51	.54
4.9500	.57	.60	.62	.65	.68
5.1000	.71	.74	.77	.80	.83
5.2500	.85	.88	.91	.94	.97
5.4000	1.00	1.03	1.06	1.09	1.12
5.5500	1.15	1.18	1.21	1.24	1.27
5.7000	1.30	1.33	1.36	1.39	1.42
5.8500	1.46	1.49	1.52	1.55	1.58
6.0000	1.61	1.64	1.68	1.71	1.75
6.1500	1.79	1.83	1.87	1.91	1.95
6.3000	2.00	2.05	2.09	2.14	2.19
6.4500	2.23	2.29	2.34	2.39	2.44
6.6000	2.49	2.54	2.59	2.65	2.71
6.7500	2.76	2.82	2.87	2.93	2.98
6.9000	3.04	3.10	3.16	3.22	3.28
7.0500	3.34	3.40	3.47	3.53	3.59
7.2000	3.66	3.72	3.78	3.85	3.92
7.3500	3.98	4.05	4.12	4.18	4.25
7.5000	4.32	4.39	4.46	4.53	4.60
7.6500	4.67	4.74	4.82	4.89	4.97
7.8000	5.04	5.11	5.18	5.26	5.34
7.9500	5.42	5.49	5.57	5.65	5.73
8.1000	5.82	5.92	6.02	6.14	6.25
8.2500	6.37	6.50	6.63	6.76	6.89
8.4000	7.03	7.16	7.30	7.44	7.58
8.5500	7.72	7.87	8.01	8.16	8.30
8.7000	8.46	8.61	8.76	8.91	9.07
8.8500	9.22	9.38	9.54	9.70	9.86
9.0000	10.03	10.19	10.35	10.52	10.69
9.1500	10.86	11.03	11.21	11.38	11.55
9.3000	11.73	11.90	12.08	12.26	12.44
9.4500	12.62	12.80	12.99	13.17	13.36
9.6000	13.55	13.73	13.92	14.11	14.30
9.7500	14.49	14.69	14.88	15.07	15.27
9.9000	15.47	15.67	15.87	16.07	16.27
10.0500	16.48	16.71	16.95	17.21	17.49
10.2000	17.79	18.10	18.43	18.76	19.10
10.3500	19.44	19.80	20.15	20.51	20.87
10.5000	21.24	21.60	21.97	22.35	22.72
10.6500	23.09	23.48	23.86	24.24	24.63
10.8000	25.02	25.40	25.79	26.19	26.59
10.9500	26.98	27.39	27.80	28.25	28.79
11.1000	29.42	30.13	30.97	31.95	33.01
11.2500	34.13	35.35	36.60	37.85	39.16

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.4000	40.49	41.81	43.15	44.56	46.20
11.5500	48.54	51.95	56.43	62.06	69.56
11.7000	78.56	88.46	99.36	111.17	123.25
11.8500	135.64	148.91	163.28	182.86	213.35
12.0000	253.92	298.12	338.87	371.79	393.09
12.1500	399.92	389.32	363.90	332.04	300.21
12.3000	272.04	248.56	227.86	208.76	191.46
12.4500	175.08	158.83	143.20	128.68	115.14
12.6000	103.00	92.74	84.23	77.37	72.10
12.7500	68.00	64.58	61.86	59.56	57.43
12.9000	55.44	53.61	51.85	50.09	48.45
13.0500	46.91	45.47	44.16	43.01	42.02
13.2000	41.18	40.46	39.82	39.23	38.70
13.3500	38.19	37.70	37.23	36.78	36.33
13.5000	35.87	35.44	35.01	34.57	34.15
13.6500	33.73	33.30	32.88	32.47	32.05
13.8000	31.62	31.21	30.80	30.37	29.96
13.9500	29.55	29.13	28.72	28.32	27.94
14.1000	27.57	27.23	26.93	26.64	26.39
14.2500	26.16	25.92	25.70	25.49	25.28
14.4000	25.07	24.87	24.67	24.46	24.27
14.5500	24.09	23.90	23.72	23.54	23.36
14.7000	23.17	22.98	22.80	22.61	22.43
14.8500	22.25	22.07	21.88	21.70	21.51
15.0000	21.32	21.14	20.96	20.77	20.58
15.1500	20.40	20.21	20.03	19.85	19.66
15.3000	19.47	19.29	19.10	18.91	18.73
15.4500	18.55	18.36	18.17	17.99	17.80
15.6000	17.61	17.43	17.25	17.06	16.87
15.7500	16.69	16.50	16.31	16.13	15.94
15.9000	15.75	15.56	15.38	15.19	15.01
16.0500	14.84	14.67	14.52	14.38	14.25
16.2000	14.13	14.02	13.92	13.83	13.74
16.3500	13.66	13.58	13.49	13.40	13.32
16.5000	13.24	13.16	13.09	13.00	12.92
16.6500	12.83	12.75	12.67	12.60	12.52
16.8000	12.43	12.35	12.26	12.18	12.11
16.9500	12.03	11.95	11.86	11.78	11.70
17.1000	11.62	11.54	11.46	11.38	11.29
17.2500	11.21	11.13	11.05	10.97	10.89
17.4000	10.81	10.72	10.64	10.56	10.48
17.5500	10.40	10.32	10.23	10.15	10.07
17.7000	9.99	9.91	9.83	9.75	9.66
17.8500	9.58	9.50	9.42	9.34	9.26
18.0000	9.18	9.09	9.01	8.94	8.87

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
18.1500	8.82	8.78	8.74	8.71	8.68
18.3000	8.65	8.62	8.59	8.57	8.54
18.4500	8.52	8.50	8.47	8.44	8.42
18.6000	8.39	8.37	8.35	8.32	8.30
18.7500	8.27	8.25	8.22	8.20	8.18
18.9000	8.15	8.13	8.10	8.08	8.06
19.0500	8.03	8.01	7.98	7.96	7.93
19.2000	7.91	7.89	7.86	7.84	7.81
19.3500	7.78	7.76	7.74	7.72	7.69
19.5000	7.67	7.64	7.61	7.59	7.57
19.6500	7.55	7.52	7.49	7.47	7.44
19.8000	7.42	7.40	7.37	7.35	7.32
19.9500	7.30	7.27	7.25	7.23	7.20
20.1000	7.18	7.15	7.13	7.11	7.10
20.2500	7.09	7.07	7.05	7.03	7.00
20.4000	6.98	6.96	6.94	6.93	6.91
20.5500	6.89	6.87	6.86	6.84	6.82
20.7000	6.79	6.77	6.75	6.73	6.72
20.8500	6.71	6.69	6.67	6.65	6.63
21.0000	6.62	6.61	6.59	6.57	6.55
21.1500	6.53	6.51	6.49	6.47	6.45
21.3000	6.43	6.41	6.40	6.38	6.36
21.4500	6.34	6.32	6.30	6.27	6.25
21.6000	6.24	6.23	6.21	6.19	6.17
21.7500	6.15	6.13	6.12	6.11	6.10
21.9000	6.08	6.05	6.03	6.01	5.99
22.0500	5.97	5.95	5.93	5.92	5.90
22.2000	5.88	5.87	5.85	5.82	5.80
22.3500	5.77	5.76	5.74	5.73	5.72
22.5000	5.69	5.67	5.65	5.64	5.63
22.6500	5.62	5.60	5.58	5.55	5.53
22.8000	5.51	5.49	5.47	5.45	5.44
22.9500	5.42	5.40	5.39	5.37	5.35
23.1000	5.32	5.30	5.28	5.26	5.25
23.2500	5.23	5.22	5.20	5.17	5.16
23.4000	5.14	5.13	5.12	5.10	5.08
23.5500	5.05	5.03	5.01	4.99	4.97
23.7000	4.96	4.94	4.92	4.91	4.89
23.8500	4.87	4.85	4.82	4.80	4.78
24.0000	4.75	4.64	4.29	3.64	2.84
24.1500	2.06	1.41	.95	.65	.44
24.3000	.30	.20	.14	.09	.06
24.4500	.04	.03	.02	.01	.00
24.6000	.00	.00			

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Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
692.00	-----	.1490	.0000	.000	.000
693.00	-----	.1750	.4855	.162	.162
694.00	-----	.2570	.6441	.215	.377
695.00	-----	.2970	.8303	.277	.653
696.00	-----	.3270	.9356	.312	.965
697.00	-----	.3390	.9989	.333	1.298

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

REQUESTED POND WS ELEVATIONS:

Min. Elev.= 692.00 ft
Increment = .50 ft
Max. Elev.= 697.00 ft

Spot Elevations, ft
694.15

****
OUTLET CONNECTIVITY
****

---> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Structure	No.		Outfall	E1, ft	E2, ft
Weir-Rectangular	W0	--->	C0	694.150	697.000
Culvert-Circular	C0	--->	TW	688.100	697.000
TW SETUP, DS Channel					

OUTLET STRUCTURE INPUT DATA

Structure ID	=	W0
Structure Type	=	Weir-Rectangular
# of Openings	=	1
Crest Elev.	=	694.15 ft
Weir Length	=	7.00 ft
Weir Coeff.	=	3.000000

Weir TW effects (Use adjustment equation)

OUTLET STRUCTURE INPUT DATA

```
Structure ID       = C0
Structure Type     = Culvert-Circular
-----------------------------------
No. Barrels        =         1
Barrel Diameter    =    4.0000 ft
Upstream Invert    =    688.10 ft
Dnstream Invert    =    687.96 ft
Horiz. Length      =     50.00 ft
Barrel Length      =     50.00 ft
Barrel Slope       =    .00280 ft/ft

OUTLET CONTROL DATA...
Mannings n         =     .0130
Ke                 =     .5000  (forward entrance loss)
Kb                 =   .004925  (per ft of full flow)
Kr                 =     .5000  (reverse entrance loss)
HW Convergence     =      .001  +/- ft

INLET CONTROL DATA...
Equation form      =         1
Inlet Control K    =     .0078
Inlet Control M    =    2.0000
Inlet Control c    =    .03790
Inlet Control Y    =     .6900
T1 ratio (HW/D)    =     1.134
T2 ratio (HW/D)    =     1.295
Slope Factor       =     -.500
Calc inlet only    = Yes

Use unsubmerged inlet control Form 1 equ. below T1 elev.
Use   submerged inlet control Form 1 equ. above T2 elev.

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...
At T1 Elev =    692.64 ft  --->  Flow =     87.96 cfs
At T2 Elev =    693.28 ft  --->  Flow =    100.53 cfs


Structure ID       = TW
Structure Type     = TW SETUP, DS Channel
-----------------------------------
FREE OUTFALL CONDITIONS SPECIFIED

CONVERGENCE TOLERANCES...
Maximum Iterations=    40
Min. TW tolerance =    .01 ft
Max. TW tolerance =    .01 ft
Min. HW tolerance =    .01 ft
Max. HW tolerance =    .01 ft
Min.  Q tolerance =    .00 cfs
Max.  Q tolerance =    .00 cfs
```

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = W0 (Weir-Rectangular)

Upstream ID = (Pond Water Surface)
DNstream ID = C0 (Culvert-Circular)

Pond WS. Elev. ft	Device Q cfs	(into) HW HGL ft	Converge DS HGL ft	Next DS HGL ft	DS HGL Error +/-ft	Q SUM Error +/-cfs	DS Chan. TW ft	TW Error +/-ft
692.00	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
692.50	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
693.00	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
693.50	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
694.00	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
694.15	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
694.50	4.30	694.50	Free	688.90	.000	.000	Free Outfall	
		H=.35; Htw=.00; Qfree=4.30;						
695.00	16.06	695.00	Free	689.70	.000	.000	Free Outfall	
		H=.85; Htw=.00; Qfree=16.06;						
695.50	31.67	695.50	Free	690.45	.000	.000	Free Outfall	
		H=1.35; Htw=.00; Qfree=31.67;						
696.00	50.05	696.00	Free	691.19	.000	.000	Free Outfall	
		H=1.85; Htw=.00; Qfree=50.05;						
696.50	70.57	696.50	Free	691.97	.000	.000	Free Outfall	
		H=2.35; Htw=.00; Qfree=70.57;						
697.00	92.81	697.00	Free	692.89	.000	.000	Free Outfall	
		H=2.85; Htw=.00; Qfree=92.81;						

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = C0 (Culvert-Circular)

Mannings open channel maximum capacity: 81.75 cfs
UPstream ID = W0 (Weir-Rectangular)
DNstream ID = TW (Pond Outfall)

Pond WS. Elev. ft	Device Q cfs	(into) HW HGL ft	Converge DS HGL ft	Next DS HGL ft	DS HGL Error +/-ft	Q SUM Error +/-cfs	DS Chan. TW ft	TW Error +/-ft
692.00	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
692.50	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
693.00	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
693.50	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
694.00	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
694.15	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
694.50	4.30	688.90	Free	Free	.000	.001	Free Outfall	
		INLET CONTROL...		Equ.1: HW =.80		dc=.599	Ac=1.1800	
695.00	16.07	689.70	Free	Free	.000	.013	Free Outfall	
		INLET CONTROL...		Equ.1: HW =1.60		dc=1.175	Ac=3.0809	
695.50	31.66	690.45	Free	Free	.000	.006	Free Outfall	
		INLET CONTROL...		Equ.1: HW =2.35		dc=1.671	Ac=4.9723	
696.00	50.07	691.19	Free	Free	.000	.020	Free Outfall	
		INLET CONTROL...		Equ.1: HW =3.09		dc=2.123	Ac=6.7757	
696.50	70.57	691.97	Free	Free	.000	.000	Free Outfall	
		INLET CONTROL...		Equ.1: HW =3.87		dc=2.540	Ac=8.4166	
697.00	92.81	692.89	Free	Free	.000	.000	Free Outfall	
		INLET CONTROL...		Transition: HW =4.79				

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
692.00	.00	Free Outfall		(no Q: W0,C0)
692.50	.00	Free Outfall		(no Q: W0,C0)
693.00	.00	Free Outfall		(no Q: W0,C0)
693.50	.00	Free Outfall		(no Q: W0,C0)
694.00	.00	Free Outfall		(no Q: W0,C0)
694.15	.00	Free Outfall		(no Q: W0,C0)
694.50	4.30	Free Outfall		W0,C0
695.00	16.07	Free Outfall		W0,C0
695.50	31.66	Free Outfall		W0,C0
696.00	50.07	Free Outfall		W0,C0
696.50	70.57	Free Outfall		W0,C0
697.00	92.81	Free Outfall		W0,C0

INFILTRATION RATING TABLE CALCULATIONS

Infilt.(cfs) = (7.0000 (in/hr) * Area) * Ku
Where: Ku = units conversion factor

W.S.Elev ft	Total Area acres	Infilt. cfs
No storage at this elevation... infiltration set to zero.		
692.00	.1490	.00
692.50	.1617	1.14
693.00	.1750	1.24
693.50	.2140	1.51
694.00	.2570	1.81
694.15	.2628	1.86
694.50	.2766	1.95
695.00	.2970	2.10
695.50	.3118	2.20
696.00	.3270	2.31
696.50	.3330	2.35
697.00	.3390	2.39

SUMMARY FOR HYDROGRAPH ADDITION
at Node: PROPOSEDBASININ

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 30	CONTROLLED TO B1		CONTROLLED TO B12	
.,;	OFFSITE TO BASIN		OFFSITE TO BASIN2	
..	BASIN 1		BASIN 1	2

INFLOWS TO: PROPOSEDBASININ

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	CONTROLLED TO B1	2	.799	12.1200	8.66
	OFFSITE TO BASIN	2	.083	12.1500	.92
	BASIN 1	2	.112	12.1200	1.06

TOTAL FLOW INTO: PROPOSEDBASININ

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	PROPOSEDBASININ	2	.995	12.1200	10.62

TOTAL NODE INFLOW...
HYG file =
HYG ID = PROPOSEDBASININ
HYG Tag = 2

Peak Discharge = 10.62 cfs
Time to Peak = 12.1200 hrs
HYG Volume = .995 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
.0300	.00	.00	.00	.01	.01
.1800	.01	.01	.01	.01	.01
.3300	.01	.01	.01	.01	.01
.4800	.01	.01	.01	.01	.01
.6300	.01	.01	.01	.01	.01
.7800	.01	.01	.01	.01	.01
.9300	.01	.01	.01	.01	.01
1.0800	.01	.01	.01	.01	.01
1.2300	.01	.01	.01	.01	.01
1.3800	.01	.01	.01	.01	.01
1.5300	.01	.01	.01	.01	.01
1.6800	.01	.01	.01	.01	.01
1.8300	.01	.01	.01	.01	.01
1.9800	.01	.01	.01	.01	.01
2.1300	.01	.01	.01	.01	.01
2.2800	.01	.01	.01	.01	.01
2.4300	.01	.01	.01	.01	.01
2.5800	.01	.01	.01	.01	.01
2.7300	.01	.01	.01	.01	.02
2.8800	.02	.02	.02	.02	.02
3.0300	.02	.02	.02	.02	.02
3.1800	.02	.02	.02	.02	.02
3.3300	.02	.02	.02	.02	.02
3.4800	.02	.02	.02	.02	.02
3.6300	.02	.02	.02	.02	.02
3.7800	.02	.02	.02	.02	.02
3.9300	.02	.02	.02	.02	.02
4.0800	.02	.02	.02	.02	.02
4.2300	.02	.02	.02	.02	.02
4.3800	.02	.02	.02	.03	.03
4.5300	.03	.03	.03	.03	.03

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.6800	.03	.03	.03	.03	.03
4.8300	.03	.03	.03	.04	.04
4.9800	.04	.04	.04	.04	.04
5.1300	.04	.04	.04	.04	.04
5.2800	.04	.04	.05	.05	.05
5.4300	.05	.05	.05	.05	.05
5.5800	.05	.05	.05	.05	.05
5.7300	.06	.06	.06	.06	.06
5.8800	.06	.06	.06	.06	.06
6.0300	.06	.06	.07	.07	.07
6.1800	.07	.07	.07	.07	.07
6.3300	.07	.08	.08	.08	.08
6.4800	.08	.08	.08	.09	.09
6.6300	.09	.09	.09	.09	.09
6.7800	.10	.10	.10	.10	.10
6.9300	.10	.10	.11	.11	.11
7.0800	.11	.11	.11	.12	.12
7.2300	.12	.12	.12	.12	.13
7.3800	.13	.13	.13	.13	.14
7.5300	.14	.14	.14	.14	.14
7.6800	.15	.15	.15	.15	.15
7.8300	.16	.16	.16	.16	.16
7.9800	.17	.17	.17	.17	.17
8.1300	.18	.18	.18	.19	.19
8.2800	.19	.20	.20	.20	.21
8.4300	.21	.21	.22	.22	.22
8.5800	.23	.23	.24	.24	.24
8.7300	.25	.25	.26	.26	.26
8.8800	.27	.27	.28	.28	.28
9.0300	.29	.29	.30	.30	.31
9.1800	.31	.31	.32	.32	.33
9.3300	.33	.34	.34	.34	.35
9.4800	.35	.36	.36	.37	.37
9.6300	.38	.38	.39	.39	.40
9.7800	.40	.41	.41	.41	.42
9.9300	.42	.43	.43	.44	.44
10.0800	.45	.46	.46	.47	.48
10.2300	.49	.49	.50	.51	.52
10.3800	.53	.54	.55	.56	.57
10.5300	.58	.59	.60	.61	.62
10.6800	.63	.64	.65	.66	.67
10.8300	.68	.69	.70	.71	.72
10.9800	.73	.74	.76	.77	.79
11.1300	.81	.83	.86	.89	.92
11.2800	.96	.99	1.02	1.06	1.10

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.4300	1.13	1.17	1.21	1.25	1.32
11.5800	1.43	1.57	1.74	1.96	2.23
11.7300	2.52	2.83	3.16	3.49	3.83
11.8800	4.20	4.60	5.19	6.14	7.35
12.0300	8.54	9.53	10.25	10.62	10.54
12.1800	9.92	8.96	7.97	7.10	6.42
12.3300	5.87	5.37	4.91	4.50	4.10
12.4800	3.69	3.30	2.95	2.63	2.35
12.6300	2.13	1.95	1.81	1.72	1.64
12.7800	1.58	1.53	1.48	1.43	1.39
12.9300	1.35	1.30	1.26	1.22	1.19
13.0800	1.16	1.13	1.10	1.08	1.06
13.2300	1.05	1.04	1.02	1.01	1.00
13.3800	.99	.98	.97	.96	.95
13.5300	.94	.93	.92	.91	.90
13.6800	.89	.88	.87	.86	.85
13.8300	.84	.82	.81	.80	.79
13.9800	.78	.77	.76	.75	.74
14.1300	.74	.73	.72	.72	.71
14.2800	.71	.70	.70	.69	.68
14.4300	.68	.68	.67	.66	.66
14.5800	.65	.65	.65	.64	.63
14.7300	.63	.62	.62	.61	.61
14.8800	.60	.60	.59	.59	.58
15.0300	.58	.57	.57	.56	.56
15.1800	.55	.55	.54	.54	.53
15.3300	.53	.52	.52	.51	.51
15.4800	.50	.50	.49	.49	.48
15.6300	.48	.47	.47	.46	.46
15.7800	.45	.45	.44	.44	.43
15.9300	.43	.42	.42	.41	.41
16.0800	.40	.40	.39	.39	.39
16.2300	.38	.38	.38	.38	.38
16.3800	.37	.37	.37	.37	.36
16.5300	.36	.36	.36	.36	.35
16.6800	.35	.35	.35	.34	.34
16.8300	.34	.34	.34	.33	.33
16.9800	.33	.33	.32	.32	.32
17.1300	.32	.32	.31	.31	.31
17.2800	.31	.30	.30	.30	.30
17.4300	.29	.29	.29	.29	.29
17.5800	.28	.28	.28	.28	.27
17.7300	.27	.27	.27	.27	.26
17.8800	.26	.26	.26	.25	.25
18.0300	.25	.25	.25	.24	.24

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
18.1800	.24	.24	.24	.24	.24
18.3300	.24	.24	.24	.24	.24
18.4800	.23	.23	.23	.23	.23
18.6300	.23	.23	.23	.23	.23
18.7800	.23	.23	.23	.23	.23
18.9300	.22	.22	.22	.22	.22
19.0800	.22	.22	.22	.22	.22
19.2300	.22	.22	.22	.22	.22
19.3800	.21	.21	.21	.21	.21
19.5300	.21	.21	.21	.21	.21
19.6800	.21	.21	.21	.21	.21
19.8300	.20	.20	.20	.20	.20
19.9800	.20	.20	.20	.20	.20
20.1300	.20	.20	.20	.20	.20
20.2800	.20	.19	.19	.19	.19
20.4300	.19	.19	.19	.19	.19
20.5800	.19	.19	.19	.19	.19
20.7300	.19	.19	.19	.19	.19
20.8800	.19	.18	.18	.18	.18
21.0300	.18	.18	.18	.18	.18
21.1800	.18	.18	.18	.18	.18
21.3300	.18	.18	.18	.18	.18
21.4800	.17	.17	.17	.17	.17
21.6300	.17	.17	.17	.17	.17
21.7800	.17	.17	.17	.17	.17
21.9300	.17	.17	.17	.17	.17
22.0800	.16	.16	.16	.16	.16
22.2300	.16	.16	.16	.16	.16
22.3800	.16	.16	.16	.16	.16
22.5300	.16	.16	.16	.16	.16
22.6800	.15	.15	.15	.15	.15
22.8300	.15	.15	.15	.15	.15
22.9800	.15	.15	.15	.15	.15
23.1300	.15	.15	.15	.15	.14
23.2800	.14	.14	.14	.14	.14
23.4300	.14	.14	.14	.14	.14
23.5800	.14	.14	.14	.14	.14
23.7300	.14	.14	.14	.14	.13
23.8800	.13	.13	.13	.13	.13
24.0300	.13	.11	.09	.07	.04
24.1800	.03	.02	.01	.01	.00
24.3300	.00	.00	.00		

SUMMARY FOR HYDROGRAPH ADDITION
at Node: PROPOSEDBASININ

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 30	CONTROLLED TO B1		CONTROLLED TO B1	10
..	OFFSITE TO BASIN		OFFSITE TO BASIN	10
..	BASIN 1		BASIN 1	10

INFLOWS TO: PROPOSEDBASININ

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	CONTROLLED TO B1	10	1.284	12.1200	13.56
	OFFSITE TO BASIN	10	.169	12.1500	1.91
	BASIN 1	10	.167	12.1200	1.58

TOTAL FLOW INTO: PROPOSEDBASININ

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	PROPOSEDBASININ	10	1.620	12.1200	17.03

TOTAL NODE INFLOW...
HYG file =
HYG ID = PROPOSEDBASININ
HYG Tag = 10

Peak Discharge = 17.03 cfs
Time to Peak = 12.1200 hrs
HYG Volume = 1.620 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
.0300	.00	.00	.01	.01	.01
.1800	.02	.02	.02	.02	.02
.3300	.02	.02	.02	.02	.02
.4800	.02	.02	.02	.02	.02
.6300	.02	.02	.02	.02	.02
.7800	.02	.02	.02	.02	.02
.9300	.02	.02	.02	.02	.02
1.0800	.02	.02	.02	.02	.02
1.2300	.02	.02	.02	.02	.02
1.3800	.02	.02	.02	.02	.02
1.5300	.02	.02	.02	.02	.02
1.6800	.02	.02	.02	.02	.02
1.8300	.02	.02	.02	.02	.02
1.9800	.02	.02	.02	.02	.02
2.1300	.02	.02	.02	.02	.02
2.2800	.02	.02	.02	.02	.02
2.4300	.02	.02	.02	.02	.02
2.5800	.02	.02	.02	.02	.02
2.7300	.02	.02	.02	.02	.02
2.8800	.02	.02	.02	.02	.02
3.0300	.03	.03	.03	.03	.03
3.1800	.03	.03	.03	.03	.03
3.3300	.04	.04	.04	.04	.04
3.4800	.04	.04	.04	.04	.05
3.6300	.05	.05	.05	.05	.05
3.7800	.05	.05	.06	.06	.06
3.9300	.06	.06	.06	.06	.06
4.0800	.06	.07	.07	.07	.07
4.2300	.07	.07	.07	.07	.08
4.3800	.08	.08	.08	.08	.08
4.5300	.08	.08	.09	.09	.09

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.6800	.09	.09	.09	.09	.09
4.8300	.10	.10	.10	.10	.10
4.9800	.10	.10	.10	.11	.11
5.1300	.11	.11	.11	.11	.11
5.2800	.11	.12	.12	.12	.12
5.4300	.12	.12	.12	.12	.13
5.5800	.13	.13	.13	.13	.13
5.7300	.13	.14	.14	.14	.14
5.8800	.14	.14	.14	.14	.15
6.0300	.15	.15	.15	.15	.15
6.1800	.16	.16	.16	.16	.17
6.3300	.17	.17	.17	.17	.18
6.4800	.18	.18	.19	.19	.19
6.6300	.19	.20	.20	.20	.20
6.7800	.21	.21	.21	.21	.22
6.9300	.22	.22	.23	.23	.23
7.0800	.23	.24	.24	.24	.24
7.2300	.25	.25	.25	.26	.26
7.3800	.26	.27	.27	.27	.27
7.5300	.28	.28	.28	.29	.29
7.6800	.29	.30	.30	.30	.31
7.8300	.31	.31	.31	.32	.32
7.9800	.32	.33	.33	.33	.34
8.1300	.34	.35	.35	.36	.36
8.2800	.37	.38	.38	.39	.39
8.4300	.40	.41	.41	.42	.43
8.5800	.43	.44	.44	.45	.46
8.7300	.46	.47	.48	.48	.49
8.8800	.50	.50	.51	.52	.53
9.0300	.53	.54	.55	.56	.56
9.1800	.57	.58	.59	.59	.60
9.3300	.61	.62	.62	.63	.64
9.4800	.65	.66	.66	.67	.68
9.6300	.69	.70	.70	.71	.72
9.7800	.73	.74	.74	.75	.76
9.9300	.77	.78	.79	.79	.80
10.0800	.81	.82	.84	.85	.86
10.2300	.88	.89	.91	.92	.94
10.3800	.95	.97	.98	1.00	1.01
10.5300	1.03	1.05	1.06	1.08	1.09
10.6800	1.11	1.13	1.14	1.16	1.18
10.8300	1.19	1.21	1.23	1.24	1.26
10.9800	1.28	1.29	1.31	1.34	1.37
11.1300	1.40	1.44	1.49	1.54	1.59
11.2800	1.64	1.70	1.76	1.81	1.87

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.4300	1.93	1.99	2.05	2.12	2.24
11.5800	2.42	2.65	2.93	3.30	3.75
11.7300	4.21	4.72	5.26	5.80	6.35
11.8800	6.94	7.58	8.51	10.03	11.96
12.0300	13.85	15.40	16.49	17.03	16.85
12.1800	15.83	14.25	12.66	11.25	10.17
12.3300	9.27	8.47	7.75	7.08	6.45
12.4800	5.80	5.19	4.63	4.13	3.69
12.6300	3.33	3.05	2.84	2.69	2.57
12.7800	2.47	2.38	2.31	2.24	2.17
12.9300	2.10	2.04	1.97	1.91	1.86
13.0800	1.80	1.76	1.72	1.68	1.66
13.2300	1.64	1.61	1.60	1.58	1.56
13.3800	1.54	1.53	1.51	1.49	1.48
13.5300	1.46	1.45	1.43	1.41	1.40
13.6800	1.38	1.36	1.35	1.33	1.31
13.8300	1.30	1.28	1.27	1.25	1.23
13.9800	1.22	1.20	1.18	1.17	1.16
14.1300	1.14	1.13	1.12	1.11	1.10
14.2800	1.10	1.09	1.08	1.07	1.06
14.4300	1.06	1.05	1.04	1.03	1.02
14.5800	1.02	1.01	1.00	.99	.98
14.7300	.98	.97	.96	.95	.95
14.8800	.94	.93	.92	.91	.91
15.0300	.90	.89	.88	.87	.87
15.1800	.86	.85	.84	.83	.83
15.3300	.82	.81	.80	.79	.79
15.4800	.78	.77	.76	.75	.75
15.6300	.74	.73	.72	.72	.71
15.7800	.70	.69	.68	.68	.67
15.9300	.66	.65	.64	.64	.63
16.0800	.62	.62	.61	.60	.60
16.2300	.60	.59	.59	.58	.58
16.3800	.58	.57	.57	.57	.56
16.5300	.56	.56	.55	.55	.55
16.6800	.54	.54	.54	.53	.53
16.8300	.52	.52	.52	.51	.51
16.9800	.51	.50	.50	.50	.49
17.1300	.49	.49	.48	.48	.48
17.2800	.47	.47	.47	.46	.46
17.4300	.46	.45	.45	.45	.44
17.5800	.44	.43	.43	.43	.42
17.7300	.42	.42	.41	.41	.41
17.8800	.40	.40	.40	.39	.39
18.0300	.39	.38	.38	.38	.37

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
18.1800	.37	.37	.37	.37	.37
18.3300	.37	.37	.37	.36	.36
18.4800	.36	.36	.36	.36	.36
18.6300	.36	.36	.35	.35	.35
18.7800	.35	.35	.35	.35	.35
18.9300	.35	.35	.34	.34	.34
19.0800	.34	.34	.34	.34	.34
19.2300	.34	.34	.33	.33	.33
19.3800	.33	.33	.33	.33	.33
19.5300	.33	.32	.32	.32	.32
19.6800	.32	.32	.32	.32	.32
19.8300	.32	.31	.31	.31	.31
19.9800	.31	.31	.31	.31	.31
20.1300	.30	.30	.30	.30	.30
20.2800	.30	.30	.30	.30	.30
20.4300	.30	.30	.30	.29	.29
20.5800	.29	.29	.29	.29	.29
20.7300	.29	.29	.29	.29	.29
20.8800	.29	.28	.28	.28	.28
21.0300	.28	.28	.28	.28	.28
21.1800	.28	.28	.28	.27	.27
21.3300	.27	.27	.27	.27	.27
21.4800	.27	.27	.27	.27	.27
21.6300	.27	.26	.26	.26	.26
21.7800	.26	.26	.26	.26	.26
21.9300	.26	.26	.26	.26	.25
22.0800	.25	.25	.25	.25	.25
22.2300	.25	.25	.25	.25	.25
22.3800	.25	.24	.24	.24	.24
22.5300	.24	.24	.24	.24	.24
22.6800	.24	.24	.24	.24	.23
22.8300	.23	.23	.23	.23	.23
22.9800	.23	.23	.23	.23	.23
23.1300	.23	.22	.22	.22	.22
23.2800	.22	.22	.22	.22	.22
23.4300	.22	.22	.22	.22	.22
23.5800	.21	.21	.21	.21	.21
23.7300	.21	.21	.21	.21	.21
23.8800	.21	.21	.20	.20	.20
24.0300	.20	.18	.14	.10	.07
24.1800	.04	.03	.02	.01	.01
24.3300	.00	.00	.00	.00	

SUMMARY FOR HYDROGRAPH ADDITION
at Node: PROPOSEDBASININ

HYG Directory: N:\project\2002\0207212\01\H&H\Hydrology\Final Report\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 30	CONTROLLED TO B1		CONTROLLED TO B1	100
..	OFFSITE TO BASIN		OFFSITE TO BASIN	100
..	BASIN 1		BASIN 1	100

INFLOWS TO: PROPOSEDBASININ

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	CONTROLLED TO B1	100	2.180	12.1200	22.35
	OFFSITE TO BASIN	100	.348	12.1200	3.91
	BASIN 1	100	.266	12.1200	2.52

TOTAL FLOW INTO: PROPOSEDBASININ

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	PROPOSEDBASININ	100	2.795	12.1200	28.77

TOTAL NODE INFLOW...
HYG file =
HYG ID = PROPOSEDBASININ
HYG Tag = 100

Peak Discharge = 28.77 cfs
Time to Peak = 12.1200 hrs
HYG Volume = 2.795 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
.0000	.00	.00	.00	.01	.02
.1500	.02	.03	.03	.03	.03
.3000	.03	.03	.03	.03	.03
.4500	.03	.03	.03	.03	.03
.6000	.03	.03	.03	.03	.03
.7500	.03	.03	.03	.03	.03
.9000	.03	.03	.03	.03	.03
1.0500	.03	.03	.03	.03	.03
1.2000	.03	.03	.03	.03	.03
1.3500	.03	.03	.03	.03	.03
1.5000	.03	.03	.03	.03	.03
1.6500	.03	.03	.03	.03	.03
1.8000	.03	.03	.03	.03	.03
1.9500	.03	.04	.04	.04	.04
2.1000	.04	.04	.05	.05	.05
2.2500	.05	.05	.06	.06	.06
2.4000	.06	.06	.07	.07	.07
2.5500	.07	.07	.08	.08	.08
2.7000	.08	.09	.09	.09	.09
2.8500	.09	.10	.10	.10	.10
3.0000	.10	.11	.11	.11	.11
3.1500	.12	.12	.12	.12	.12
3.3000	.13	.13	.13	.13	.14
3.4500	.14	.14	.14	.14	.15
3.6000	.15	.15	.15	.16	.16
3.7500	.16	.16	.16	.17	.17
3.9000	.17	.17	.18	.18	.18
4.0500	.18	.18	.19	.19	.19
4.2000	.19	.20	.20	.20	.20
4.3500	.20	.21	.21	.21	.21
4.5000	.22	.22	.22	.22	.22

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.6500	.23	.23	.23	.23	.24
4.8000	.24	.24	.24	.24	.25
4.9500	.25	.25	.25	.26	.26
5.1000	.26	.26	.27	.27	.27
5.2500	.27	.27	.28	.28	.28
5.4000	.28	.28	.29	.29	.29
5.5500	.29	.30	.30	.30	.30
5.7000	.30	.31	.31	.31	.31
5.8500	.32	.32	.32	.32	.32
6.0000	.33	.33	.33	.33	.34
6.1500	.34	.34	.35	.35	.36
6.3000	.36	.37	.37	.37	.38
6.4500	.38	.39	.39	.40	.40
6.6000	.41	.41	.42	.42	.43
6.7500	.43	.44	.44	.44	.45
6.9000	.46	.46	.47	.47	.48
7.0500	.48	.49	.49	.50	.50
7.2000	.51	.51	.52	.53	.53
7.3500	.54	.54	.55	.55	.56
7.5000	.57	.57	.58	.58	.59
7.6500	.59	.60	.61	.61	.62
7.8000	.62	.63	.63	.64	.65
7.9500	.65	.66	.66	.67	.68
8.1000	.69	.69	.70	.71	.72
8.2500	.73	.74	.76	.77	.78
8.4000	.79	.80	.81	.83	.84
8.5500	.85	.86	.87	.89	.90
8.7000	.91	.92	.93	.95	.96
8.8500	.97	.98	1.00	1.01	1.02
9.0000	1.03	1.05	1.06	1.07	1.09
9.1500	1.10	1.11	1.12	1.14	1.15
9.3000	1.16	1.18	1.19	1.20	1.22
9.4500	1.23	1.24	1.26	1.27	1.28
9.6000	1.30	1.31	1.32	1.34	1.35
9.7500	1.36	1.38	1.39	1.41	1.42
9.9000	1.43	1.45	1.46	1.47	1.49
10.0500	1.50	1.52	1.54	1.56	1.58
10.2000	1.60	1.63	1.65	1.68	1.70
10.3500	1.73	1.76	1.78	1.81	1.84
10.5000	1.86	1.89	1.92	1.94	1.97
10.6500	2.00	2.03	2.05	2.08	2.11
10.8000	2.14	2.16	2.19	2.22	2.25
10.9500	2.27	2.30	2.33	2.36	2.41
11.1000	2.46	2.52	2.59	2.67	2.75
11.2500	2.84	2.94	3.03	3.13	3.23

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.4000	3.33	3.43	3.53	3.63	3.76
11.5500	3.96	4.27	4.66	5.15	5.79
11.7000	6.56	7.37	8.24	9.16	10.07
11.8500	11.01	12.00	13.07	14.64	17.20
12.0000	20.44	23.60	26.16	27.94	28.77
12.1500	28.41	26.63	23.94	21.22	18.84
12.3000	17.00	15.48	14.13	12.90	11.79
12.4500	10.72	9.64	8.61	7.69	6.85
12.6000	6.12	5.52	5.06	4.71	4.46
12.7500	4.26	4.09	3.95	3.82	3.70
12.9000	3.59	3.48	3.37	3.26	3.16
13.0500	3.07	2.98	2.90	2.84	2.78
13.2000	2.74	2.70	2.67	2.63	2.60
13.3500	2.58	2.55	2.52	2.49	2.47
13.5000	2.44	2.41	2.38	2.36	2.33
13.6500	2.30	2.28	2.25	2.22	2.19
13.8000	2.17	2.14	2.11	2.09	2.06
13.9500	2.03	2.00	1.98	1.95	1.93
14.1000	1.90	1.88	1.86	1.85	1.83
14.2500	1.82	1.80	1.79	1.78	1.76
14.4000	1.75	1.74	1.72	1.71	1.70
14.5500	1.68	1.67	1.66	1.65	1.63
14.7000	1.62	1.61	1.59	1.58	1.57
14.8500	1.56	1.54	1.53	1.52	1.50
15.0000	1.49	1.48	1.46	1.45	1.44
15.1500	1.42	1.41	1.40	1.39	1.37
15.3000	1.36	1.35	1.33	1.32	1.31
15.4500	1.29	1.28	1.27	1.25	1.24
15.6000	1.23	1.21	1.20	1.19	1.17
15.7500	1.16	1.15	1.14	1.12	1.11
15.9000	1.10	1.08	1.07	1.06	1.04
16.0500	1.03	1.02	1.01	1.00	.99
16.2000	.98	.98	.97	.96	.96
16.3500	.95	.95	.94	.94	.93
16.5000	.92	.92	.91	.91	.90
16.6500	.90	.89	.88	.88	.87
16.8000	.87	.86	.86	.85	.84
16.9500	.84	.83	.83	.82	.82
17.1000	.81	.80	.80	.79	.79
17.2500	.78	.78	.77	.76	.76
17.4000	.75	.75	.74	.74	.73
17.5500	.72	.72	.71	.71	.70
17.7000	.70	.69	.68	.68	.67
17.8500	.67	.66	.66	.65	.64
18.0000	.64	.63	.63	.62	.62

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
18.1500	.61	.61	.61	.61	.61
18.3000	.60	.60	.60	.60	.60
18.4500	.60	.59	.59	.59	.59
18.6000	.59	.58	.58	.58	.58
18.7500	.58	.58	.57	.57	.57
18.9000	.57	.57	.57	.56	.56
19.0500	.56	.56	.56	.56	.55
19.2000	.55	.55	.55	.55	.54
19.3500	.54	.54	.54	.54	.54
19.5000	.53	.53	.53	.53	.53
19.6500	.53	.52	.52	.52	.52
19.8000	.52	.52	.51	.51	.51
19.9500	.51	.51	.51	.50	.50
20.1000	.50	.50	.50	.50	.50
20.2500	.49	.49	.49	.49	.49
20.4000	.49	.49	.48	.48	.48
20.5500	.48	.48	.48	.48	.48
20.7000	.47	.47	.47	.47	.47
20.8500	.47	.47	.47	.46	.46
21.0000	.46	.46	.46	.46	.46
21.1500	.46	.45	.45	.45	.45
21.3000	.45	.45	.45	.44	.44
21.4500	.44	.44	.44	.44	.44
21.6000	.44	.43	.43	.43	.43
21.7500	.43	.43	.43	.43	.43
21.9000	.42	.42	.42	.42	.42
22.0500	.42	.41	.41	.41	.41
22.2000	.41	.41	.41	.41	.40
22.3500	.40	.40	.40	.40	.40
22.5000	.40	.40	.39	.39	.39
22.6500	.39	.39	.39	.39	.39
22.8000	.38	.38	.38	.38	.38
22.9500	.38	.38	.38	.37	.37
23.1000	.37	.37	.37	.37	.37
23.2500	.36	.36	.36	.36	.36
23.4000	.36	.36	.36	.36	.35
23.5500	.35	.35	.35	.35	.35
23.7000	.35	.34	.34	.34	.34
23.8500	.34	.34	.34	.33	.33
24.0000	.33	.32	.29	.23	.16
24.1500	.11	.07	.04	.03	.02
24.3000	.01	.01	.00	.00	.00
24.4500	.00				

No storage at this elevation... infiltration set to zero.

HYG file =
HYG ID = PROPOSEDBASININF
HYG Tag = 2

Peak Discharge = 1.82 cfs
Time to Peak = 12.6000 hrs
HYG Volume = .994 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
.0300	.00	.00	.00	.00	.00
.1800	.00	.00	.00	.00	.00
.3300	.00	.00	.00	.00	.00
.4800	.00	.00	.01	.01	.01
.6300	.01	.01	.01	.01	.01
.7800	.01	.01	.01	.01	.01
.9300	.01	.01	.01	.01	.01
1.0800	.01	.01	.01	.01	.01
1.2300	.01	.01	.01	.01	.01
1.3800	.01	.01	.01	.01	.01
1.5300	.01	.01	.01	.01	.01
1.6800	.01	.01	.01	.01	.01
1.8300	.01	.01	.01	.01	.01
1.9800	.01	.01	.01	.01	.01
2.1300	.01	.01	.01	.01	.01
2.2800	.01	.01	.01	.01	.01
2.4300	.01	.01	.01	.01	.01
2.5800	.01	.01	.01	.01	.01
2.7300	.01	.01	.01	.01	.01
2.8800	.01	.01	.01	.01	.01
3.0300	.01	.01	.01	.01	.01
3.1800	.01	.01	.01	.01	.01
3.3300	.01	.01	.01	.01	.01
3.4800	.01	.01	.01	.01	.01
3.6300	.02	.02	.02	.02	.02
3.7800	.02	.02	.02	.02	.02
3.9300	.02	.02	.02	.02	.02
4.0800	.02	.02	.02	.02	.02
4.2300	.02	.02	.02	.02	.02
4.3800	.02	.02	.02	.02	.02
4.5300	.02	.02	.02	.02	.02

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.6800	.02	.02	.02	.02	.02
4.8300	.02	.02	.02	.02	.02
4.9800	.02	.02	.03	.03	.03
5.1300	.03	.03	.03	.03	.03
5.2800	.03	.03	.03	.03	.03
5.4300	.03	.03	.03	.03	.03
5.5800	.04	.04	.04	.04	.04
5.7300	.04	.04	.04	.04	.04
5.8800	.04	.04	.04	.04	.04
6.0300	.04	.05	.05	.05	.05
6.1800	.05	.05	.05	.05	.05
6.3300	.05	.05	.05	.05	.06
6.4800	.06	.06	.06	.06	.06
6.6300	.06	.06	.06	.06	.07
6.7800	.07	.07	.07	.07	.07
6.9300	.07	.07	.07	.08	.08
7.0800	.08	.08	.08	.08	.08
7.2300	.08	.09	.09	.09	.09
7.3800	.09	.09	.09	.09	.10
7.5300	.10	.10	.10	.10	.10
7.6800	.10	.11	.11	.11	.11
7.8300	.11	.11	.12	.12	.12
7.9800	.12	.12	.12	.13	.13
8.1300	.13	.13	.13	.13	.14
8.2800	.14	.14	.14	.14	.15
8.4300	.15	.15	.15	.16	.16
8.5800	.16	.16	.17	.17	.17
8.7300	.17	.18	.18	.18	.18
8.8800	.19	.19	.19	.20	.20
9.0300	.20	.21	.21	.21	.22
9.1800	.22	.22	.23	.23	.23
9.3300	.24	.24	.24	.25	.25
9.4800	.25	.26	.26	.26	.27
9.6300	.27	.28	.28	.28	.29
9.7800	.29	.30	.30	.30	.31
9.9300	.31	.32	.32	.32	.33
10.0800	.33	.34	.34	.35	.35
10.2300	.36	.36	.37	.37	.38
10.3800	.38	.39	.39	.40	.40
10.5300	.41	.42	.42	.43	.44
10.6800	.44	.45	.46	.46	.47
10.8300	.48	.48	.49	.50	.51
10.9800	.52	.52	.53	.54	.55
11.1300	.56	.57	.58	.59	.60
11.2800	.61	.62	.64	.65	.67

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.4300	.68	.70	.72	.74	.76
11.5800	.78	.80	.83	.87	.91
11.7300	.97	1.03	1.10	1.14	1.15
11.8800	1.16	1.17	1.18	1.19	1.21
12.0300	1.22	1.26	1.32	1.39	1.45
12.1800	1.51	1.56	1.61	1.65	1.68
12.3300	1.71	1.73	1.75	1.77	1.79
12.4800	1.80	1.81	1.82	1.82	1.82
12.6300	1.82	1.82	1.82	1.82	1.82
12.7800	1.82	1.82	1.82	1.82	1.82
12.9300	1.82	1.82	1.81	1.81	1.81
13.0800	1.80	1.80	1.79	1.79	1.79
13.2300	1.78	1.78	1.77	1.77	1.76
13.3800	1.76	1.75	1.75	1.74	1.74
13.5300	1.73	1.73	1.72	1.72	1.71
13.6800	1.71	1.70	1.70	1.69	1.69
13.8300	1.68	1.67	1.67	1.66	1.66
13.9800	1.65	1.65	1.64	1.64	1.63
14.1300	1.62	1.62	1.61	1.61	1.60
14.2800	1.60	1.59	1.58	1.58	1.57
14.4300	1.57	1.56	1.56	1.55	1.54
14.5800	1.54	1.53	1.53	1.52	1.52
14.7300	1.51	1.50	1.50	1.49	1.49
14.8800	1.48	1.47	1.47	1.46	1.46
15.0300	1.45	1.44	1.44	1.43	1.42
15.1800	1.42	1.41	1.41	1.40	1.39
15.3300	1.39	1.38	1.38	1.37	1.36
15.4800	1.36	1.35	1.35	1.34	1.33
15.6300	1.33	1.32	1.32	1.31	1.30
15.7800	1.30	1.29	1.29	1.28	1.27
15.9300	1.27	1.26	1.26	1.25	1.24
16.0800	1.24	1.23	1.23	1.23	1.23
16.2300	1.23	1.22	1.22	1.22	1.22
16.3800	1.21	1.21	1.21	1.21	1.20
16.5300	1.20	1.20	1.20	1.20	1.19
16.6800	1.19	1.19	1.19	1.18	1.18
16.8300	1.18	1.18	1.17	1.17	1.17
16.9800	1.17	1.16	1.16	1.16	1.16
17.1300	1.16	1.15	1.15	1.15	1.15
17.2800	1.14	1.14	1.11	1.09	1.06
17.4300	1.03	1.00	.98	.95	.93
17.5800	.91	.88	.86	.84	.82
17.7300	.80	.78	.76	.75	.73
17.8800	.71	.70	.68	.67	.65
18.0300	.64	.62	.61	.60	.58

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
18.1800	.57	.56	.55	.54	.53
18.3300	.52	.51	.50	.49	.48
18.4800	.47	.46	.45	.45	.44
18.6300	.43	.42	.42	.41	.40
18.7800	.40	.39	.38	.38	.37
18.9300	.37	.36	.36	.35	.35
19.0800	.34	.34	.34	.33	.33
19.2300	.32	.32	.32	.31	.31
19.3800	.31	.30	.30	.30	.29
19.5300	.29	.29	.28	.28	.28
19.6800	.28	.27	.27	.27	.27
19.8300	.26	.26	.26	.26	.26
19.9800	.25	.25	.25	.25	.25
20.1300	.25	.24	.24	.24	.24
20.2800	.24	.24	.23	.23	.23
20.4300	.23	.23	.23	.23	.22
20.5800	.22	.22	.22	.22	.22
20.7300	.22	.22	.22	.21	.21
20.8800	.21	.21	.21	.21	.21
21.0300	.21	.21	.21	.21	.20
21.1800	.20	.20	.20	.20	.20
21.3300	.20	.20	.20	.20	.20
21.4800	.20	.19	.19	.19	.19
21.6300	.19	.19	.19	.19	.19
21.7800	.19	.19	.19	.19	.19
21.9300	.19	.18	.18	.18	.18
22.0800	.18	.18	.18	.18	.18
22.2300	.18	.18	.18	.18	.18
22.3800	.18	.18	.17	.17	.17
22.5300	.17	.17	.17	.17	.17
22.6800	.17	.17	.17	.17	.17
22.8300	.17	.17	.17	.17	.17
22.9800	.16	.16	.16	.16	.16
23.1300	.16	.16	.16	.16	.16
23.2800	.16	.16	.16	.16	.16
23.4300	.16	.16	.16	.15	.15
23.5800	.15	.15	.15	.15	.15
23.7300	.15	.15	.15	.15	.15
23.8800	.15	.15	.15	.15	.15
24.0300	.15	.14	.14	.14	.14
24.1800	.13	.13	.13	.12	.12
24.3300	.11	.11	.11	.10	.10
24.4800	.09	.09	.09	.08	.08
24.6300	.08	.08	.07	.07	.07
24.7800	.07	.06	.06	.06	.06

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
24.9300	.05	.05	.05	.05	.05
25.0800	.05	.04	.04	.04	.04
25.2300	.04	.04	.04	.03	.03
25.3800	.03	.03	.03	.03	.03
25.5300	.03	.03	.02	.02	.02
25.6800	.02	.02	.02	.02	.02
25.8300	.02	.02	.02	.02	.02
25.9800	.02	.01	.01	.01	.01
26.1300	.01	.01	.01	.01	.01
26.2800	.01	.01	.01	.01	.01
26.4300	.01	.01	.01	.01	.01
26.5800	.01	.01	.01	.01	.01
26.7300	.01	.01	.01	.01	.01
26.8800	.01	.00	.00	.00	.00
27.0300	.00	.00	.00	.00	.00
27.1800	.00	.00	.00	.00	.00
27.3300	.00				

HYG file =
HYG ID = PROPOSEDBASININF
HYG Tag = 10

Peak Discharge = 1.97 cfs
Time to Peak = 12.3300 hrs
HYG Volume = 1.348 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
.0300	.00	.00	.00	.00	.00
.1800	.00	.00	.00	.00	.00
.3300	.00	.00	.01	.01	.01
.4800	.01	.01	.01	.01	.01
.6300	.01	.01	.01	.01	.01
.7800	.01	.01	.01	.01	.01
.9300	.01	.01	.01	.01	.01
1.0800	.01	.01	.01	.01	.01
1.2300	.01	.02	.02	.02	.02
1.3800	.02	.02	.02	.02	.02
1.5300	.02	.02	.02	.02	.02
1.6800	.02	.02	.02	.02	.02
1.8300	.02	.02	.02	.02	.02
1.9800	.02	.02	.02	.02	.02
2.1300	.02	.02	.02	.02	.02
2.2800	.02	.02	.02	.02	.02
2.4300	.02	.02	.02	.02	.02
2.5800	.02	.02	.02	.02	.02
2.7300	.02	.02	.02	.02	.02
2.8800	.02	.02	.02	.02	.02
3.0300	.02	.02	.02	.02	.02
3.1800	.02	.02	.02	.02	.02
3.3300	.02	.02	.02	.03	.03
3.4800	.03	.03	.03	.03	.03
3.6300	.03	.03	.03	.03	.03
3.7800	.03	.03	.03	.03	.04
3.9300	.04	.04	.04	.04	.04
4.0800	.04	.04	.04	.04	.04
4.2300	.05	.05	.05	.05	.05
4.3800	.05	.05	.05	.05	.05
4.5300	.05	.06	.06	.06	.06

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.6800	.06	.06	.06	.06	.06
4.8300	.07	.07	.07	.07	.07
4.9800	.07	.07	.07	.07	.08
5.1300	.08	.08	.08	.08	.08
5.2800	.08	.08	.08	.09	.09
5.4300	.09	.09	.09	.09	.09
5.5800	.09	.10	.10	.10	.10
5.7300	.10	.10	.10	.10	.11
5.8800	.11	.11	.11	.11	.11
6.0300	.11	.11	.12	.12	.12
6.1800	.12	.12	.12	.12	.12
6.3300	.13	.13	.13	.13	.13
6.4800	.13	.14	.14	.14	.14
6.6300	.14	.14	.15	.15	.15
6.7800	.15	.15	.16	.16	.16
6.9300	.16	.16	.17	.17	.17
7.0800	.17	.18	.18	.18	.18
7.2300	.18	.19	.19	.19	.19
7.3800	.20	.20	.20	.20	.21
7.5300	.21	.21	.21	.22	.22
7.6800	.22	.22	.23	.23	.23
7.8300	.23	.24	.24	.24	.25
7.9800	.25	.25	.25	.26	.26
8.1300	.26	.27	.27	.27	.27
8.2800	.28	.28	.29	.29	.29
8.4300	.30	.30	.30	.31	.31
8.5800	.32	.32	.32	.33	.33
8.7300	.34	.34	.35	.35	.36
8.8800	.36	.37	.37	.38	.38
9.0300	.39	.39	.40	.40	.41
9.1800	.42	.42	.43	.43	.44
9.3300	.44	.45	.46	.46	.47
9.4800	.48	.48	.49	.49	.50
9.6300	.51	.51	.52	.53	.53
9.7800	.54	.55	.55	.56	.57
9.9300	.58	.58	.59	.60	.60
10.0800	.61	.62	.63	.63	.64
10.2300	.65	.66	.67	.68	.69
10.3800	.69	.70	.71	.72	.73
10.5300	.74	.75	.77	.78	.79
10.6800	.80	.81	.82	.83	.85
10.8300	.86	.87	.88	.89	.91
10.9800	.92	.93	.95	.96	.97
11.1300	.99	1.00	1.02	1.04	1.06
11.2800	1.08	1.10	1.12	1.14	1.14

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.4300	1.15	1.15	1.15	1.15	1.16
11.5800	1.16	1.16	1.17	1.17	1.18
11.7300	1.19	1.20	1.21	1.22	1.23
11.8800	1.26	1.31	1.35	1.41	1.48
12.0300	1.55	1.64	1.73	1.82	1.86
12.1800	1.89	1.92	1.94	1.96	1.97
12.3300	1.97	1.97	1.97	1.97	1.97
12.4800	1.97	1.96	1.96	1.95	1.95
12.6300	1.94	1.93	1.93	1.92	1.92
12.7800	1.91	1.91	1.90	1.90	1.89
12.9300	1.89	1.89	1.88	1.88	1.88
13.0800	1.88	1.87	1.87	1.87	1.87
13.2300	1.87	1.86	1.86	1.86	1.86
13.3800	1.86	1.86	1.86	1.86	1.85
13.5300	1.85	1.85	1.85	1.85	1.85
13.6800	1.85	1.85	1.84	1.84	1.84
13.8300	1.84	1.84	1.84	1.84	1.83
13.9800	1.83	1.83	1.83	1.83	1.83
14.1300	1.82	1.82	1.82	1.82	1.82
14.2800	1.82	1.81	1.81	1.80	1.80
14.4300	1.79	1.79	1.79	1.78	1.78
14.5800	1.77	1.77	1.76	1.76	1.75
14.7300	1.75	1.74	1.74	1.73	1.73
14.8800	1.72	1.72	1.71	1.71	1.70
15.0300	1.70	1.69	1.69	1.68	1.68
15.1800	1.67	1.67	1.66	1.65	1.65
15.3300	1.64	1.64	1.63	1.63	1.62
15.4800	1.62	1.61	1.61	1.60	1.60
15.6300	1.59	1.59	1.58	1.57	1.57
15.7800	1.56	1.56	1.55	1.55	1.54
15.9300	1.54	1.53	1.52	1.52	1.51
16.0800	1.51	1.50	1.49	1.49	1.48
16.2300	1.48	1.47	1.46	1.46	1.45
16.3800	1.45	1.44	1.43	1.43	1.42
16.5300	1.41	1.41	1.40	1.40	1.39
16.6800	1.38	1.38	1.37	1.37	1.36
16.8300	1.36	1.35	1.34	1.34	1.33
16.9800	1.33	1.32	1.32	1.31	1.30
17.1300	1.30	1.29	1.29	1.28	1.28
17.2800	1.27	1.26	1.26	1.25	1.25
17.4300	1.24	1.24	1.23	1.23	1.23
17.5800	1.23	1.22	1.22	1.22	1.22
17.7300	1.22	1.21	1.21	1.21	1.21
17.8800	1.21	1.20	1.20	1.20	1.20
18.0300	1.19	1.19	1.19	1.19	1.19

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
18.1800	1.18	1.18	1.18	1.18	1.17
18.3300	1.17	1.17	1.17	1.17	1.16
18.4800	1.16	1.16	1.16	1.15	1.15
18.6300	1.15	1.15	1.15	1.14	1.13
18.7800	1.10	1.08	1.05	1.03	1.00
18.9300	.98	.96	.93	.91	.89
19.0800	.87	.85	.84	.82	.80
19.2300	.78	.77	.75	.74	.72
19.3800	.71	.70	.68	.67	.66
19.5300	.65	.63	.62	.61	.60
19.6800	.59	.58	.57	.56	.55
19.8300	.55	.54	.53	.52	.51
19.9800	.51	.50	.49	.49	.48
20.1300	.47	.47	.46	.46	.45
20.2800	.45	.44	.44	.43	.43
20.4300	.42	.42	.41	.41	.40
20.5800	.40	.40	.39	.39	.39
20.7300	.38	.38	.38	.37	.37
20.8800	.37	.36	.36	.36	.35
21.0300	.35	.35	.35	.34	.34
21.1800	.34	.34	.34	.33	.33
21.3300	.33	.33	.33	.32	.32
21.4800	.32	.32	.32	.31	.31
21.6300	.31	.31	.31	.31	.30
21.7800	.30	.30	.30	.30	.30
21.9300	.30	.29	.29	.29	.29
22.0800	.29	.29	.29	.29	.28
22.2300	.28	.28	.28	.28	.28
22.3800	.28	.28	.27	.27	.27
22.5300	.27	.27	.27	.27	.27
22.6800	.27	.27	.26	.26	.26
22.8300	.26	.26	.26	.26	.26
22.9800	.26	.26	.25	.25	.25
23.1300	.25	.25	.25	.25	.25
23.2800	.25	.25	.25	.24	.24
23.4300	.24	.24	.24	.24	.24
23.5800	.24	.24	.24	.24	.23
23.7300	.23	.23	.23	.23	.23
23.8800	.23	.23	.23	.23	.23
24.0300	.23	.22	.22	.22	.21
24.1800	.21	.20	.19	.19	.18
24.3300	.18	.17	.16	.16	.15
24.4800	.15	.14	.14	.13	.13
24.6300	.12	.12	.11	.11	.11
24.7800	.10	.10	.09	.09	.09

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
24.9300	.08	.08	.08	.08	.07
25.0800	.07	.07	.07	.06	.06
25.2300	.06	.06	.05	.05	.05
25.3800	.05	.05	.05	.04	.04
25.5300	.04	.04	.04	.04	.04
25.6800	.03	.03	.03	.03	.03
25.8300	.03	.03	.03	.03	.02
25.9800	.02	.02	.02	.02	.02
26.1300	.02	.02	.02	.02	.02
26.2800	.02	.02	.02	.01	.01
26.4300	.01	.01	.01	.01	.01
26.5800	.01	.01	.01	.01	.01
26.7300	.01	.01	.01	.01	.01
26.8800	.01	.01	.01	.01	.01
27.0300	.01	.01	.01	.01	.01
27.1800	.01	.01	.01	.00	.00
27.3300	.00	.00	.00	.00	.00
27.4800	.00	.00	.00	.00	.00
27.6300	.00	.00	.00		

HYG file =
HYG ID = PROPOSEDBASININF
HYG Tag = 100

Peak Discharge = 2.12 cfs
Time to Peak = 12.2100 hrs
HYG Volume = 1.812 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
.0000	.00	.00	.00	.00	.00
.1500	.00	.00	.00	.00	.00
.3000	.01	.01	.01	.01	.01
.4500	.01	.01	.01	.01	.01
.6000	.01	.01	.02	.02	.02
.7500	.02	.02	.02	.02	.02
.9000	.02	.02	.02	.02	.02
1.0500	.02	.02	.02	.02	.02
1.2000	.02	.02	.02	.02	.02
1.3500	.02	.03	.03	.03	.03
1.5000	.03	.03	.03	.03	.03
1.6500	.03	.03	.03	.03	.03
1.8000	.03	.03	.03	.03	.03
1.9500	.03	.03	.03	.03	.03
2.1000	.03	.03	.03	.03	.03
2.2500	.03	.03	.03	.04	.04
2.4000	.04	.04	.04	.04	.04
2.5500	.04	.04	.04	.05	.05
2.7000	.05	.05	.05	.05	.05
2.8500	.05	.06	.06	.06	.06
3.0000	.06	.06	.07	.07	.07
3.1500	.07	.07	.07	.08	.08
3.3000	.08	.08	.08	.08	.09
3.4500	.09	.09	.09	.09	.10
3.6000	.10	.10	.10	.10	.10
3.7500	.11	.11	.11	.11	.11
3.9000	.12	.12	.12	.12	.12
4.0500	.13	.13	.13	.13	.13
4.2000	.14	.14	.14	.14	.15
4.3500	.15	.15	.15	.15	.16
4.5000	.16	.16	.16	.16	.17

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
4.6500	.17	.17	.17	.17	.18
4.8000	.18	.18	.18	.19	.19
4.9500	.19	.19	.19	.20	.20
5.1000	.20	.20	.21	.21	.21
5.2500	.21	.21	.22	.22	.22
5.4000	.22	.22	.23	.23	.23
5.5500	.23	.24	.24	.24	.24
5.7000	.24	.25	.25	.25	.25
5.8500	.26	.26	.26	.26	.26
6.0000	.27	.27	.27	.27	.28
6.1500	.28	.28	.28	.28	.29
6.3000	.29	.29	.30	.30	.30
6.4500	.30	.31	.31	.31	.32
6.6000	.32	.32	.33	.33	.33
6.7500	.34	.34	.34	.35	.35
6.9000	.35	.36	.36	.37	.37
7.0500	.37	.38	.38	.39	.39
7.2000	.39	.40	.40	.41	.41
7.3500	.42	.42	.42	.43	.43
7.5000	.44	.44	.45	.45	.46
7.6500	.46	.47	.47	.48	.48
7.8000	.49	.49	.50	.50	.51
7.9500	.51	.52	.52	.53	.53
8.1000	.54	.54	.55	.55	.56
8.2500	.57	.57	.58	.59	.59
8.4000	.60	.61	.61	.62	.63
8.5500	.64	.64	.65	.66	.67
8.7000	.68	.69	.69	.70	.71
8.8500	.72	.73	.74	.75	.76
9.0000	.77	.78	.79	.80	.81
9.1500	.82	.83	.84	.85	.86
9.3000	.87	.88	.89	.90	.91
9.4500	.92	.94	.95	.96	.97
9.6000	.98	.99	1.00	1.02	1.03
9.7500	1.04	1.05	1.06	1.08	1.09
9.9000	1.10	1.11	1.12	1.14	1.14
10.0500	1.14	1.14	1.15	1.15	1.15
10.2000	1.15	1.15	1.15	1.15	1.15
10.3500	1.16	1.16	1.16	1.16	1.16
10.5000	1.16	1.17	1.17	1.17	1.17
10.6500	1.18	1.18	1.18	1.18	1.18
10.8000	1.19	1.19	1.19	1.20	1.20
10.9500	1.20	1.20	1.21	1.21	1.21
11.1000	1.22	1.22	1.22	1.23	1.23
11.2500	1.24	1.25	1.26	1.27	1.29

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.4000	1.30	1.32	1.33	1.35	1.36
11.5500	1.38	1.40	1.42	1.45	1.47
11.7000	1.51	1.54	1.58	1.63	1.68
11.8500	1.74	1.80	1.84	1.87	1.90
12.0000	1.94	1.97	2.01	2.05	2.08
12.1500	2.10	2.12	2.12	2.12	2.12
12.3000	2.11	2.11	2.10	2.09	2.08
12.4500	2.07	2.05	2.04	2.03	2.02
12.6000	2.01	1.99	1.98	1.98	1.97
12.7500	1.96	1.95	1.95	1.94	1.94
12.9000	1.93	1.93	1.92	1.92	1.92
13.0500	1.91	1.91	1.91	1.90	1.90
13.2000	1.90	1.89	1.89	1.89	1.89
13.3500	1.89	1.88	1.88	1.88	1.88
13.5000	1.88	1.88	1.88	1.88	1.87
13.6500	1.87	1.87	1.87	1.87	1.87
13.8000	1.87	1.87	1.87	1.87	1.87
13.9500	1.87	1.86	1.86	1.86	1.86
14.1000	1.86	1.86	1.86	1.86	1.86
14.2500	1.86	1.86	1.86	1.86	1.86
14.4000	1.86	1.86	1.86	1.86	1.85
14.5500	1.85	1.85	1.85	1.85	1.85
14.7000	1.85	1.85	1.85	1.85	1.85
14.8500	1.85	1.85	1.85	1.85	1.85
15.0000	1.84	1.84	1.84	1.84	1.84
15.1500	1.84	1.84	1.84	1.84	1.83
15.3000	1.83	1.83	1.83	1.83	1.83
15.4500	1.83	1.83	1.82	1.82	1.82
15.6000	1.82	1.82	1.82	1.81	1.81
15.7500	1.81	1.80	1.80	1.79	1.79
15.9000	1.79	1.78	1.78	1.77	1.77
16.0500	1.76	1.76	1.75	1.75	1.74
16.2000	1.74	1.73	1.73	1.72	1.72
16.3500	1.72	1.71	1.71	1.70	1.70
16.5000	1.69	1.69	1.68	1.68	1.67
16.6500	1.67	1.66	1.66	1.65	1.65
16.8000	1.64	1.64	1.63	1.63	1.62
16.9500	1.62	1.61	1.61	1.60	1.60
17.1000	1.59	1.59	1.58	1.58	1.57
17.2500	1.57	1.56	1.56	1.55	1.55
17.4000	1.54	1.54	1.53	1.53	1.52
17.5500	1.52	1.51	1.51	1.50	1.49
17.7000	1.49	1.48	1.48	1.47	1.47
17.8500	1.46	1.46	1.45	1.44	1.44
18.0000	1.43	1.43	1.42	1.42	1.41

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
18.1500	1.41	1.40	1.39	1.39	1.38
18.3000	1.38	1.37	1.37	1.36	1.36
18.4500	1.35	1.35	1.34	1.33	1.33
18.6000	1.32	1.32	1.31	1.31	1.30
18.7500	1.30	1.29	1.29	1.28	1.28
18.9000	1.27	1.27	1.26	1.26	1.25
19.0500	1.25	1.24	1.24	1.24	1.23
19.2000	1.23	1.23	1.23	1.23	1.22
19.3500	1.22	1.22	1.22	1.22	1.21
19.5000	1.21	1.21	1.21	1.21	1.21
19.6500	1.20	1.20	1.20	1.20	1.20
19.8000	1.19	1.19	1.19	1.19	1.19
19.9500	1.18	1.18	1.18	1.18	1.18
20.1000	1.18	1.17	1.17	1.17	1.17
20.2500	1.17	1.16	1.16	1.16	1.16
20.4000	1.16	1.15	1.15	1.15	1.15
20.5500	1.15	1.15	1.14	1.14	1.12
20.7000	1.10	1.08	1.06	1.03	1.01
20.8500	.99	.98	.96	.94	.92
21.0000	.91	.89	.88	.86	.85
21.1500	.83	.82	.81	.79	.78
21.3000	.77	.76	.75	.74	.72
21.4500	.71	.70	.70	.69	.68
21.6000	.67	.66	.65	.64	.64
21.7500	.63	.62	.62	.61	.60
21.9000	.60	.59	.58	.58	.57
22.0500	.57	.56	.56	.55	.55
22.2000	.54	.54	.53	.53	.52
22.3500	.52	.51	.51	.51	.50
22.5000	.50	.49	.49	.49	.48
22.6500	.48	.48	.47	.47	.47
22.8000	.47	.46	.46	.46	.45
22.9500	.45	.45	.45	.44	.44
23.1000	.44	.44	.43	.43	.43
23.2500	.43	.42	.42	.42	.42
23.4000	.42	.41	.41	.41	.41
23.5500	.41	.40	.40	.40	.40
23.7000	.40	.39	.39	.39	.39
23.8500	.39	.39	.38	.38	.38
24.0000	.38	.38	.37	.37	.36
24.1500	.36	.35	.34	.32	.31
24.3000	.30	.29	.28	.27	.26
24.4500	.25	.24	.24	.23	.22
24.6000	.21	.20	.20	.19	.18
24.7500	.18	.17	.16	.16	.15

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
24.9000	.15	.14	.14	.13	.13
25.0500	.12	.12	.11	.11	.11
25.2000	.10	.10	.09	.09	.09
25.3500	.08	.08	.08	.08	.07
25.5000	.07	.07	.07	.06	.06
25.6500	.06	.06	.05	.05	.05
25.8000	.05	.05	.05	.04	.04
25.9500	.04	.04	.04	.04	.04
26.1000	.03	.03	.03	.03	.03
26.2500	.03	.03	.03	.03	.02
26.4000	.02	.02	.02	.02	.02
26.5500	.02	.02	.02	.02	.02
26.7000	.02	.02	.02	.01	.01
26.8500	.01	.01	.01	.01	.01
27.0000	.01	.01	.01	.01	.01
27.1500	.01	.01	.01	.01	.01
27.3000	.01	.01	.01	.01	.01
27.4500	.01	.01	.01	.01	.01
27.6000	.01	.01	.01	.00	.00
27.7500	.00	.00	.00	.00	.00
27.9000	.00	.00	.00	.00	.00
28.0500	.00	.00	.00		

LEVEL POOL ROUTING SUMMARY

```
HYG Dir          = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Inflow  HYG file = NONE STORED - PROPOSEDBASININ  2
Outflow HYG file = NONE STORED - PROPOSEDBASINOUT 2

Pond Node   Data = PROPOSEDBASIN
Pond Volume Data = PROPOSEDBASIN
Pond Outlet Data = Outlet 1

Infiltration =   7.0000 in/hr

INITIAL CONDITIONS
----------------------------------
Starting WS Elev   =   692.00 ft
Starting Volume    =     .000 ac-ft
Starting Outflow   =      .00 cfs
Starting Infiltr.  =      .00 cfs
Starting Total Qout=      .00 cfs
Time Increment     =    .0300 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow       =     10.62 cfs    at   12.1200 hrs
Peak Outflow      =       .00 cfs    at     .0600 hrs
Peak Infiltration =      1.82 cfs    at   12.6900 hrs
-----------------------------------------------------
Peak Elevation    =    694.03 ft
Peak Storage =           .385 ac-ft
=====================================================


MASS BALANCE (ac-ft)
--------------------------
+ Initial Vol  =        .000
+ HYG Vol IN   =        .995
- Infiltration =        .994
- HYG Vol OUT  =        .000
- Retained Vol =        .000
                  ----------
Unrouted Vol =       -.000 ac-ft  (.001% of Inflow Volume)
```

LEVEL POOL ROUTING SUMMARY

```
HYG Dir           = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Inflow  HYG file = NONE STORED - PROPOSEDBASININ  10
Outflow HYG file = NONE STORED - PROPOSEDBASINOUT 10

Pond Node   Data = PROPOSEDBASIN
Pond Volume Data = PROPOSEDBASIN
Pond Outlet Data = Outlet 1

Infiltration =   7.0000 in/hr

INITIAL CONDITIONS
----------------------------------
Starting WS Elev   =   692.00 ft
Starting Volume    =     .000 ac-ft
Starting Outflow   =      .00 cfs
Starting Infiltr.  =      .00 cfs
Starting Total Qout=      .00 cfs
Time Increment     =    .0300 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow        =     17.03 cfs    at   12.1200 hrs
Peak Outflow       =      6.01 cfs    at   12.3900 hrs
Peak Infiltration =       1.97 cfs    at   12.3900 hrs
-----------------------------------------------------
Peak Elevation     =    694.57 ft
Peak Storage =            .530 ac-ft
=====================================================


MASS BALANCE (ac-ft)
--------------------------
+ Initial Vol   =        .000
+ HYG Vol IN    =       1.620
- Infiltration =        1.348
- HYG Vol OUT   =        .272
- Retained Vol =         .000
                  ----------
Unrouted Vol =        -.000 ac-ft   (.001% of Inflow Volume)
```

LEVEL POOL ROUTING SUMMARY

```
HYG Dir          = N:\project\2002\0207212\01\H&H\Hydrology\Final Report\
Inflow  HYG file = NONE STORED - PROPOSEDBASININ  100
Outflow HYG file = NONE STORED - PROPOSEDBASINOUT 100

Pond Node   Data = PROPOSEDBASIN
Pond Volume Data = PROPOSEDBASIN
Pond Outlet Data = Outlet 1

Infiltration =   7.0000 in/hr

INITIAL CONDITIONS
---------------------------------
Starting WS Elev   =   692.00 ft
Starting Volume    =     .000 ac-ft
Starting Outflow   =      .00 cfs
Starting Infiltr.  =      .00 cfs
Starting Total Qout=      .00 cfs
Time Increment     =    .0300 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow        =     28.77 cfs    at   12.1200 hrs
Peak Outflow       =     20.02 cfs    at   12.2400 hrs
Peak Infiltration  =      2.12 cfs    at   12.2400 hrs
-----------------------------------------------------
Peak Elevation     =    695.13 ft
Peak Storage =            .691 ac-ft
=====================================================


MASS BALANCE (ac-ft)
---------------------------
+ Initial Vol   =        .000
+ HYG Vol IN    =       2.795
- Infiltration =        1.812
- HYG Vol OUT   =        .983
- Retained Vol =         .000
                 ----------
Unrouted Vol =        -.000 ac-ft  (.000% of Inflow Volume)
```

DIVERTED HYDROGRAPH...
HYG file =
HYG ID = ROUTE 30
HYG Tag = 2

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs			
.0300	.00	.00	.00

DIVERTED HYDROGRAPH...
HYG file =
HYG ID = ROUTE 30
HYG Tag = 10

Peak Discharge = 6.01 cfs
Time to Peak = 12.3900 hrs
HYG Volume = .272 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
12.1200	.00	.08	1.62	2.85	3.78
12.2700	4.55	5.32	5.77	5.98	6.01
12.4200	5.90	5.70	5.41	5.07	4.68
12.5700	4.28	4.03	3.77	3.50	3.23
12.7200	2.98	2.73	2.51	2.29	2.10
12.8700	1.91	1.74	1.58	1.43	1.29
13.0200	1.16	1.03	.92	.81	.71
13.1700	.62	.53	.45	.37	.31
13.3200	.24	.19	.13	.09	.04
13.4700	.00				

DIVERTED HYDROGRAPH...
HYG file =
HYG ID = ROUTE 30
HYG Tag = 100

Peak Discharge = 20.02 cfs
Time to Peak = 12.2400 hrs
HYG Volume = .983 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0300 hrs
Time on left represents time for first value in each row.

Time hrs					
11.9100	.00	.48	1.93	3.53	6.02
12.0600	9.14	12.07	14.70	17.05	18.94
12.2100	19.89	20.02	19.54	18.70	17.67
12.3600	16.55	15.51	14.54	13.56	12.55
12.5100	11.54	10.54	9.56	8.62	7.74
12.6600	6.92	6.18	5.52	4.94	4.44
12.8100	4.13	3.89	3.67	3.46	3.26
12.9600	3.07	2.89	2.72	2.56	2.40
13.1100	2.26	2.12	1.99	1.87	1.76
13.2600	1.65	1.56	1.47	1.39	1.31
13.4100	1.24	1.17	1.11	1.06	1.00
13.5600	.95	.90	.85	.81	.77
13.7100	.73	.69	.65	.62	.58
13.8600	.55	.51	.48	.45	.42
14.0100	.38	.35	.32	.30	.27
14.1600	.24	.21	.19	.17	.14
14.3100	.12	.10	.08	.06	.04
14.4600	.02	.01	.00		

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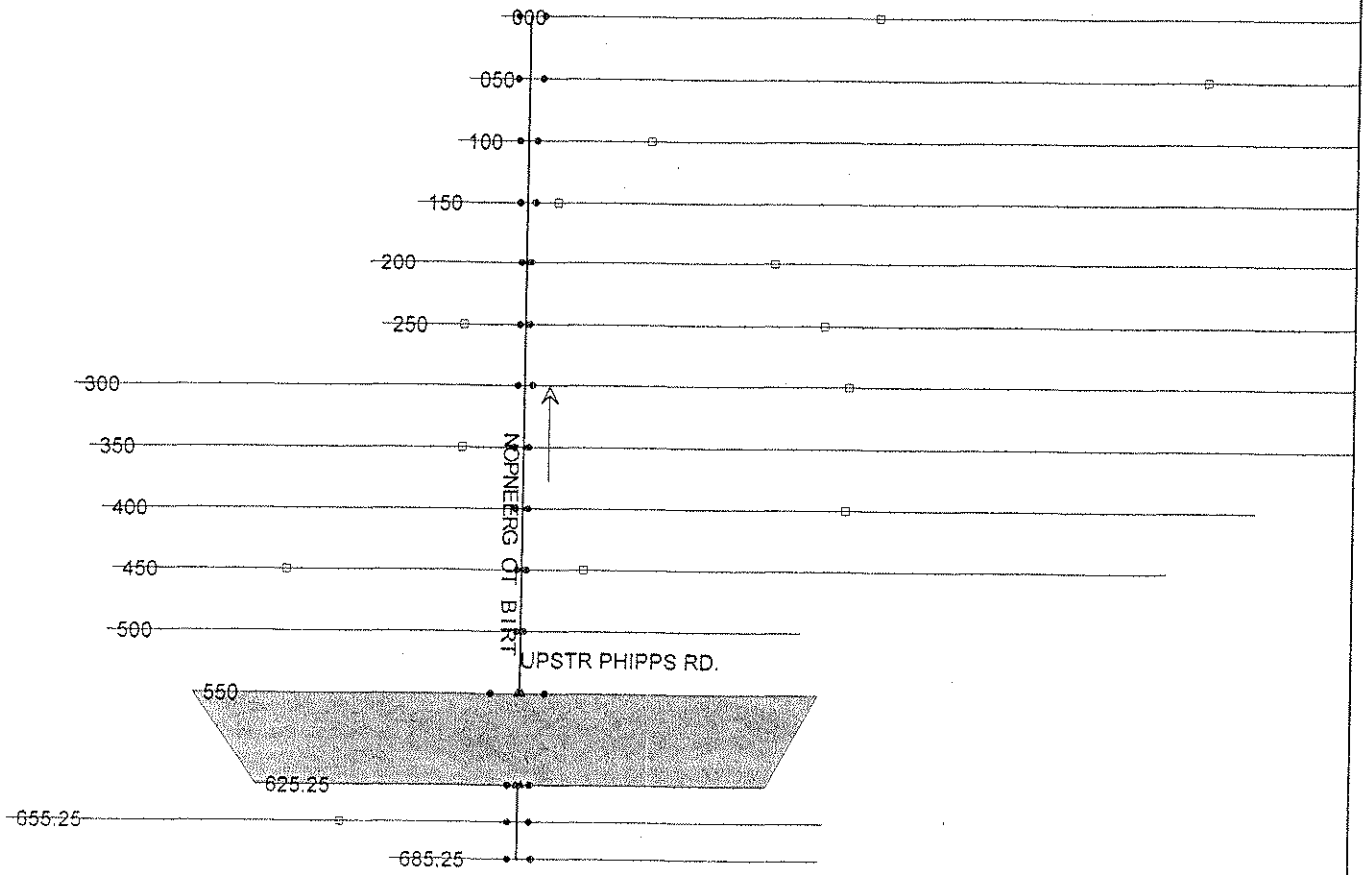
APPENDIX 2

EXISTING ROUTE 15

HEC-RAS MODEL


000
050
100
150
200
250
300
350
400
450
500
550
625.25
655.25
685.25
NOPNEERG OT BIRT
UPSTR PHIPPS RD.

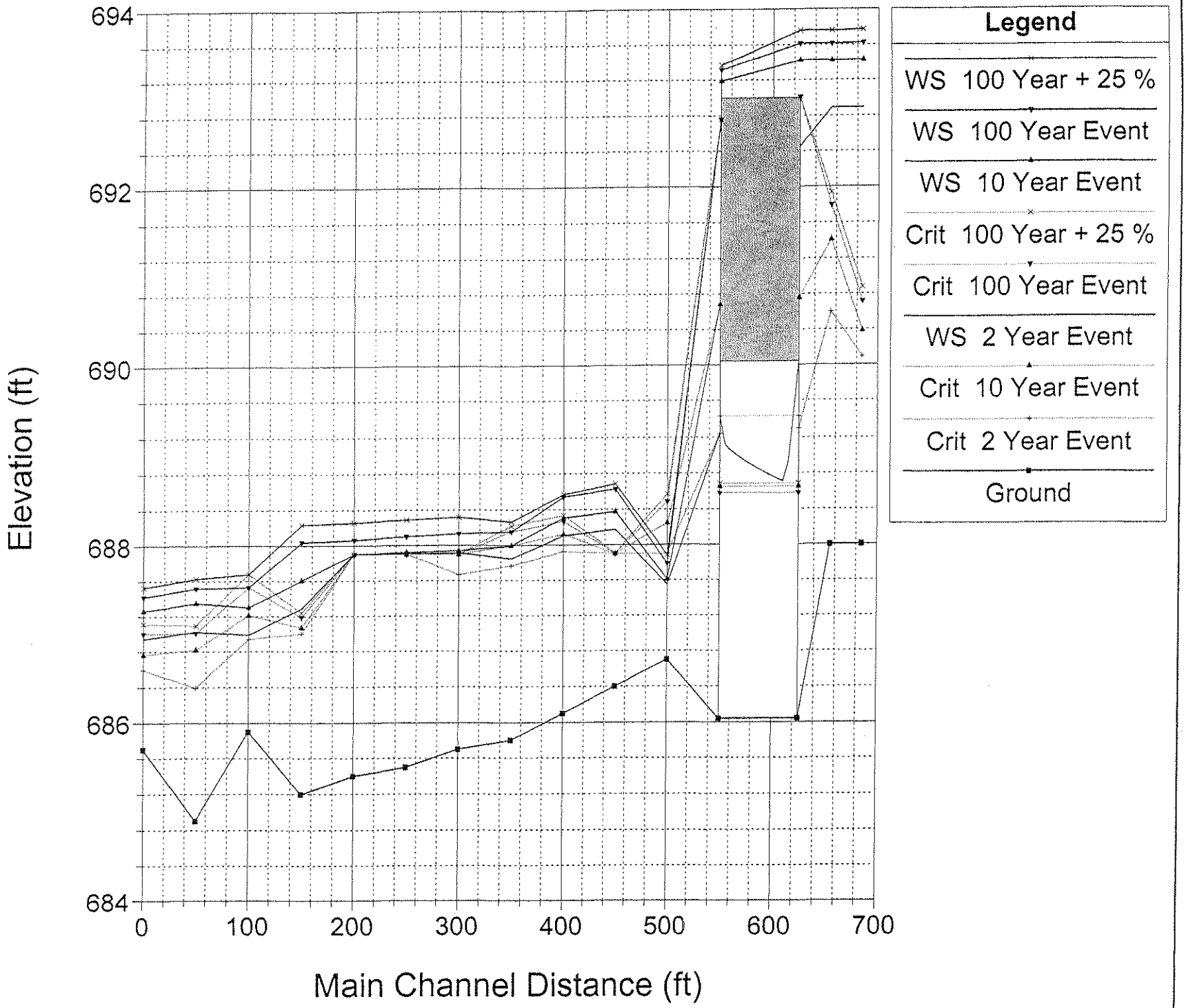
C-RA: : Ex ( )7 R RIB T ENP each R PH RD.

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
UPSTR PHIPPS RD.	685.25	128.00	688.00	692.89	690.09	692.89	0	0	594	278	0
UPSTR PHIPPS RD.	685.25	226.00	688.00	693.43	690.38	693.43	0	1	750	306	0
UPSTR PHIPPS RD.	685.25	409.00	688.00	693.62	690.72	693.63	0	1	810	317	0
UPSTR PHIPPS RD.	685.25	511.25	688.00	693.77	690.87	693.78	0	1	858	326	0
UPSTR PHIPPS RD.	655.25	128.00	688.00	692.89	690.60	692.89	0	1	438	289	0
UPSTR PHIPPS RD.	655.25	226.00	688.00	693.42	691.41	693.43	0	1	603	327	0
UPSTR PHIPPS RD.	655.25	409.00	688.00	693.61	691.80	693.62	0	1	666	341	0
UPSTR PHIPPS RD.	655.25	511.25	688.00	693.76	691.94	693.77	0	2	717	352	0
UPSTR PHIPPS RD.	625.25	128.00	686.04	692.45	689.30	692.85	0	5	25	224	0
UPSTR PHIPPS RD.	625.25	226.00	686.04	693.42	690.76	693.43	0	1	807	298	0
UPSTR PHIPPS RD.	625.25	409.00	686.04	693.61	693.01	693.62	0	1	866	335	0
UPSTR PHIPPS RD.	625.25	511.25	686.04	693.76	693.01	693.77	0	1	918	372	0
UPSTR PHIPPS RD.	587.625	Culvert									
UPSTR PHIPPS RD.	550	128.00	686.04	689.24	689.24	690.82	0	10	13	275	1
UPSTR PHIPPS RD.	550	226.00	686.04	690.68	690.68	693.01	0	12	18	342	1
UPSTR PHIPPS RD.	550	409.00	686.04	692.76	692.76	692.76	0	0	1600	415	0
UPSTR PHIPPS RD.	550	511.25	686.04	692.76	692.76	692.76	0	1	1600	415	0
UPSTR PHIPPS RD.	500	128.00	686.70	687.55	687.90	689.26	0	15	19	60	3
UPSTR PHIPPS RD.	500	226.00	686.70	687.61	688.24	691.28	0	22	23	66	4
UPSTR PHIPPS RD.	500	409.00	686.70	687.79	688.48	692.30	0	26	36	84	5
UPSTR PHIPPS RD.	500	511.25	686.70	687.89	688.57	692.32	0	27	45	94	5
UPSTR PHIPPS RD.	450	128.00	686.40	688.17	687.90	688.17	0	1	487	539	0
UPSTR PHIPPS RD.	450	226.00	686.40	688.37	687.90	688.38	0	1	603	602	0
UPSTR PHIPPS RD.	450	409.00	686.40	688.63	687.90	688.63	0	1	835	758	0
UPSTR PHIPPS RD.	450	511.25	686.40	688.69	687.91	688.69	0	1	880	761	0
UPSTR PHIPPS RD.	400	128.00	686.10	688.10	687.93	688.15	0	3	147	393	0
UPSTR PHIPPS RD.	400	226.00	686.10	688.30	688.12	688.35	0	3	232	445	0
UPSTR PHIPPS RD.	400	409.00	686.10	688.54	688.26	688.59	0	4	346	505	0
UPSTR PHIPPS RD.	400	511.25	686.10	688.57	688.33	688.64	0	4	359	512	1
UPSTR PHIPPS RD.	350	128.00	685.80	687.85	687.76	687.97	0	4	86	199	1
UPSTR PHIPPS RD.	350	226.00	685.80	687.99	687.99	688.14	0	5	150	395	1
UPSTR PHIPPS RD.	350	409.00	685.80	688.15	688.15	688.33	0	6	213	419	1
UPSTR PHIPPS RD.	350	511.25	685.80	688.26	688.21	688.43	0	6	262	437	1
UPSTR PHIPPS RD.	300	128.00	685.70	687.91	687.67	687.91	0	1	616	800	0
UPSTR PHIPPS RD.	300	226.00	685.70	687.94	687.90	687.94	0	1	638	802	0
UPSTR PHIPPS RD.	300	409.00	685.70	688.13	687.90	688.14	0	1	792	839	0
UPSTR PHIPPS RD.	300	511.25	685.70	688.32	687.90	688.32	0	1	963	978	0
UPSTR PHIPPS RD.	250	153.00	685.50	687.91	687.90	687.91	0	1	602	770	0
UPSTR PHIPPS RD.	250	275.00	685.50	687.92	687.90	687.93	0	1	612	771	0

C-RAS : Ex C 7 R RIB T ENP each: R PH RD. (C ed)

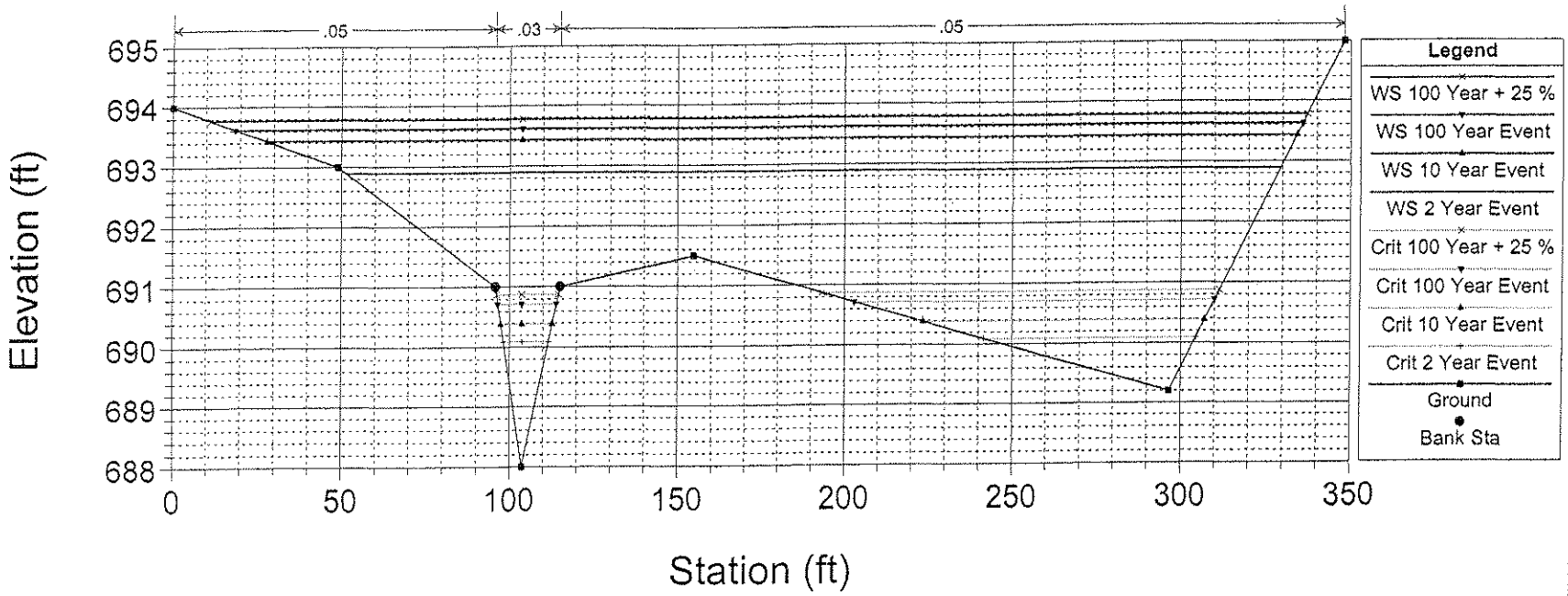
Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
UPSTR PHIPPS RD.	250	502.00	685.50	688.10	687.90	688.11	0	2	748	785	0
UPSTR PHIPPS RD.	250	627.50	685.50	688.29	687.91	688.30	0	2	900	800	0
UPSTR PHIPPS RD.	200	153.00	685.40	687.90	687.90	687.90	0	1	606	795	0
UPSTR PHIPPS RD.	200	275.00	685.40	687.90	687.90	687.91	0	1	606	795	0
UPSTR PHIPPS RD.	200	502.00	685.40	688.06	687.90	688.07	0	2	735	831	0
UPSTR PHIPPS RD.	200	627.50	685.40	688.26	687.91	688.27	0	2	900	841	0
UPSTR PHIPPS RD.	150	153.00	685.20	687.29	687.00	687.30	0	1	356	660	0
UPSTR PHIPPS RD.	150	275.00	685.20	687.60	687.07	687.61	0	1	570	693	0
UPSTR PHIPPS RD.	150	502.00	685.20	688.03	687.19	688.04	0	1	886	765	0
UPSTR PHIPPS RD.	150	627.50	685.20	688.23	687.24	688.24	0	2	1039	775	0
UPSTR PHIPPS RD.	100	153.00	685.90	686.99	686.94	687.20	0	5	61	118	1
UPSTR PHIPPS RD.	100	275.00	685.90	687.30	687.21	687.53	0	6	101	134	1
UPSTR PHIPPS RD.	100	502.00	685.90	687.53	687.53	687.94	0	8	132	145	1
UPSTR PHIPPS RD.	100	627.50	685.90	687.68	687.68	688.14	0	8	155	153	1
UPSTR PHIPPS RD.	050	153.00	684.90	687.02	686.39	687.04	0	2	246	429	0
UPSTR PHIPPS RD.	050	275.00	684.90	687.35	686.82	687.37	0	2	395	493	0
UPSTR PHIPPS RD.	050	502.00	684.90	687.52	687.01	687.55	0	3	480	526	0
UPSTR PHIPPS RD.	050	627.50	684.90	687.62	687.09	687.67	0	3	539	547	0
UPSTR PHIPPS RD.	000	153.00	685.70	686.94	686.59	686.98	0	2	143	236	0
UPSTR PHIPPS RD.	000	275.00	685.70	687.26	686.76	687.30	0	3	228	300	0
UPSTR PHIPPS RD.	000	502.00	685.70	687.42	687.00	687.46	0	3	472	705	0
UPSTR PHIPPS RD.	000	627.50	685.70	687.53	687.12	687.57	0	3	546	708	0

Route 15 Pondview Estates-06-27-07 Plan: Existing Conditions 06-27-07



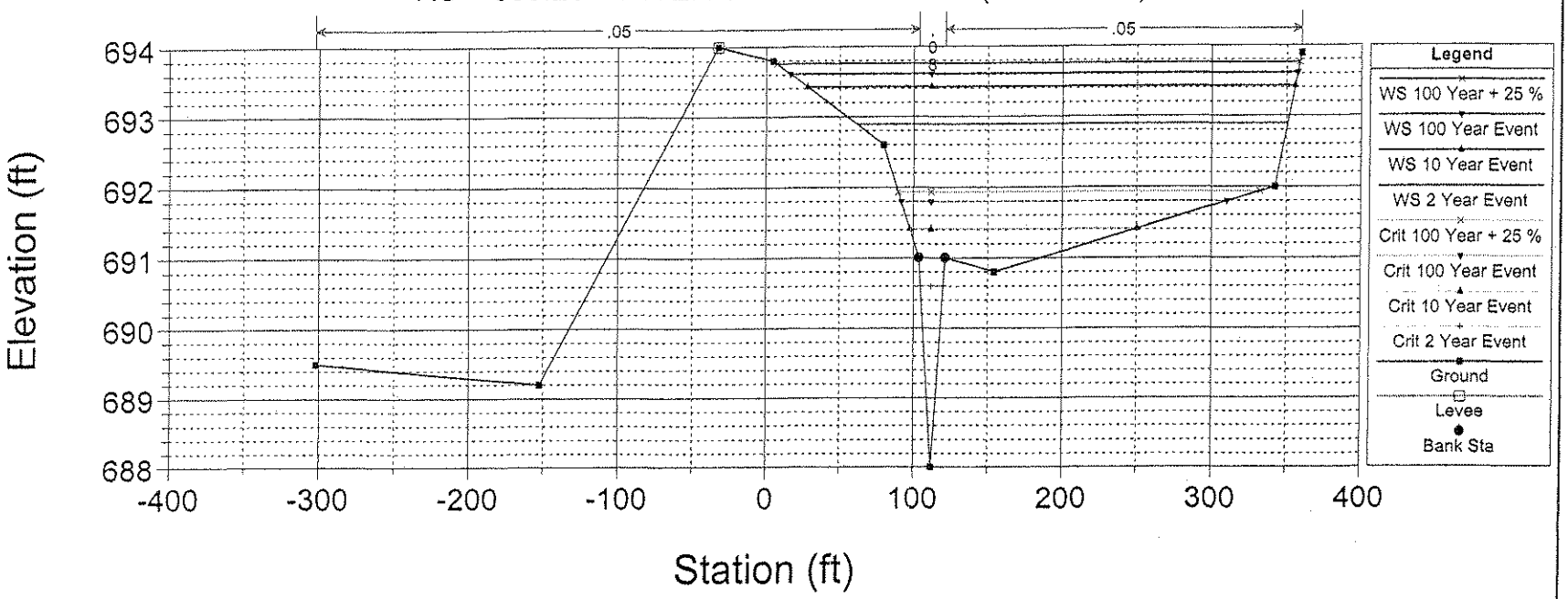
Route 15 Pondview Estates-08-27-07 Plan: Existing Conditions 08-27-07

RS = 685.25 RIVER STATION 6+85.25 (WETLAND)



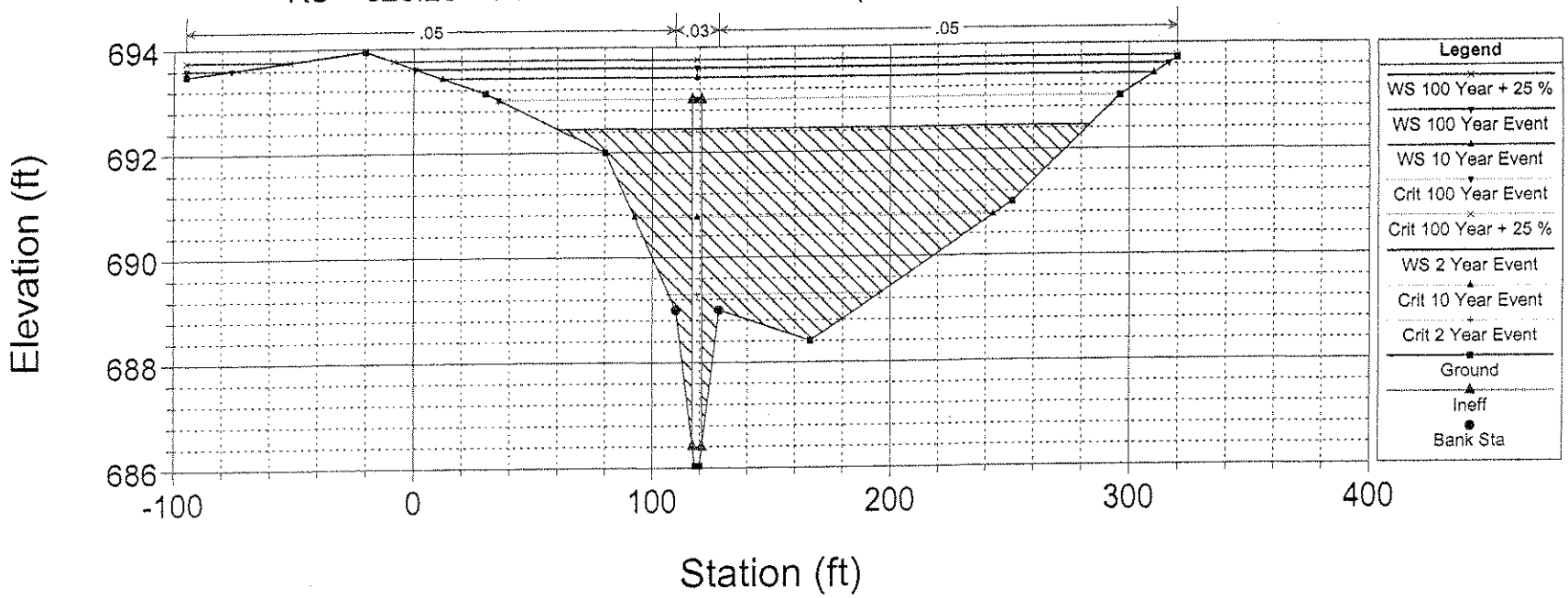
Route 15 Pondview Estates-08-27-07 Plan: Existing Conditions 08-27-07

RS = 655.25 RIVER STATION 6+55.25 (WETLAND)



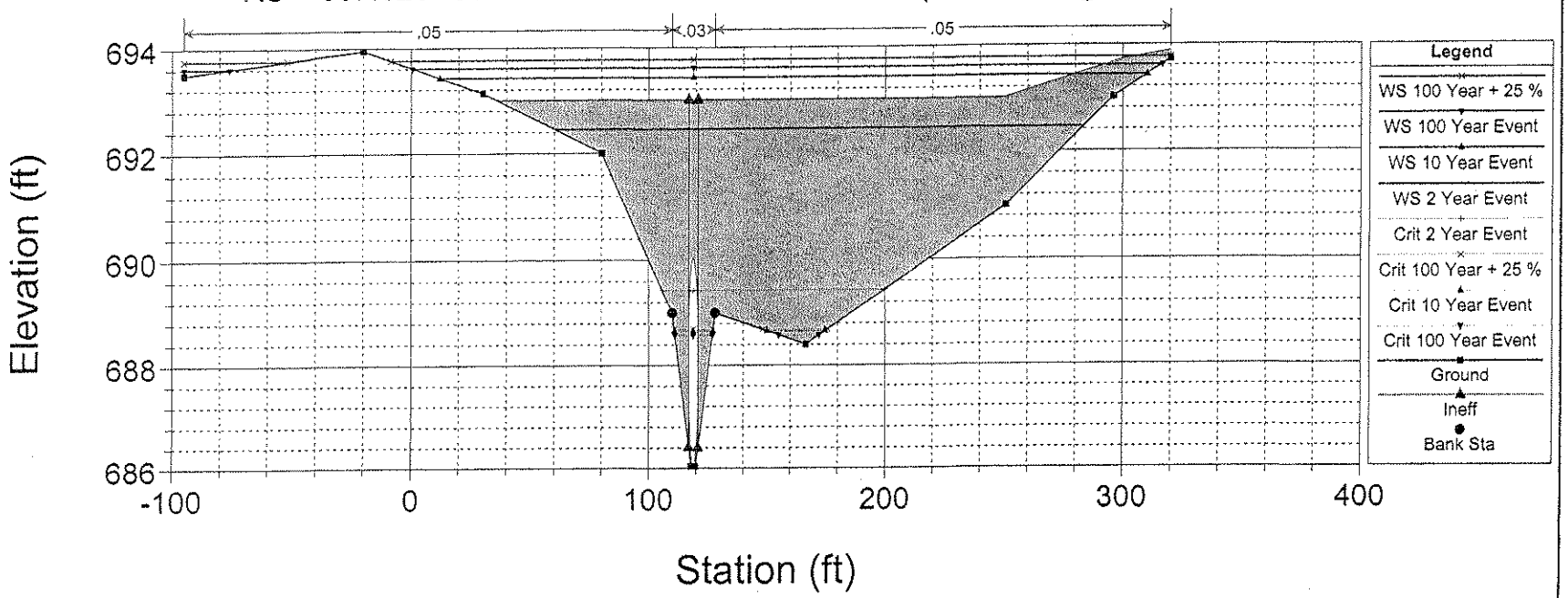
Route 15 Pondview Estates-08-27-07 Plan: Existing Conditions 08-27-07

RS = 625.25 RIVER STATION 6+25.25 (UPSTREAM CULVERT FACE)



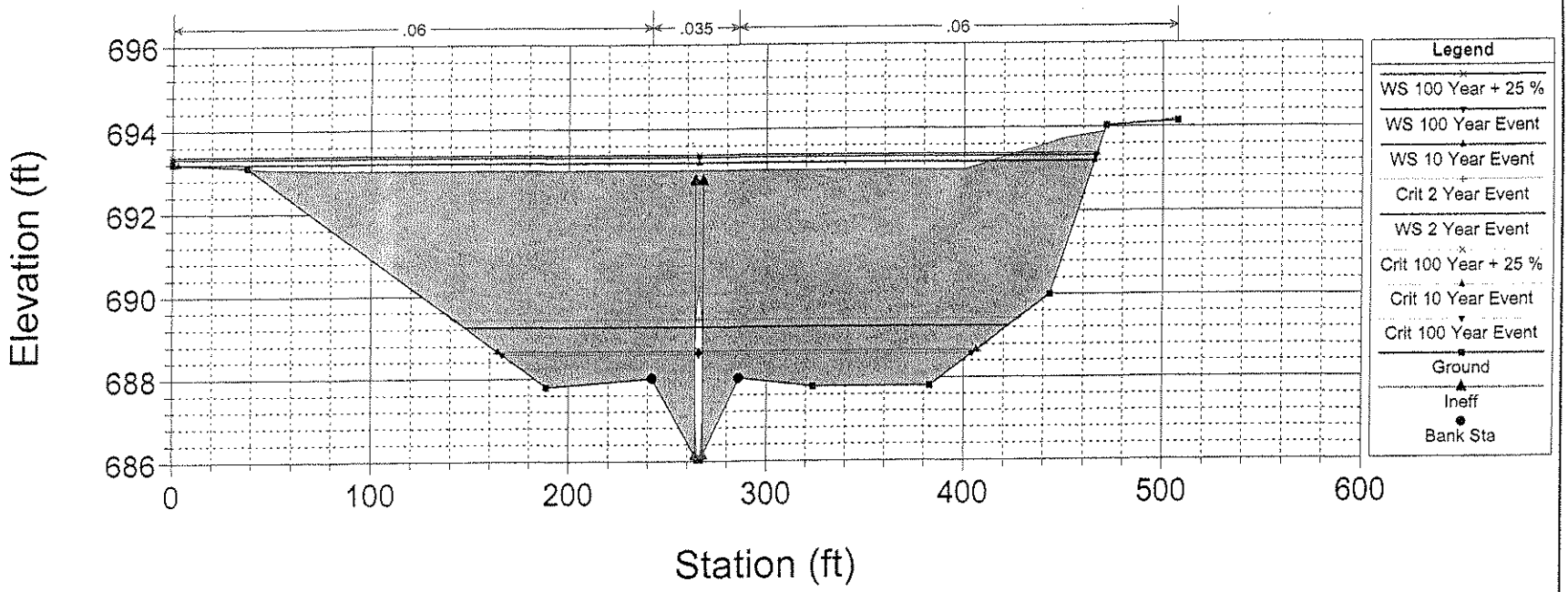
Route 15 Pondview Estates-08-27-07 Plan: Existing Conditions 08-27-07

RS = 587.625 Culv RIVER STATION 5+87.625 (CULVERT@PHIPPS ROAD)



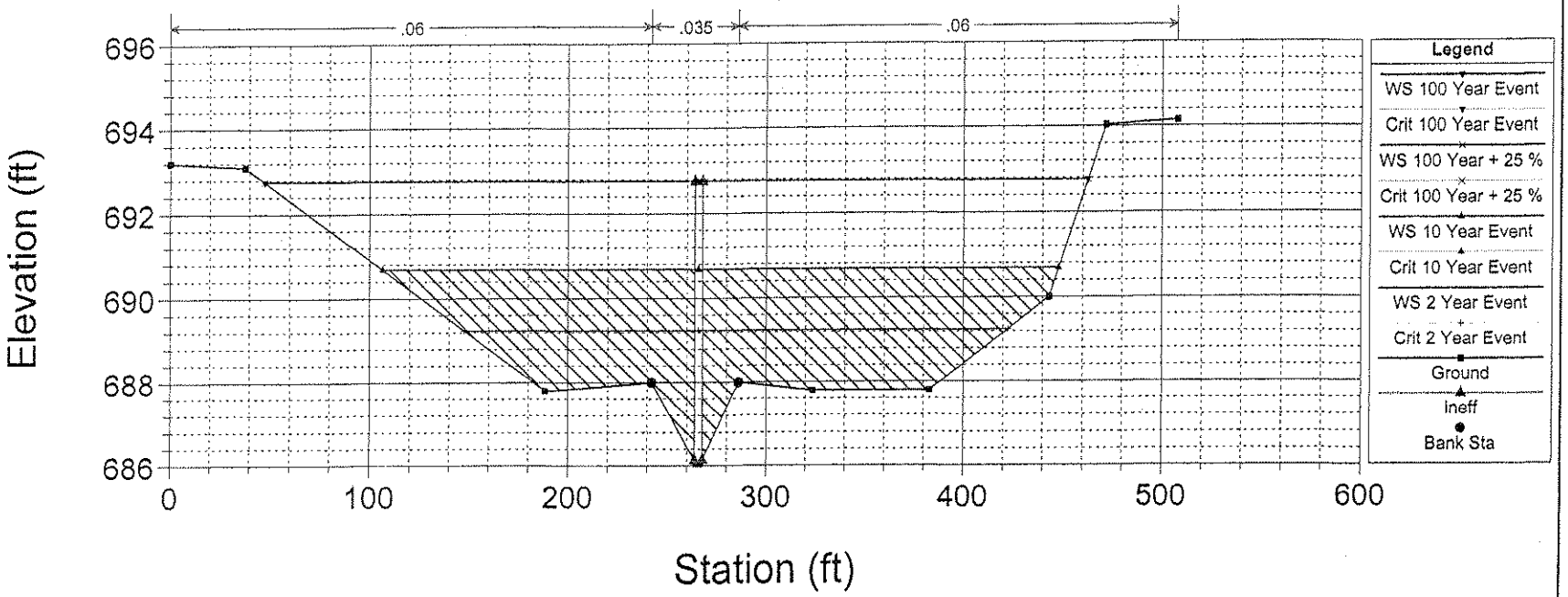
Route 15 Pondview Estates-08-27-07 Plan: Existing Conditions 08-27-07

RS = 587.625 Culv RIVER STATION 5+87.625 (CULVERT@PHIPPS ROAD)



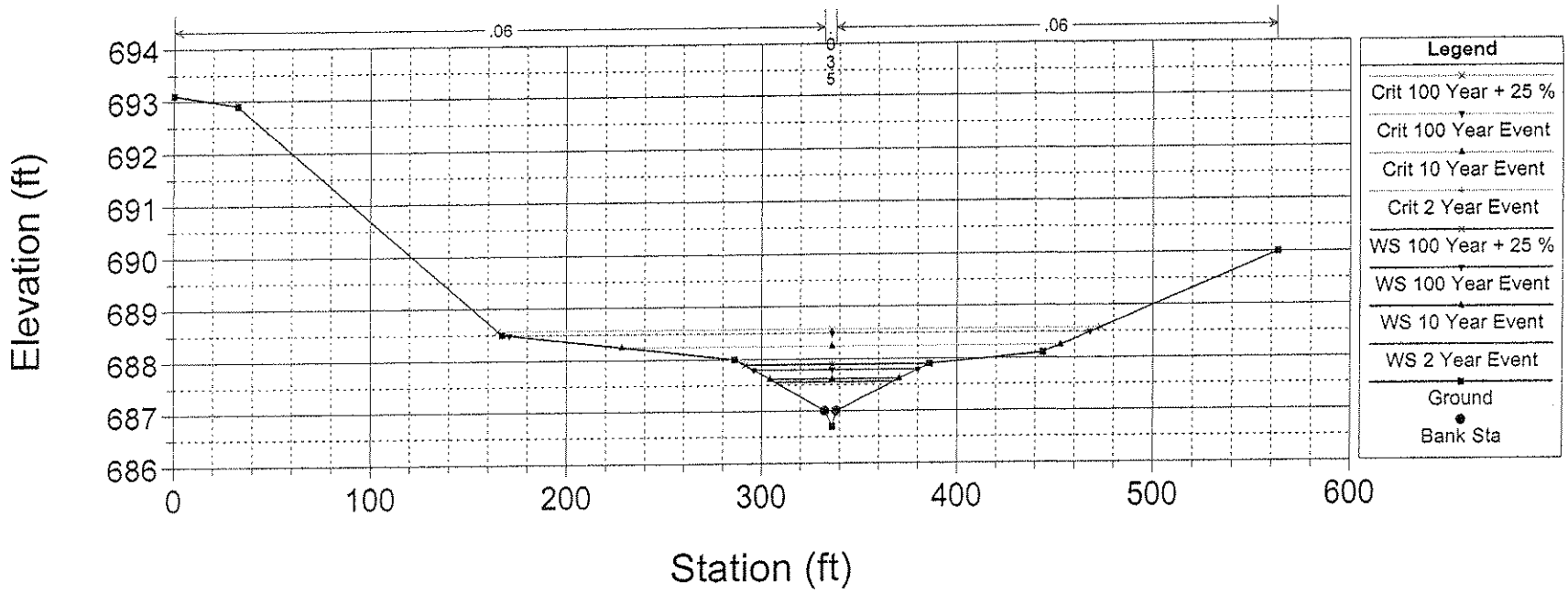
Route 15 Pondview Estates-08-27-07 Plan: Existing Conditions 08-27-07

RS = 550 RIVER STATION 5+50 (DOWNSTREAM PROJECT LIMITS)



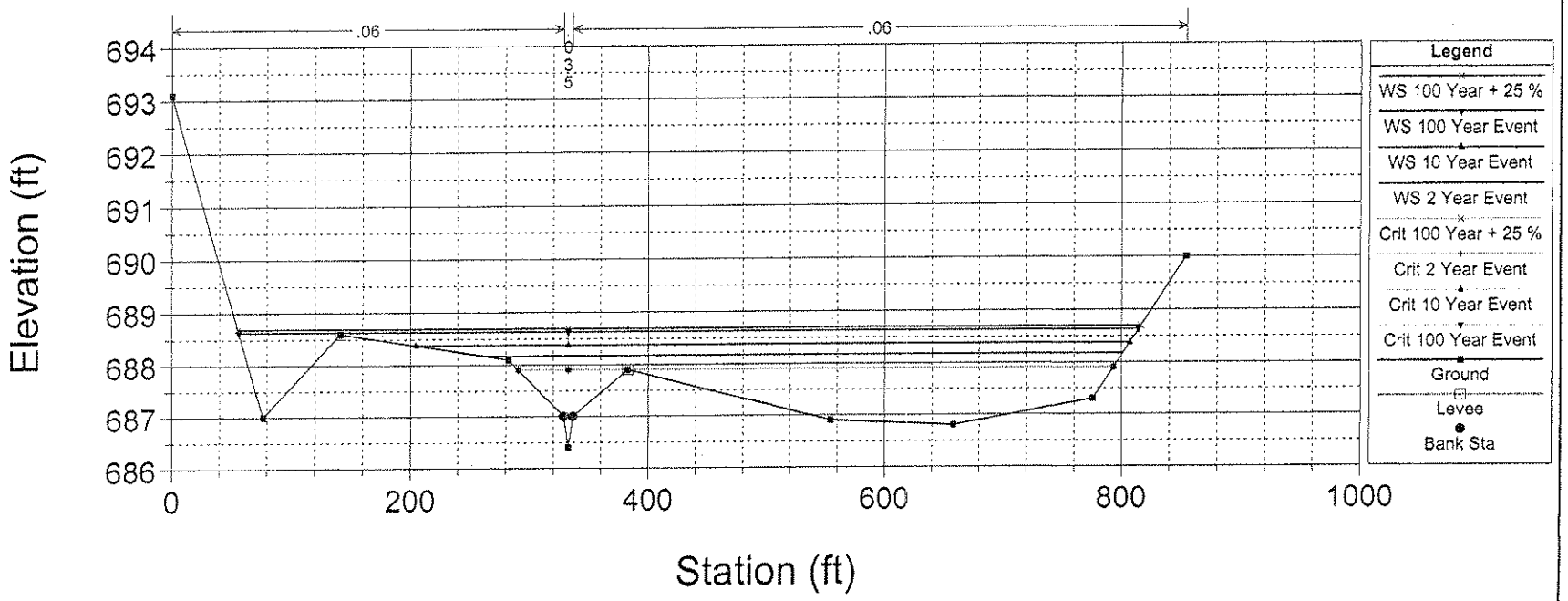
Route 15 Pondview Estates-08-27-07 Plan: Existing Conditions 08-27-07

RS = 500 RIVER STATION 5+00



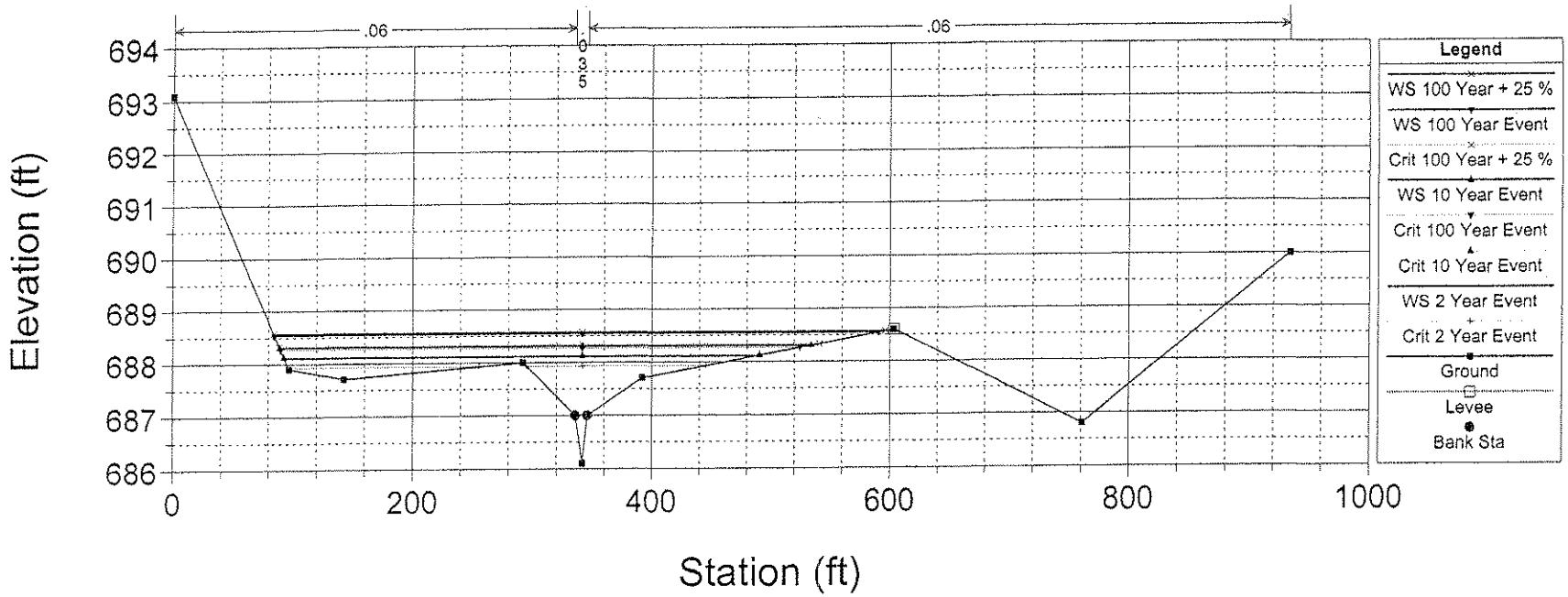
Route 15 Pondview Estates-08-27-07 Plan: Existing Conditions 08-27-07

RS = 450 RIVER STATION 4+50



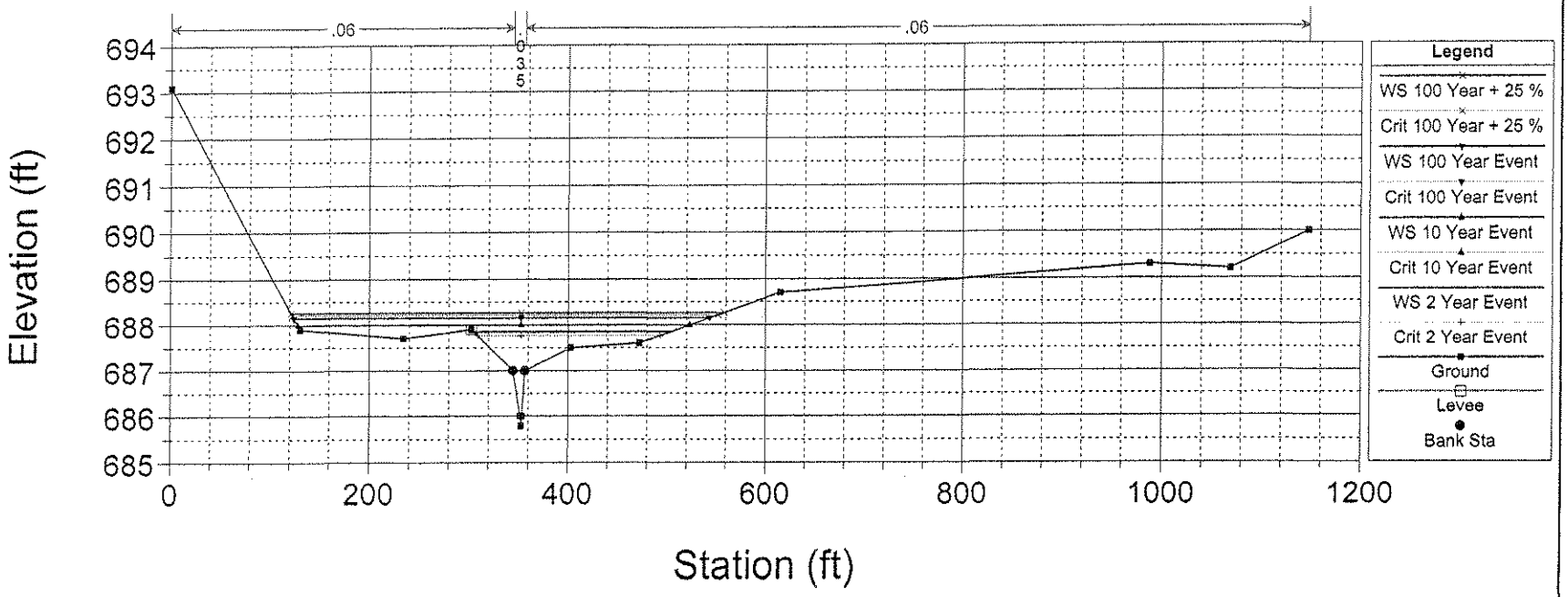
Route 15 Pondview Estates-08-27-07 Plan: Existing Conditions 08-27-07

RS = 400 RIVER STATION 4+00



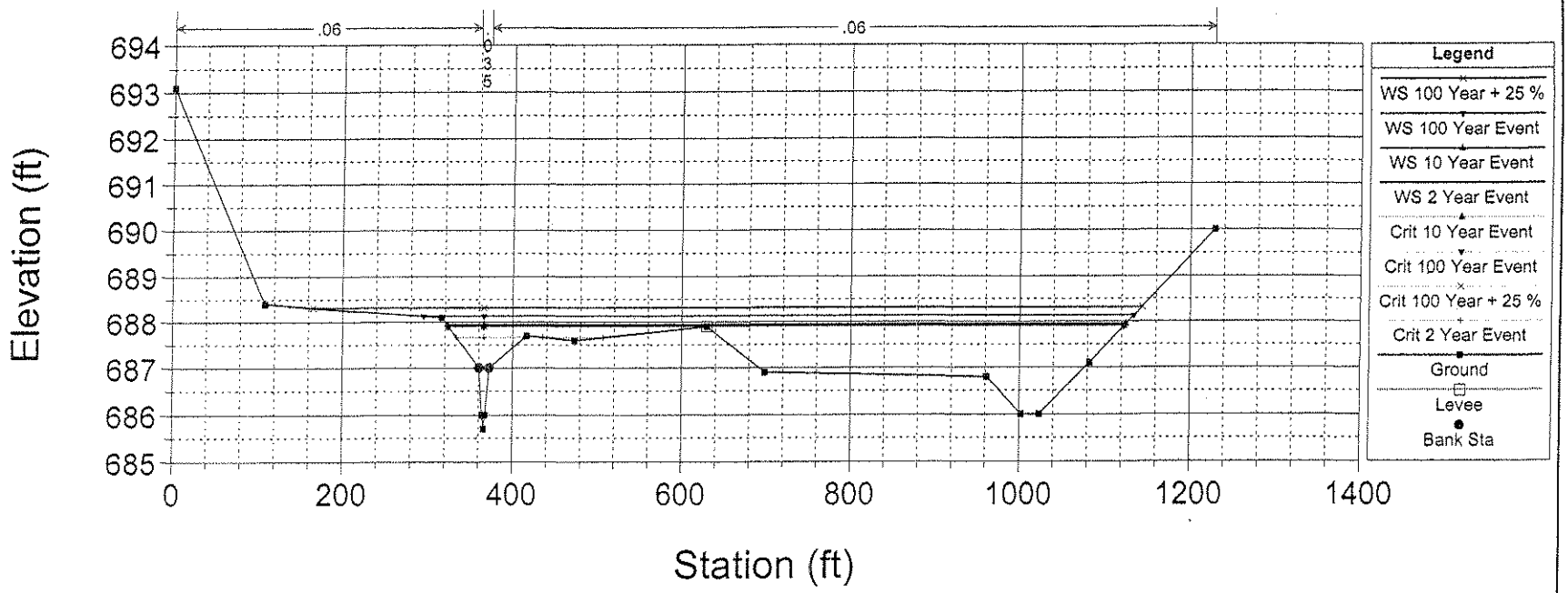
Route 15 Pondview Estates-08-27-07 Plan: Existing Conditions 08-27-07

RS = 350 RIVER STATION 3+50



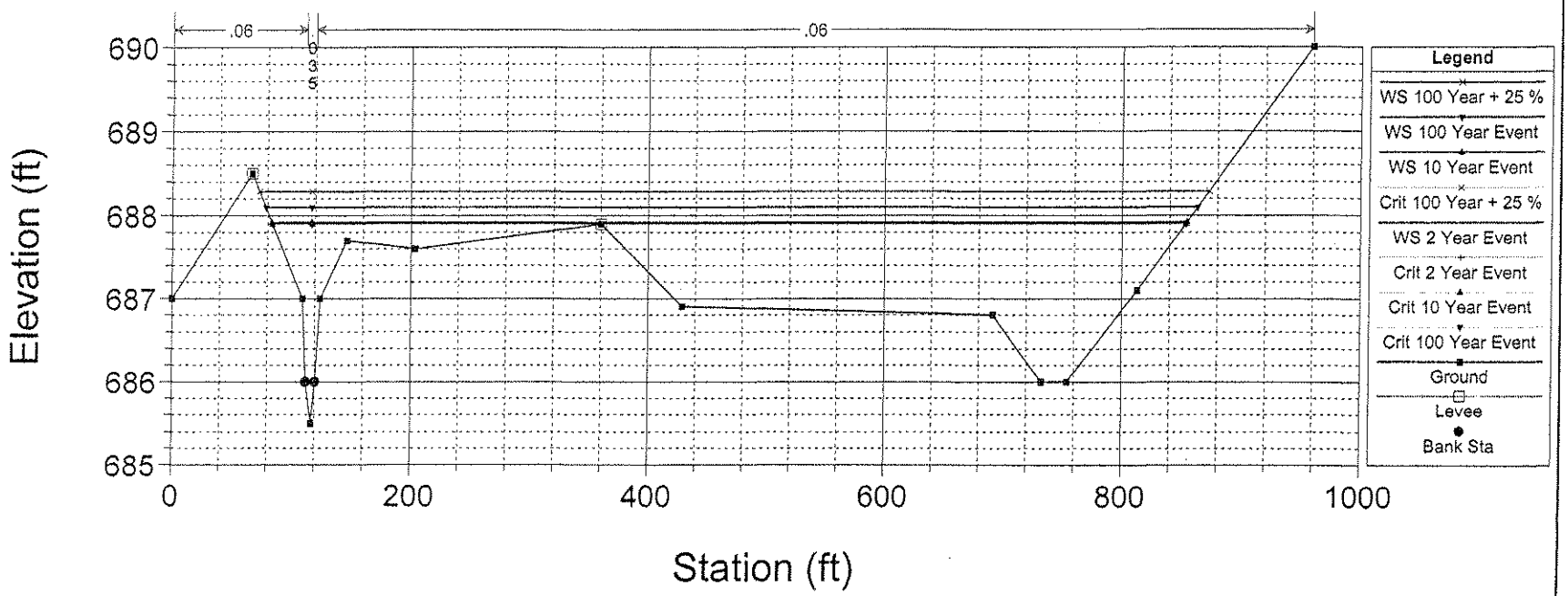
Route 15 Pondview Estates-08-27-07 Plan: Existing Conditions 08-27-07

RS = 300 RIVER STATION 3+00



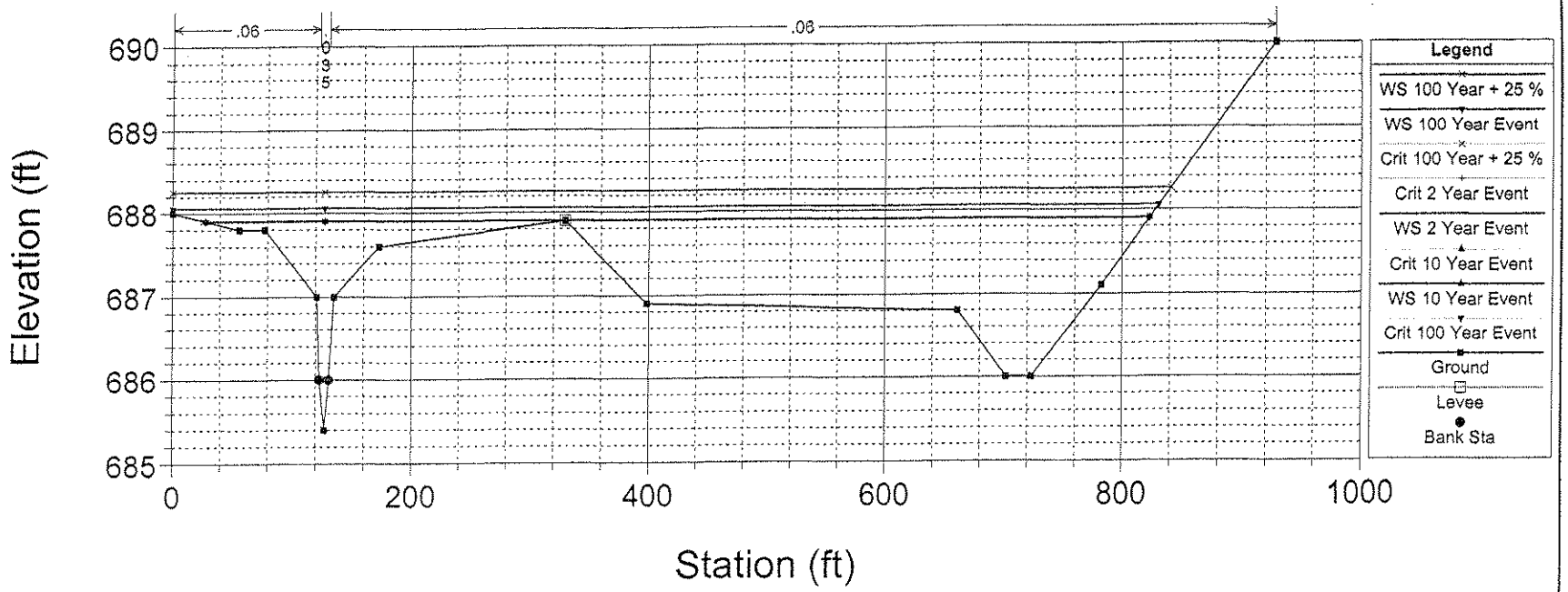
Route 15 Pondview Estates-08-27-07 Plan: Existing Conditions 08-27-07

RS = 250 RIVER STATION 2+50



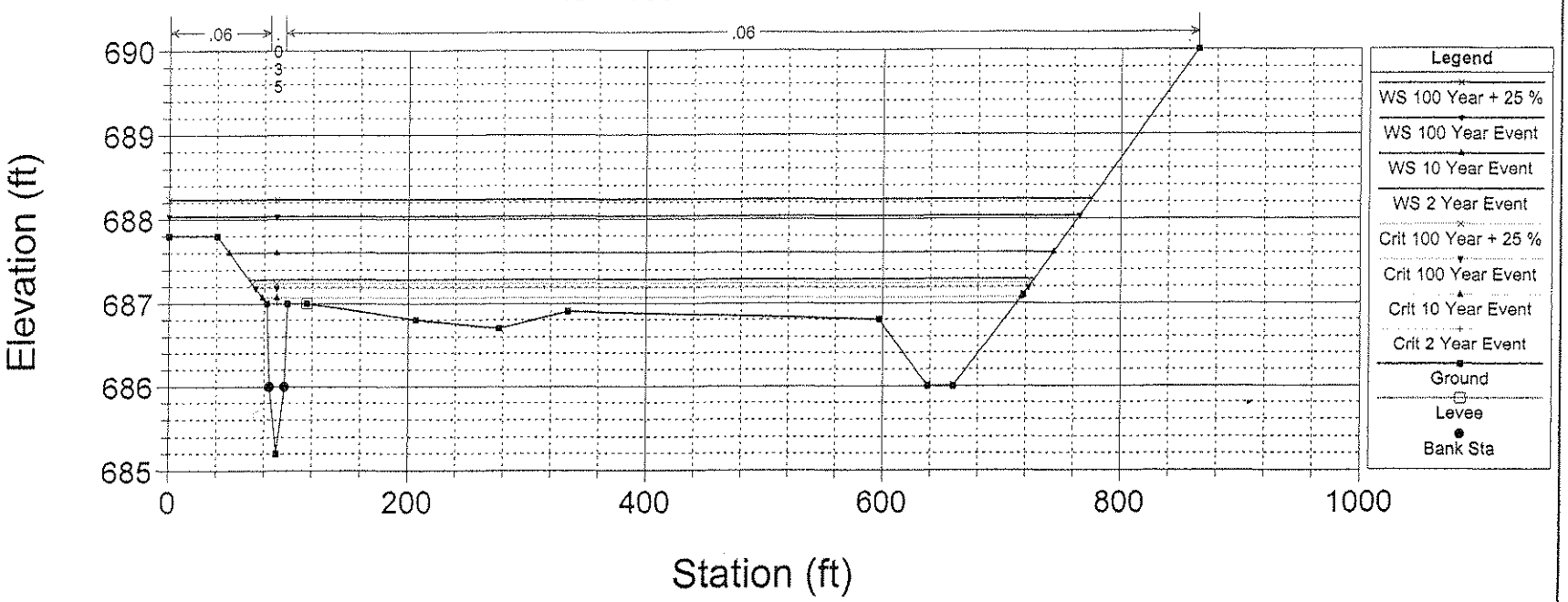
Route 15 Pondview Estates-08-27-07 Plan: Existing Conditions 08-27-07

RS = 200 RIVER STATION 2+00



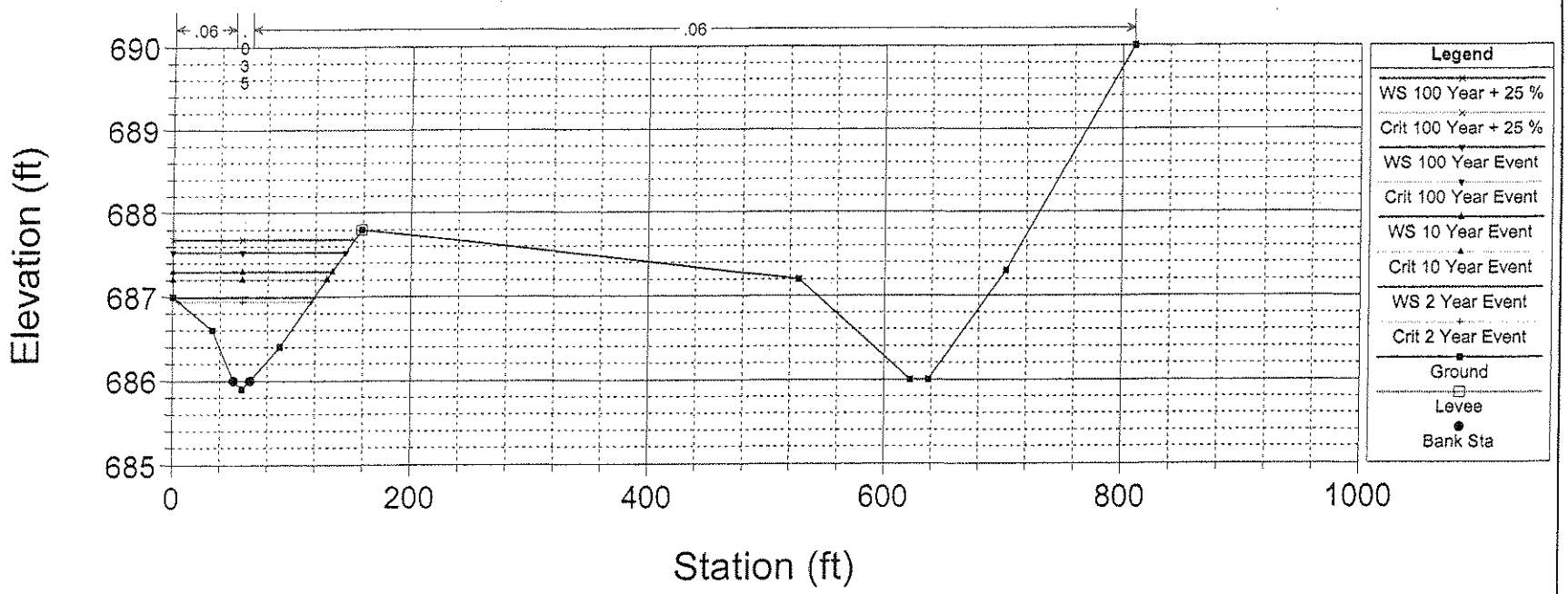
Route 15 Pondview Estates-08-27-07 Plan: Existing Conditions 08-27-07

RS = 150 RIVER STATION 1+50



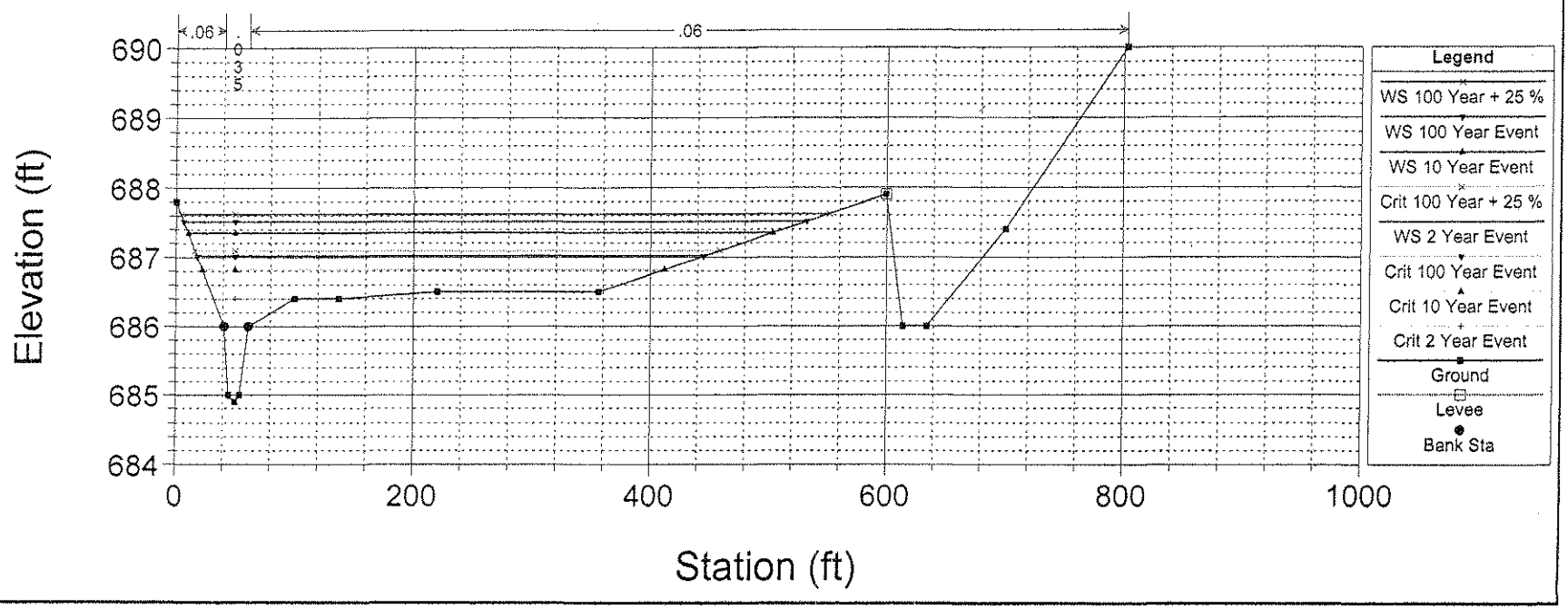
Route 15 Pondview Estates-08-27-07 Plan: Existing Conditions 08-27-07

RS = 100 RIVER STATION 1+00



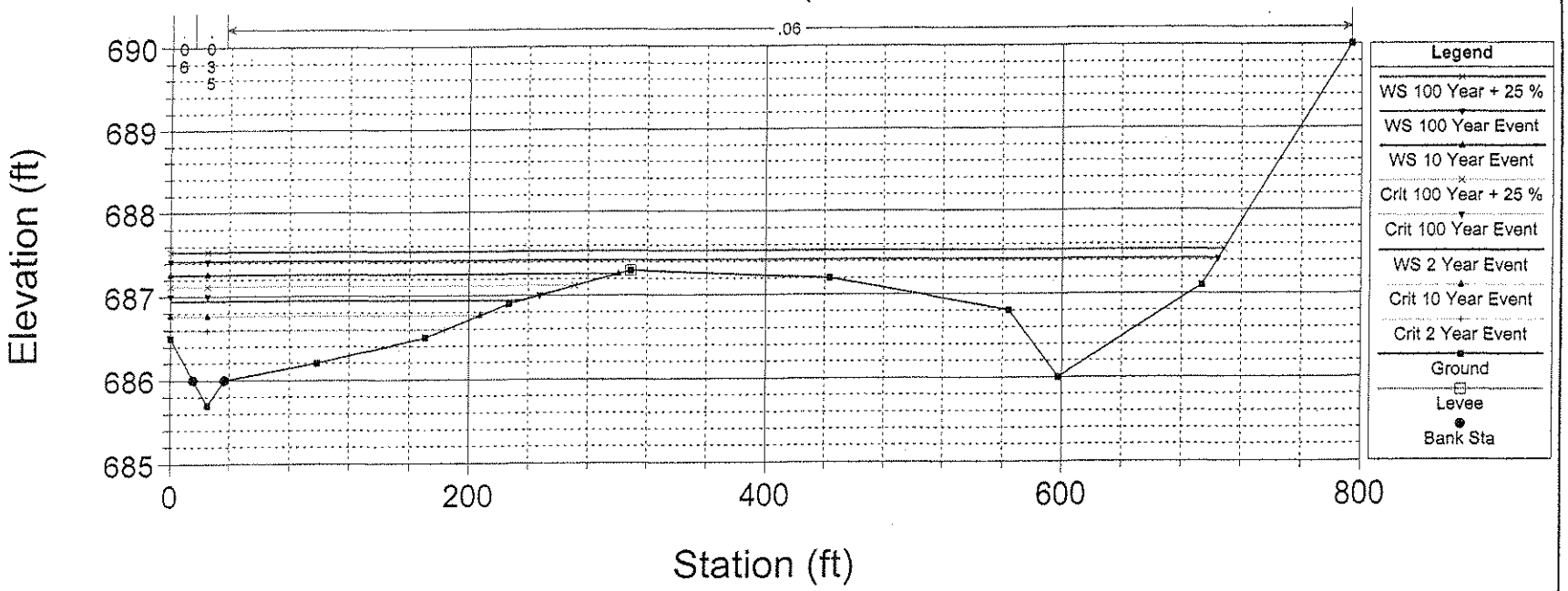
Route 15 Pondview Estates-08-27-07 Plan: Existing Conditions 08-27-07

RS = 050 RIVER STATION 0+50



Route 15 Pondview Estates-08-27-07 Plan: Existing Conditions 08-27-07

RS = 000 RIVER STATION 0+00 (DOWNSTREAM STUDY LIMIT)



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HEC-RAS Version 3.1.3 May 2005
 U.S. Army Corp of Engineers
Hydrologic Engineering Center
      609 Second Street
      Davis, California

X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
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PROJECT DATA
Project Title: Route 15 Pondview Estates-08-27-07
Project File : pondview.prj
Run Date and Time: 9/13/2007 3:59:06 PM

Project in English units

PLAN DATA

Plan Title: Existing Conditions 08-27-07
Plan File : n:\project\2002\0207212\01\H&H\Hydraulics\HEC-RAS final\pondview.p07

Geometry Title: Existing Conditions
Geometry File : n:\project\2002\0207212\01\H&H\Hydraulics\HEC-RAS final\pondview.g04

Flow Title : Existing Conditions2 Flow 08-27-07
Flow File : n:\project\2002\0207212\01\H&H\Hydraulics\HEC-RAS final\pondview.f05

Plan Summary Information:

Number of:					
Cross Sections	=	15	Multiple Openings	=	0
Culverts	=	1	Inline Structures	=	0
Bridges	=	0	Lateral Structures	=	0

Computational Information

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

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

FLOW DATA

Flow Title: Existing Conditions2 Flow 08-27-07
Flow File : n:\project\2002\0207212\01\H&H\Hydraulics\HEC-RAS final\pondview.f05

Flow Data (cfs)

River	Reach	RS	2 Year Event	10 Year Event	100 Year Event	100 Year + 25 %
TRIB TO GREENPONUPSTR	PHIPPS RD.	685.25	128	226	409	511.25
TRIB TO GREENPONUPSTR	PHIPPS RD.	550	128	226	409	511.25
TRIB TO GREENPONUPSTR	PHIPPS RD.	250	153	275	502	627.5

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
TRIB TO GREENPONUPSTR	PHIPPS RD.	2 Year Event	Normal S = 0.0002	Normal S = 0.0025
TRIB TO GREENPONUPSTR	PHIPPS RD.	10 Year Event	Normal S = 0.0002	Normal S = 0.0025
TRIB TO GREENPONUPSTR	PHIPPS RD.	100 Year Event	Normal S = 0.0002	Normal S = 0.0025

GEOMETRY DATA

Geometry Title: Existing Conditions
Geometry File : n:\project\2002\0207212\01\H&H\Hydraulics\HEC-RAS final\pondview.g04

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 685.25

INPUT
Description: RIVER STATION 6+85.25 (WETLAND)
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	694	48.79	693	95.8	691	103.71	688	115.03	691
154.73	691.5	296.5	689.2	348.24	695				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	95.8	.03	115.03	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
95.8	115.03	30	30	30	.1	.3

CROSS SECTION OUTPUT Profile #2 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	692.89	Element			
Vel Head (ft)	0.00	Wt. n-Val.	0.050	0.030	0.050
W.S. Elev (ft)	692.89	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	690.09	Flow Area (sq ft)	42.06	65.22	486.32
E.G. Slope (ft/ft)	0.000015	Area (sq ft)	42.06	65.22	486.32
Q Total (cfs)	128.00	Flow (cfs)	4.64	27.24	96.12
Top Width (ft)	278.10	Top Width (ft)	44.47	19.23	214.40
Vel Total (ft/s)	0.22	Avg. Vel. (ft/s)	0.11	0.42	0.20
Max Chl Dpth (ft)	4.89	Hydr. Depth (ft)	0.95	3.39	2.27
Conv. Total (cfs)	33200.5	Conv. (cfs)	1203.7	7064.4	24932.4
Length Wtd. (ft)	30.00	Wetted Per. (ft)	44.51	20.17	214.63

Min Ch El (ft)	688.00	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.44	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.52	0.53	4.43
C & E Loss (ft)	0.00	Cum SA (acres)	0.97	0.24	5.35

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #10 Year Event

E.G. Elev (ft)	693.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.050	0.030	0.050
W.S. Elev (ft)	693.43	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	690.38	Flow Area (sq ft)	71.56	75.52	602.43
E.G. Slope (ft/ft)	0.000024	Area (sq ft)	71.56	75.52	602.43
Q Total (cfs)	226.00	Flow (cfs)	10.74	44.01	171.25
Top Width (ft)	306.27	Top Width (ft)	67.86	19.23	219.18
Vel Total (ft/s)	0.30	Avg. Vel. (ft/s)	0.15	0.58	0.28
Max Chl Dpth (ft)	5.43	Hydr. Depth (ft)	1.05	3.93	2.75
Conv. Total (cfs)	46323.2	Conv. (cfs)	2202.0	9019.8	35101.4
Length Wtd. (ft)	30.00	Wetted Per. (ft)	67.91	20.17	219.44
Min Ch El (ft)	688.00	Shear (lb/sq ft)	0.00	0.01	0.00
Alpha	1.41	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1.05	0.68	5.73
C & E Loss (ft)	0.00	Cum SA (acres)	1.42	0.24	5.65

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Year Event

E.G. Elev (ft)	693.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.050	0.030	0.050
W.S. Elev (ft)	693.62	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	690.72	Flow Area (sq ft)	85.64	79.25	645.11
E.G. Slope (ft/ft)	0.000063	Area (sq ft)	85.64	79.25	645.11
Q Total (cfs)	409.00	Flow (cfs)	21.57	77.42	310.01
Top Width (ft)	317.47	Top Width (ft)	77.33	19.23	220.91
Vel Total (ft/s)	0.50	Avg. Vel. (ft/s)	0.25	0.98	0.48
Max Chl Dpth (ft)	5.62	Hydr. Depth (ft)	1.11	4.12	2.92
Conv. Total (cfs)	51634.2	Conv. (cfs)	2723.1	9774.4	39136.7
Length Wtd. (ft)	30.00	Wetted Per. (ft)	77.37	20.17	221.18
Min Ch El (ft)	688.00	Shear (lb/sq ft)	0.00	0.02	0.01
Alpha	1.41	Stream Power (lb/ft s)	0.00	0.02	0.01
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1.91	0.85	7.57
C & E Loss (ft)	0.00	Cum SA (acres)	1.88	0.24	6.13

CROSS SECTION OUTPUT Profile #100 Year + 25 %

E.G. Elev (ft)	693.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.050	0.030	0.050
W.S. Elev (ft)	693.77	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	690.87	Flow Area (sq ft)	97.64	82.11	677.97
E.G. Slope (ft/ft)	0.000084	Area (sq ft)	97.64	82.11	677.97
Q Total (cfs)	511.25	Flow (cfs)	29.19	94.81	387.24
Top Width (ft)	326.03	Top Width (ft)	84.56	19.23	222.23
Vel Total (ft/s)	0.60	Avg. Vel. (ft/s)	0.30	1.15	0.57
Max Chl Dpth (ft)	5.77	Hydr. Depth (ft)	1.15	4.27	3.05

Conv. Total (cfs)	55906.0	Conv. (cfs)	3192.5	10367.7	42345.8
Length Wtd. (ft)	30.00	Wetted Per. (ft)	84.61	20.17	222.51
Min Ch El (ft)	688.00	Shear (lb/sq ft)	0.01	0.02	0.02
Alpha	1.41	Stream Power (lb/ft s)	0.00	0.02	0.01
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	2.10	0.88	8.47
C & E Loss (ft)	0.00	Cum SA (acres)	2.09	0.24	6.24

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 655.25

INPUT
Description: RIVER STATION 6+55.25 (WETLAND)
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-302	689.5	-152.5	689.2	-32.5	694	4.73	693.8	79.73	692.6
103.65	691	111.93	688	121.32	691	154.1	690.8	342.56	692
360	693.89								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-302	.05	103.65	.03	121.32	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
103.65	121.32	30	30	30	.1	.3

Left Levee Station= -32.5 Elevation=

CROSS SECTION OUTPUT Profile #2 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	692.89	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.050	0.030	0.050
W.S. Elev (ft)	692.89	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	690.60	Flow Area (sq ft)	28.67	59.89	349.53
E.G. Slope (ft/ft)	0.000038	Area (sq ft)	28.67	59.89	349.53
Q Total (cfs)	128.00	Flow (cfs)	4.05	39.59	84.36
Top Width (ft)	289.12	Top Width (ft)	42.00	17.67	229.45
Vel Total (ft/s)	0.29	Avg. Vel. (ft/s)	0.14	0.66	0.24
Max Chl Dpth (ft)	4.89	Hydr. Depth (ft)	0.68	3.39	1.52
Conv. Total (cfs)	20863.4	Conv. (cfs)	660.0	6453.2	13750.3
Length Wtd. (ft)	30.00	Wetted Per. (ft)	42.06	18.66	229.50
Min Ch El (ft)	688.00	Shear (lb/sq ft)	0.00	0.01	0.00
Alpha	2.04	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.50	0.49	4.15
C & E Loss (ft)	0.04	Cum SA (acres)	0.94	0.23	5.20

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #10 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	693.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.050	0.030	0.050
W.S. Elev (ft)	693.42	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	691.41	Flow Area (sq ft)	60.08	69.34	473.58
E.G. Slope (ft/ft)	0.000049	Area (sq ft)	60.08	69.34	473.58

Q Total (cfs)	226.00	Flow (cfs)	10.74	57.71	157.54
Top Width (ft)	327.48	Top Width (ft)	75.43	17.67	234.38
Vel Total (ft/s)	0.37	Avg. Vel. (ft/s)	0.18	0.83	0.33
Max Chl Dpth (ft)	5.42	Hydr. Depth (ft)	0.80	3.92	2.02
Conv. Total (cfs)	32260.7	Conv. (cfs)	1533.3	8238.4	22488.9
Length Wtd. (ft)	30.00	Wetted Per. (ft)	75.49	18.66	234.46
Min Ch El (ft)	688.00	Shear (lb/sq ft)	0.00	0.01	0.01
Alpha	1.82	Stream Power (lb/ft s)	0.00	0.01	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1.00	0.63	5.36
C & E Loss (ft)	0.00	Cum SA (acres)	1.37	0.23	5.50

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	693.62	Element			
Vel Head (ft)	0.01	Wt. n-Val.	0.050	0.030	0.050
W.S. Elev (ft)	693.61	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	691.80	Flow Area (sq ft)	75.48	72.69	518.12
E.G. Slope (ft/ft)	0.000123	Area (sq ft)	75.48	72.69	518.12
Q Total (cfs)	409.00	Flow (cfs)	22.54	98.67	287.80
Top Width (ft)	341.06	Top Width (ft)	87.27	17.67	236.13
Vel Total (ft/s)	0.61	Avg. Vel. (ft/s)	0.30	1.36	0.56
Max Chl Dpth (ft)	5.61	Hydr. Depth (ft)	0.86	4.11	2.19
Conv. Total (cfs)	36940.7	Conv. (cfs)	2035.5	8911.5	25993.8
Length Wtd. (ft)	30.00	Wetted Per. (ft)	87.33	18.66	236.22
Min Ch El (ft)	688.00	Shear (lb/sq ft)	0.01	0.03	0.02
Alpha	1.77	Stream Power (lb/ft s)	0.00	0.04	0.01
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1.85	0.80	7.17
C & E Loss (ft)	0.00	Cum SA (acres)	1.82	0.23	5.97

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100 Year + 25 %

			Left OB	Channel	Right OB
E.G. Elev (ft)	693.77	Element			
Vel Head (ft)	0.01	Wt. n-Val.	0.050	0.030	0.050
W.S. Elev (ft)	693.76	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	691.94	Flow Area (sq ft)	88.91	75.27	552.75
E.G. Slope (ft/ft)	0.000157	Area (sq ft)	88.91	75.27	552.75
Q Total (cfs)	511.25	Flow (cfs)	31.36	118.39	361.50
Top Width (ft)	351.55	Top Width (ft)	96.41	17.67	237.48
Vel Total (ft/s)	0.71	Avg. Vel. (ft/s)	0.35	1.57	0.65
Max Chl Dpth (ft)	5.76	Hydr. Depth (ft)	0.92	4.26	2.33
Conv. Total (cfs)	40791.2	Conv. (cfs)	2502.5	9445.7	28843.0
Length Wtd. (ft)	30.00	Wetted Per. (ft)	96.47	18.66	237.58
Min Ch El (ft)	688.00	Shear (lb/sq ft)	0.01	0.04	0.02
Alpha	1.74	Stream Power (lb/ft s)	0.00	0.06	0.01
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	2.04	0.82	8.04
C & E Loss (ft)	0.00	Cum SA (acres)	2.03	0.23	6.08

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than

0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 625.25

INPUT
Description: RIVER STATION 6+25.25 (UPSTREAM CULVERT FACE)
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-95	693.5	-20	693.95	30	693.13	80.08	692	109.94	689
117.92	686.04	118.92	686.04	119.92	686.04	128.17	689	166.43	688.4
251.02	691	296.2	693	320	693.72				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-95	.05	109.94	.03	128.17	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
109.94	128.17	75.25	75.25	75.25	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-95	116.92	693	F
120.92	320	693	F

CROSS SECTION OUTPUT Profile #2 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	692.85	Element			
Vel Head (ft)	0.40	Wt. n-Val.		0.030	
W.S. Elev (ft)	692.45	Reach Len. (ft)	75.25	75.25	75.25
Crit W.S. (ft)	689.30	Flow Area (sq ft)		25.28	
E.G. Slope (ft/ft)	0.000933	Area (sq ft)	62.78	92.86	400.04
Q Total (cfs)	128.00	Flow (cfs)		128.00	
Top Width (ft)	223.72	Top Width (ft)	49.86	18.23	155.63
Vel Total (ft/s)	5.06	Avg. Vel. (ft/s)		5.06	
Max Chl Dpth (ft)	6.41	Hydr. Depth (ft)		6.32	
Conv. Total (cfs)	4190.6	Conv. (cfs)		4190.6	
Length Wtd. (ft)	75.25	Wetted Per. (ft)		4.13	
Min Ch El (ft)	686.04	Shear (lb/sq ft)		0.36	
Alpha	1.00	Stream Power (lb/ft s)		1.81	
Frctn Loss (ft)		Cum Volume (acre-ft)	0.47	0.44	3.89
C & E Loss (ft)		Cum SA (acres)	0.91	0.22	5.07

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #10 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	693.43	Element			
Vel Head (ft)	0.00	Wt. n-Val.	0.050	0.030	0.050
W.S. Elev (ft)	693.42	Reach Len. (ft)	75.25	75.25	75.25
Crit W.S. (ft)	690.76	Flow Area (sq ft)	133.02	110.60	563.16
E.G. Slope (ft/ft)	0.000015	Area (sq ft)	133.02	110.60	563.16
Q Total (cfs)	226.00	Flow (cfs)	18.90	68.51	138.59
Top Width (ft)	298.20	Top Width (ft)	97.90	18.23	182.06
Vel Total (ft/s)	0.28	Avg. Vel. (ft/s)	0.14	0.62	0.25

Max Chl Dpth (ft)	7.38	Hydr. Depth (ft)	1.36	6.07	3.09
Conv. Total (cfs)	57918.8	Conv. (cfs)	4844.0	17557.1	35517.7
Length Wtd. (ft)	75.25	Wetted Per. (ft)	98.07	19.28	182.16
Min Ch El (ft)	686.04	Shear (lb/sq ft)	0.00	0.01	0.00
Alpha	1.98	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	0.93	0.57	5.01
C & E Loss (ft)		Cum SA (acres)	1.31	0.22	5.36

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #100 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	693.62	Element			
Vel Head (ft)	0.01	Wt. n-Val.	0.050	0.030	0.050
W.S. Elev (ft)	693.61	Reach Len. (ft)	75.25	75.25	75.25
Crit W.S. (ft)	693.01	Flow Area (sq ft)	153.73	114.05	598.22
E.G. Slope (ft/ft)	0.000043	Area (sq ft)	153.73	114.05	598.22
Q Total (cfs)	409.00	Flow (cfs)	37.02	120.84	251.13
Top Width (ft)	334.98	Top Width (ft)	128.43	18.23	188.32
Vel Total (ft/s)	0.47	Avg. Vel. (ft/s)	0.24	1.06	0.42
Max Chl Dpth (ft)	7.57	Hydr. Depth (ft)	1.20	6.26	3.18
Conv. Total (cfs)	62545.9	Conv. (cfs)	5662.0	18479.8	38404.2
Length Wtd. (ft)	75.25	Wetted Per. (ft)	128.71	19.28	188.42
Min Ch El (ft)	686.04	Shear (lb/sq ft)	0.00	0.02	0.01
Alpha	2.00	Stream Power (lb/ft s)	0.00	0.02	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	1.77	0.73	6.78
C & E Loss (ft)		Cum SA (acres)	1.75	0.22	5.82

CROSS SECTION OUTPUT Profile #100 Year + 25 %

			Left OB	Channel	Right OB
E.G. Elev (ft)	693.77	Element			
Vel Head (ft)	0.01	Wt. n-Val.	0.050	0.030	0.050
W.S. Elev (ft)	693.76	Reach Len. (ft)	75.25	75.25	75.25
Crit W.S. (ft)	693.01	Flow Area (sq ft)	174.89	116.71	626.03
E.G. Slope (ft/ft)	0.000059	Area (sq ft)	174.89	116.71	626.03
Q Total (cfs)	511.25	Flow (cfs)	49.35	147.55	314.35
Top Width (ft)	371.71	Top Width (ft)	161.65	18.23	191.83
Vel Total (ft/s)	0.56	Avg. Vel. (ft/s)	0.28	1.26	0.50
Max Chl Dpth (ft)	7.72	Hydr. Depth (ft)	1.08	6.40	3.26
Conv. Total (cfs)	66539.8	Conv. (cfs)	6422.6	19203.8	40913.4
Length Wtd. (ft)	75.25	Wetted Per. (ft)	162.08	19.28	191.97
Min Ch El (ft)	686.04	Shear (lb/sq ft)	0.00	0.02	0.01
Alpha	2.01	Stream Power (lb/ft s)	0.00	0.03	0.01
Frctn Loss (ft)		Cum Volume (acre-ft)	1.95	0.75	7.64
C & E Loss (ft)		Cum SA (acres)	1.94	0.22	5.93

Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CULVERT

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 587.625

INPUT

Description: RIVER STATION 5+87.625 (CULVERT@PHIPPS ROAD)
Distance from Upstream XS = .15
Deck/Roadway Width = 75
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 11

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	693		50	693		100	693	
150	693		200	693		250	693	
300	693.72		350	694.13		400	694.52	
450	694.81		500	694.95				

Upstream Bridge Cross Section Data
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-95	693.5	-20	693.95	30	693.13	80.08	692	109.94	689
117.92	686.04	118.92	686.04	119.92	686.04	128.17	689	166.43	688.4
251.02	691	296.2	693	320	693.72				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-95	.05	109.94	.03	128.17	.05

Bank Sta: Left	Right	Coeff Contr.	Expan.
109.94	128.17	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-95	116.92	693	F
120.92	320	693	F

Downstream Deck/Roadway Coordinates
num= 14

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	693.15		50	693.05		100	693	
150	693		200	693		250	693	
300	693		350	693		400	693	
450	693.72		500	694.13		550	694.52	
600	694.81		650	694.95				

Downstream Bridge Cross Section Data
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	693.2	37.72	693.1	188.54	687.8	242.11	688	264.82	686.04
265.82	686.04	266.82	686.04	286.05	688	323.59	687.8	382.91	687.8
443.2	690	471.7	694.03	507.7	694.13				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	242.11	.035	286.05	.06

Bank Sta: Left	Right	Coeff Contr.	Expan.
242.11	286.05	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	263.82	692.75	F
267.82	507.7	692.75	F

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95
Elevation at which weir flow begins = 692.79

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Energy head used in spillway design          =
Spillway height used in design               =
Weir crest shape                             = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
Culvert #1      Circular       4
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 1 - Square edge entrance with headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                .15      75     .011     .011        0                  .5                 1
Upstream   Elevation =  686.04
           Centerline Station =  118.92
Downstream Elevation =  686.04
           Centerline Station =  265.82

CULVERT OUTPUT  Profile #2 Year Event  Culv Group:  Culvert #1

  Q Culv Group (cfs)        128.00    Culv Full Len (ft)          27.70
  # Barrels                      1    Culv Vel US (ft/s)          10.19
  Q Barrel (cfs)            128.00    Culv Vel DS (ft/s)          11.27
  E.G. US. (ft)             692.85    Culv Inv El Up (ft)        686.04
  W.S. US. (ft)             692.45    Culv Inv El Dn (ft)        686.04
  E.G. DS (ft)              690.82    Culv Frctn Ls (ft)           0.64
  W.S. DS (ft)              689.24    Culv Exit Loss (ft)          0.59
  Delta EG (ft)               2.03    Culv Entr Loss (ft)          0.81
  Delta WS (ft)               3.21    Q Weir (cfs)
  E.G. IC (ft)              692.85    Weir Sta Lft (ft)
  E.G. OC (ft)              692.61    Weir Sta Rgt (ft)
  Culvert Control            Inlet    Weir Submerg
  Culv WS Inlet (ft)        690.04    Weir Max Depth (ft)
  Culv WS Outlet (ft)       689.43    Weir Avg Depth (ft)
  Culv Nml Depth (ft)                 Weir Flow Area (sq ft)
  Culv Crt Depth (ft)         3.39    Min El Weir Flow (ft)      693.01

Note:    During the supercritical calculations a hydraulic jump occurred inside of the culvert.

CULVERT OUTPUT  Profile #10 Year Event  Culv Group:  Culvert #1

  Q Culv Group (cfs)         74.68    Culv Full Len (ft)          75.00
  # Barrels                      1    Culv Vel US (ft/s)           5.94
  Q Barrel (cfs)             74.68    Culv Vel DS (ft/s)           5.94
  E.G. US. (ft)             693.43    Culv Inv El Up (ft)        686.04
  W.S. US. (ft)             693.42    Culv Inv El Dn (ft)        686.04
  E.G. DS (ft)              693.01    Culv Frctn Ls (ft)           0.15
  W.S. DS (ft)              690.68    Culv Exit Loss (ft)
  Delta EG (ft)               0.42    Culv Entr Loss (ft)          0.27
  Delta WS (ft)               2.74    Q Weir (cfs)               151.32
  E.G. IC (ft)              693.29    Weir Sta Lft (ft)           13.65
  E.G. OC (ft)              693.43    Weir Sta Rgt (ft)          277.65
  Culvert Control           Outlet    Weir Submerg                 0.00
  Culv WS Inlet (ft)        690.04    Weir Max Depth (ft)          0.40
  Culv WS Outlet (ft)       690.04    Weir Avg Depth (ft)          0.36
  Culv Nml Depth (ft)                 Weir Flow Area (sq ft)      94.93
  Culv Crt Depth (ft)         2.61    Min El Weir Flow (ft)      693.01

CULVERT OUTPUT  Profile #100 Year Event  Culv Group:  Culvert #1
```

Q Culv Group (cfs)	70.53	Culv Full Len (ft)	75.00
# Barrels	1	Culv Vel US (ft/s)	5.61
Q Barrel (cfs)	70.53	Culv Vel DS (ft/s)	5.61
E.G. US. (ft)	693.62	Culv Inv El Up (ft)	686.04
W.S. US. (ft)	693.61	Culv Inv El Dn (ft)	686.04
E.G. DS (ft)	692.76	Culv Frctn Ls (ft)	0.13
W.S. DS (ft)	692.76	Culv Exit Loss (ft)	0.49
Delta EG (ft)	0.86	Culv Entr Loss (ft)	0.24
Delta WS (ft)	0.86	Q Weir (cfs)	338.47
E.G. IC (ft)	693.61	Weir Sta Lft (ft)	-95.00
E.G. OC (ft)	693.62	Weir Sta Rgt (ft)	295.62
Culvert Control	Outlet	Weir Submerg	0.00
Culv WS Inlet (ft)	690.04	Weir Max Depth (ft)	0.66
Culv WS Outlet (ft)	690.04	Weir Avg Depth (ft)	0.52
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	169.63
Culv Crt Depth (ft)	2.54	Min El Weir Flow (ft)	693.01

CULVERT OUTPUT Profile #100 Year + 25 % Culv Group: Culvert #1

Q Culv Group (cfs)	76.37	Culv Full Len (ft)	75.00
# Barrels	1	Culv Vel US (ft/s)	6.08
Q Barrel (cfs)	76.37	Culv Vel DS (ft/s)	6.08
E.G. US. (ft)	693.77	Culv Inv El Up (ft)	686.04
W.S. US. (ft)	693.76	Culv Inv El Dn (ft)	686.04
E.G. DS (ft)	692.76	Culv Frctn Ls (ft)	0.15
W.S. DS (ft)	692.76	Culv Exit Loss (ft)	0.57
Delta EG (ft)	1.01	Culv Entr Loss (ft)	0.29
Delta WS (ft)	1.00	Q Weir (cfs)	434.88
E.G. IC (ft)	693.69	Weir Sta Lft (ft)	-95.00
E.G. OC (ft)	693.77	Weir Sta Rgt (ft)	305.04
Culvert Control	Outlet	Weir Submerg	0.00
Culv WS Inlet (ft)	690.04	Weir Max Depth (ft)	0.76
Culv WS Outlet (ft)	690.04	Weir Avg Depth (ft)	0.57
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	205.12
Culv Crt Depth (ft)	2.65	Min El Weir Flow (ft)	693.01

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 550

INPUT
Description: RIVER STATION 5+50 (DOWNSTREAM PROJECT LIMITS)
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	693.2	37.72	693.1	188.54	687.8	242.11	688	264.82	686.04
265.82	686.04	266.82	686.04	286.05	688	323.59	687.8	382.91	687.8
443.2	690	471.7	694.03	507.7	694.13				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	242.11	.035	286.05	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
242.11	286.05	50	50	50	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent

0	263.82	692.75	F
267.82	507.7	692.75	F

CROSS SECTION OUTPUT Profile #2 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	690.82	Element			
Vel Head (ft)	1.57	Wt. n-Val.		0.035	
W.S. Elev (ft)	689.24	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	689.24	Flow Area (sq ft)		12.72	
E.G. Slope (ft/ft)	0.012063	Area (sq ft)	101.52	99.61	164.47
Q Total (cfs)	128.00	Flow (cfs)		128.00	
Top Width (ft)	274.95	Top Width (ft)	94.62	43.94	136.39
Vel Total (ft/s)	10.07	Avg. Vel. (ft/s)		10.07	
Max Chl Dpth (ft)	3.20	Hydr. Depth (ft)		3.18	
Conv. Total (cfs)	1165.4	Conv. (cfs)		1165.4	
Length Wtd. (ft)	50.00	Wetted Per. (ft)		4.01	
Min Ch El (ft)	686.04	Shear (lb/sq ft)		2.39	
Alpha	1.00	Stream Power (lb/ft s)		24.05	
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	0.32	0.27	3.40
C & E Loss (ft)	0.43	Cum SA (acres)	0.78	0.16	4.82

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #10 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	693.01	Element			
Vel Head (ft)	2.32	Wt. n-Val.		0.035	
W.S. Elev (ft)	690.68	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	690.68	Flow Area (sq ft)		18.48	
E.G. Slope (ft/ft)	0.010825	Area (sq ft)	267.26	162.89	384.54
Q Total (cfs)	226.00	Flow (cfs)		226.00	
Top Width (ft)	341.51	Top Width (ft)	135.59	43.94	161.98
Vel Total (ft/s)	12.23	Avg. Vel. (ft/s)		12.23	
Max Chl Dpth (ft)	4.64	Hydr. Depth (ft)		4.62	
Conv. Total (cfs)	2172.2	Conv. (cfs)		2172.2	
Length Wtd. (ft)	50.00	Wetted Per. (ft)		4.01	
Min Ch El (ft)	686.04	Shear (lb/sq ft)		3.11	
Alpha	1.00	Stream Power (lb/ft s)		38.10	
Frctn Loss (ft)	0.58	Cum Volume (acre-ft)	0.59	0.33	4.19
C & E Loss (ft)	0.65	Cum SA (acres)	1.11	0.16	5.06

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there

is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #100 Year Event

E.G. Elev (ft)	692.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	692.76	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	692.76	Flow Area (sq ft)	609.91	254.07	735.89
E.G. Slope (ft/ft)	0.000013	Area (sq ft)	609.91	254.07	735.89
Q Total (cfs)	409.00	Flow (cfs)	115.88	124.18	168.94
Top Width (ft)	415.24	Top Width (ft)	194.64	43.94	176.65
Vel Total (ft/s)	0.26	Avg. Vel. (ft/s)	0.19	0.49	0.23
Max Chl Dpth (ft)	6.72	Hydr. Depth (ft)	3.13	5.78	4.17
Conv. Total (cfs)	114126.7	Conv. (cfs)	32333.9	34651.5	47141.3
Length Wtd. (ft)	50.00	Wetted Per. (ft)	194.73	44.12	176.89
Min Ch El (ft)	686.04	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.60	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1.11	0.42	5.63
C & E Loss (ft)	0.02	Cum SA (acres)	1.47	0.16	5.51

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Year + 25 %

E.G. Elev (ft)	692.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	692.76	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	692.76	Flow Area (sq ft)	609.91	254.07	735.89
E.G. Slope (ft/ft)	0.000020	Area (sq ft)	609.91	254.07	735.89
Q Total (cfs)	511.25	Flow (cfs)	144.85	155.23	211.18
Top Width (ft)	415.24	Top Width (ft)	194.64	43.94	176.65
Vel Total (ft/s)	0.32	Avg. Vel. (ft/s)	0.24	0.61	0.29
Max Chl Dpth (ft)	6.72	Hydr. Depth (ft)	3.13	5.78	4.17
Conv. Total (cfs)	114126.7	Conv. (cfs)	32333.9	34651.5	47141.3
Length Wtd. (ft)	50.00	Wetted Per. (ft)	194.73	44.12	176.89
Min Ch El (ft)	686.04	Shear (lb/sq ft)	0.00	0.01	0.01
Alpha	1.60	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1.27	0.43	6.46
C & E Loss (ft)	0.02	Cum SA (acres)	1.63	0.16	5.62

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 500

INPUT
Description: RIVER STATION 5+00
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	693.1	32.54	692.9	167.15	688.5	286.12	688	332.4	687
336.11	686.7	338.32	687	386.11	687.9	444.01	688.1	563.26	690

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	332.4	.035	338.32	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
332.4	338.32	50	50	50	.1	.3

CROSS SECTION OUTPUT Profile #2 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	689.26	Element			
Vel Head (ft)	1.72	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.55	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.90	Flow Area (sq ft)	6.92	4.13	7.94
E.G. Slope (ft/ft)	0.191817	Area (sq ft)	6.92	4.13	7.94
Q Total (cfs)	128.00	Flow (cfs)	31.63	60.08	36.29
Top Width (ft)	60.27	Top Width (ft)	25.31	5.92	29.04
Vel Total (ft/s)	6.74	Avg. Vel. (ft/s)	4.57	14.56	4.57
Max Chl Dpth (ft)	0.85	Hydr. Depth (ft)	0.27	0.70	0.27
Conv. Total (cfs)	292.3	Conv. (cfs)	72.2	137.2	82.9
Length Wtd. (ft)	50.00	Wetted Per. (ft)	25.32	5.95	29.05
Min Ch El (ft)	686.70	Shear (lb/sq ft)	3.27	8.30	3.27
Alpha	2.43	Stream Power (lb/ft s)	14.96	120.88	14.96
Frctn Loss (ft)	1.54	Cum Volume (acre-ft)	0.26	0.21	3.30
C & E Loss (ft)	0.01	Cum SA (acres)	0.71	0.14	4.72

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #10 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	691.28	Element			
Vel Head (ft)	3.67	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.61	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	688.24	Flow Area (sq ft)	8.52	4.48	9.78
E.G. Slope (ft/ft)	0.389525	Area (sq ft)	8.52	4.48	9.78
Q Total (cfs)	226.00	Flow (cfs)	59.49	98.26	68.26
Top Width (ft)	66.24	Top Width (ft)	28.09	5.92	32.23
Vel Total (ft/s)	9.92	Avg. Vel. (ft/s)	6.98	21.93	6.98
Max Chl Dpth (ft)	0.91	Hydr. Depth (ft)	0.30	0.76	0.30
Conv. Total (cfs)	362.1	Conv. (cfs)	95.3	157.4	109.4
Length Wtd. (ft)	50.00	Wetted Per. (ft)	28.10	5.95	32.23
Min Ch El (ft)	686.70	Shear (lb/sq ft)	7.38	18.31	7.38

Alpha	2.40	Stream Power (lb/ft s)	51.49	401.42	51.49
Frctn Loss (ft)	1.59	Cum Volume (acre-ft)	0.43	0.24	3.96
C & E Loss (ft)	0.13	Cum SA (acres)	1.02	0.14	4.95

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning; The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #100 Year Event

E.G. Elev (ft)	692.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.52	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.79	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	688.48	Flow Area (sq ft)	14.30	5.54	16.41
E.G. Slope (ft/ft)	0.418334	Area (sq ft)	14.30	5.54	16.41
Q Total (cfs)	409.00	Flow (cfs)	122.90	145.10	141.01
Top Width (ft)	84.04	Top Width (ft)	36.38	5.92	41.74
Vel Total (ft/s)	11.28	Avg. Vel. (ft/s)	8.59	26.18	8.59
Max Chl Dpth (ft)	1.09	Hydr. Depth (ft)	0.39	0.94	0.39
Conv. Total (cfs)	632.4	Conv. (cfs)	190.0	224.3	218.0
Length Wtd. (ft)	50.00	Wetted Per. (ft)	36.39	5.95	41.75
Min Ch El (ft)	686.70	Shear (lb/sq ft)	10.26	24.32	10.26
Alpha	2.28	Stream Power (lb/ft s)	88.20	636.62	88.21
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.76	0.27	5.20
C & E Loss (ft)	0.45	Cum SA (acres)	1.33	0.14	5.38

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Year + 25 %

E.G. Elev (ft)	692.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.43	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.89	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	688.57	Flow Area (sq ft)	18.12	6.13	20.79
E.G. Slope (ft/ft)	0.384197	Area (sq ft)	18.12	6.13	20.79
Q Total (cfs)	511.25	Flow (cfs)	161.53	164.38	185.34
Top Width (ft)	93.87	Top Width (ft)	40.96	5.92	46.99
Vel Total (ft/s)	11.35	Avg. Vel. (ft/s)	8.91	26.83	8.91
Max Chl Dpth (ft)	1.18	Hydr. Depth (ft)	0.44	1.04	0.44
Conv. Total (cfs)	824.8	Conv. (cfs)	260.6	265.2	299.0
Length Wtd. (ft)	50.00	Wetted Per. (ft)	40.97	5.95	47.00
Min Ch El (ft)	686.70	Shear (lb/sq ft)	10.61	24.69	10.61
Alpha	2.21	Stream Power (lb/ft s)	94.57	662.38	94.58
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.91	0.29	6.03
C & E Loss (ft)	0.44	Cum SA (acres)	1.50	0.14	5.49

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 450

INPUT
Description: RIVER STATION 4+50
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	693.1	76.39	687	141.07	688.6	282.22	688.1	328.56	687
332.56	686.4	336.25	687	382.56	687.9	554.25	686.9	658.17	686.8
775.79	687.3	853.94	690						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	328.56	.035	336.25	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
328.56	336.25	50	50	50	.1	.3

Left Levee Station= 141.07 Elevation= 688.6
Right Levee Station= 382.56 Elevation= 687.9

CROSS SECTION OUTPUT Profile #2 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	688.17	Element			
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.17	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.90	Flow Area (sq ft)	29.52	11.31	446.05
E.G. Slope (ft/ft)	0.000118	Area (sq ft)	29.52	11.31	446.05
Q Total (cfs)	128.00	Flow (cfs)	4.62	6.69	116.69
Top Width (ft)	538.95	Top Width (ft)	66.50	7.69	464.76
Vel Total (ft/s)	0.26	Avg. Vel. (ft/s)	0.16	0.59	0.26
Max Chl Dpth (ft)	1.77	Hydr. Depth (ft)	0.44	1.47	0.96
Conv. Total (cfs)	11789.3	Conv. (cfs)	425.3	616.5	10747.5
Length Wtd. (ft)	50.00	Wetted Per. (ft)	66.51	7.78	464.79
Min Ch El (ft)	686.40	Shear (lb/sq ft)	0.00	0.01	0.01
Alpha	1.18	Stream Power (lb/ft s)	0.00	0.01	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.24	0.20	3.04
C & E Loss (ft)	0.00	Cum SA (acres)	0.66	0.13	4.44

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION OUTPUT Profile #10 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	688.38	Element			
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.37	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.90	Flow Area (sq ft)	48.90	12.88	541.25
E.G. Slope (ft/ft)	0.000196	Area (sq ft)	48.90	12.88	541.25
Q Total (cfs)	226.00	Flow (cfs)	9.13	10.72	206.15
Top Width (ft)	602.31	Top Width (ft)	123.96	7.69	470.65
Vel Total (ft/s)	0.37	Avg. Vel. (ft/s)	0.19	0.83	0.38
Max Chl Dpth (ft)	1.97	Hydr. Depth (ft)	0.39	1.67	1.15
Conv. Total (cfs)	16128.9	Conv. (cfs)	651.3	765.1	14712.6

Length Wtd. (ft)	50.00	Wetted Per. (ft)	123.98	7.78	470.69
Min Ch El (ft)	686.40	Shear (lb/sq ft)	0.00	0.02	0.01
Alpha	1.19	Stream Power (lb/ft s)	0.00	0.02	0.01
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.40	0.23	3.64
C & E Loss (ft)	0.00	Cum SA (acres)	0.93	0.13	4.66

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION OUTPUT Profile #100 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	688.63	Element			
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.63	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.90	Flow Area (sq ft)	159.15	14.82	660.93
E.G. Slope (ft/ft)	0.000290	Area (sq ft)	159.15	14.82	660.93
Q Total (cfs)	409.00	Flow (cfs)	46.84	16.45	345.71
Top Width (ft)	758.20	Top Width (ft)	272.55	7.69	477.96
Vel Total (ft/s)	0.49	Avg. Vel. (ft/s)	0.29	1.11	0.52
Max Chl Dpth (ft)	2.23	Hydr. Depth (ft)	0.58	1.93	1.38
Conv. Total (cfs)	24034.6	Conv. (cfs)	2752.8	966.6	20315.1
Length Wtd. (ft)	50.00	Wetted Per. (ft)	272.65	7.78	477.99
Min Ch El (ft)	686.40	Shear (lb/sq ft)	0.01	0.03	0.02
Alpha	1.21	Stream Power (lb/ft s)	0.00	0.04	0.01
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	0.66	0.26	4.81
C & E Loss (ft)	0.00	Cum SA (acres)	1.16	0.13	5.08

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION OUTPUT Profile #100 Year + 25 %

			Left OB	Channel	Right OB
E.G. Elev (ft)	688.69	Element			
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.69	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.91	Flow Area (sq ft)	175.31	15.28	689.28
E.G. Slope (ft/ft)	0.000387	Area (sq ft)	175.31	15.28	689.28
Q Total (cfs)	511.25	Flow (cfs)	63.53	20.01	427.72
Top Width (ft)	760.65	Top Width (ft)	273.29	7.69	479.67
Vel Total (ft/s)	0.58	Avg. Vel. (ft/s)	0.36	1.31	0.62
Max Chl Dpth (ft)	2.29	Hydr. Depth (ft)	0.64	1.99	1.44
Conv. Total (cfs)	25981.0	Conv. (cfs)	3228.3	1016.6	21736.1
Length Wtd. (ft)	50.00	Wetted Per. (ft)	273.39	7.78	479.71
Min Ch El (ft)	686.40	Shear (lb/sq ft)	0.02	0.05	0.03
Alpha	1.20	Stream Power (lb/ft s)	0.01	0.06	0.02
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	0.80	0.27	5.62
C & E Loss (ft)	0.01	Cum SA (acres)	1.32	0.13	5.19

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 400

INPUT
Description: RIVER STATION 4+00
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	693.1	96.75	687.9	142.87	687.7	291.79	688	335.83	687
341.79	686.1	345.93	687	391.79	687.7	603.59	688.6	761.08	686.8
934.07	690								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	335.83	.035	345.93	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
335.83	345.93	50	50	50	.1	.3

Right Levee Station= 603.59 Elevation= 688.6

CROSS SECTION OUTPUT Profile #2 Year Event

E.G. Elev (ft)	688.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.10	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.93	Flow Area (sq ft)	78.22	15.67	53.43
E.G. Slope (ft/ft)	0.002648	Area (sq ft)	78.22	15.67	53.43
Q Total (cfs)	128.00	Flow (cfs)	46.84	45.39	35.77
Top Width (ft)	393.28	Top Width (ft)	242.83	10.10	140.35
Vel Total (ft/s)	0.87	Avg. Vel. (ft/s)	0.60	2.90	0.67
Max Chl Dpth (ft)	2.00	Hydr. Depth (ft)	0.32	1.55	0.38
Conv. Total (cfs)	2487.5	Conv. (cfs)	910.3	882.1	695.1
Length Wtd. (ft)	50.00	Wetted Per. (ft)	242.85	10.26	140.35
Min Ch El (ft)	686.10	Shear (lb/sq ft)	0.05	0.25	0.06
Alpha	4.28	Stream Power (lb/ft s)	0.03	0.73	0.04
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	0.18	0.19	2.75
C & E Loss (ft)	0.01	Cum SA (acres)	0.48	0.12	4.09

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #10 Year Event

E.G. Elev (ft)	688.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.30	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	688.12	Flow Area (sq ft)	127.83	17.72	86.71
E.G. Slope (ft/ft)	0.002630	Area (sq ft)	127.83	17.72	86.71
Q Total (cfs)	226.00	Flow (cfs)	104.76	55.51	65.73
Top Width (ft)	444.75	Top Width (ft)	246.60	10.10	188.05
Vel Total (ft/s)	0.97	Avg. Vel. (ft/s)	0.82	3.13	0.76
Max Chl Dpth (ft)	2.20	Hydr. Depth (ft)	0.52	1.75	0.46
Conv. Total (cfs)	4406.8	Conv. (cfs)	2042.7	1082.4	1281.7
Length Wtd. (ft)	50.00	Wetted Per. (ft)	246.62	10.26	188.06
Min Ch El (ft)	686.10	Shear (lb/sq ft)	0.09	0.28	0.08
Alpha	3.05	Stream Power (lb/ft s)	0.07	0.89	0.06

Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.30	0.21	3.28
C & E Loss (ft)	0.01	Cum SA (acres)	0.72	0.12	4.28

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	688.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.54	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	688.26	Flow Area (sq ft)	187.27	20.13	138.35
E.G. Slope (ft/ft)	0.002975	Area (sq ft)	187.27	20.13	138.35
Q Total (cfs)	409.00	Flow (cfs)	208.04	73.03	127.93
Top Width (ft)	505.42	Top Width (ft)	251.04	10.10	244.27
Vel Total (ft/s)	1.18	Avg. Vel. (ft/s)	1.11	3.63	0.92
Max Chl Dpth (ft)	2.44	Hydr. Depth (ft)	0.75	1.99	0.57
Conv. Total (cfs)	7498.9	Conv. (cfs)	3814.4	1339.0	2345.5
Length Wtd. (ft)	50.00	Wetted Per. (ft)	251.07	10.26	244.28
Min Ch El (ft)	686.10	Shear (lb/sq ft)	0.14	0.36	0.11
Alpha	2.32	Stream Power (lb/ft s)	0.15	1.32	0.10
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	0.46	0.24	4.35
C & E Loss (ft)	0.01	Cum SA (acres)	0.86	0.12	4.67

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100 Year + 25 %

			Left OB	Channel	Right OB
E.G. Elev (ft)	688.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.57	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	688.33	Flow Area (sq ft)	193.86	20.40	144.85
E.G. Slope (ft/ft)	0.004194	Area (sq ft)	193.86	20.40	144.85
Q Total (cfs)	511.25	Flow (cfs)	261.36	88.63	161.26
Top Width (ft)	512.08	Top Width (ft)	251.53	10.10	250.45
Vel Total (ft/s)	1.42	Avg. Vel. (ft/s)	1.35	4.35	1.11
Max Chl Dpth (ft)	2.47	Hydr. Depth (ft)	0.77	2.02	0.58
Conv. Total (cfs)	7894.2	Conv. (cfs)	4035.6	1368.6	2490.0
Length Wtd. (ft)	50.00	Wetted Per. (ft)	251.56	10.26	250.46
Min Ch El (ft)	686.10	Shear (lb/sq ft)	0.20	0.52	0.15
Alpha	2.27	Stream Power (lb/ft s)	0.27	2.26	0.17
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)	0.59	0.25	5.14
C & E Loss (ft)	0.01	Cum SA (acres)	1.02	0.12	4.77

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 350

INPUT
Description: RIVER STATION 3+50
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	693.1	130.28	687.9	233.97	687.7	302.4	687.9	344.44	687
351.75	686	352.56	685.8	353.47	686	356.43	687	402.56	687.5
472.06	687.6	615.18	688.7	988.32	689.3	1069.22	689.2	1147.67	690

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	344.44	.035	356.43	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
344.44	356.43	50	50	50	.1	.3

Left Levee Station= 302.4 Elevation= 687.9

CROSS SECTION OUTPUT Profile #2 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	687.97	Element			
Vel Head (ft)	0.12	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.85	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.76	Flow Area (sq ft)	16.78	17.19	52.25
E.G. Slope (ft/ft)	0.005085	Area (sq ft)	16.78	17.19	52.25
Q Total (cfs)	128.00	Flow (cfs)	16.72	65.16	46.12
Top Width (ft)	199.44	Top Width (ft)	39.59	11.99	147.85
Vel Total (ft/s)	1.48	Avg. Vel. (ft/s)	1.00	3.79	0.88
Max Chl Dpth (ft)	2.05	Hydr. Depth (ft)	0.42	1.43	0.35
Conv. Total (cfs)	1795.1	Conv. (cfs)	234.5	913.9	646.8
Length Wtd. (ft)	50.00	Wetted Per. (ft)	39.60	12.27	147.86
Min Ch El (ft)	685.80	Shear (lb/sq ft)	0.13	0.44	0.11
Alpha	3.51	Stream Power (lb/ft s)	0.13	1.69	0.10
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.13	0.17	2.69
C & E Loss (ft)	0.04	Cum SA (acres)	0.32	0.10	3.93

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #10 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	688.14	Element			
Vel Head (ft)	0.15	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.99	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.99	Flow Area (sq ft)	56.20	18.94	75.15
E.G. Slope (ft/ft)	0.006834	Area (sq ft)	56.20	18.94	75.15
Q Total (cfs)	226.00	Flow (cfs)	46.82	88.76	90.42
Top Width (ft)	395.28	Top Width (ft)	216.50	11.99	166.79
Vel Total (ft/s)	1.50	Avg. Vel. (ft/s)	0.83	4.69	1.20
Max Chl Dpth (ft)	2.19	Hydr. Depth (ft)	0.26	1.58	0.45
Conv. Total (cfs)	2733.8	Conv. (cfs)	566.4	1073.7	1093.8
Length Wtd. (ft)	50.00	Wetted Per. (ft)	216.51	12.27	166.80
Min Ch El (ft)	685.80	Shear (lb/sq ft)	0.11	0.66	0.19
Alpha	4.14	Stream Power (lb/ft s)	0.09	3.09	0.23
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	0.19	0.19	3.19

C & E Loss (ft)	0.04	Cum SA (acres)	0.45	0.10	4.08

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Year Event

E.G. Elev (ft)	688.33	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.15	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	688.15	Flow Area (sq ft)	89.98	20.79	102.50
E.G. Slope (ft/ft)	0.009566	Area (sq ft)	89.98	20.79	102.50
Q Total (cfs)	409.00	Flow (cfs)	119.96	122.70	166.34
Top Width (ft)	419.28	Top Width (ft)	220.37	11.99	186.92
Vel Total (ft/s)	1.92	Avg. Vel. (ft/s)	1.33	5.90	1.62
Max Chl Dpth (ft)	2.35	Hydr. Depth (ft)	0.41	1.73	0.55
Conv. Total (cfs)	4181.8	Conv. (cfs)	1226.5	1254.6	1700.7
Length Wtd. (ft)	50.00	Wetted Per. (ft)	220.39	12.27	186.92
Min Ch El (ft)	685.80	Shear (lb/sq ft)	0.24	1.01	0.33
Alpha	3.27	Stream Power (lb/ft s)	0.33	5.97	0.53
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	0.30	0.21	4.21
C & E Loss (ft)	0.05	Cum SA (acres)	0.59	0.10	4.42

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Year + 25 %

E.G. Elev (ft)	688.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.26	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	688.21	Flow Area (sq ft)	115.18	22.15	124.57
E.G. Slope (ft/ft)	0.008746	Area (sq ft)	115.18	22.15	124.57
Q Total (cfs)	511.25	Flow (cfs)	171.60	130.41	209.24
Top Width (ft)	436.90	Top Width (ft)	223.22	11.99	201.69
Vel Total (ft/s)	1.95	Avg. Vel. (ft/s)	1.49	5.89	1.68
Max Chl Dpth (ft)	2.46	Hydr. Depth (ft)	0.52	1.85	0.62
Conv. Total (cfs)	5466.8	Conv. (cfs)	1834.9	1394.5	2237.4
Length Wtd. (ft)	50.00	Wetted Per. (ft)	223.23	12.27	201.70
Min Ch El (ft)	685.80	Shear (lb/sq ft)	0.28	0.99	0.34
Alpha	2.82	Stream Power (lb/ft s)	0.42	5.80	0.57
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	0.41	0.23	4.98
C & E Loss (ft)	0.05	Cum SA (acres)	0.75	0.10	4.51

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 300

INPUT
Description: RIVER STATION 3+00
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	693.1	108.77	688.4	315.87	688.1	360.34	687	363.71	686
365.85	685.7	367.58	686	372.38	687	415.92	687.7	472.94	687.6
629.32	687.9	698.32	686.9	961.05	686.8	1002.17	686	1023.47	686
1082.37	687.1	1228.78	690						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	360.34	.035	372.38	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
360.34	372.38	50	50	50	.3	.5

Right Levee Station= 629.32 Elevation= 687.9

CROSS SECTION OUTPUT Profile #2 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	687.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.91	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.67	Flow Area (sq ft)	16.86	19.53	579.85
E.G. Slope (ft/ft)	0.000090	Area (sq ft)	16.86	19.53	579.85
Q Total (cfs)	128.00	Flow (cfs)	2.35	10.71	114.93
Top Width (ft)	800.02	Top Width (ft)	36.92	12.04	751.05
Vel Total (ft/s)	0.21	Avg. Vel. (ft/s)	0.14	0.55	0.20
Max Chl Dpth (ft)	2.21	Hydr. Depth (ft)	0.46	1.62	0.77
Conv. Total (cfs)	13459.0	Conv. (cfs)	247.6	1126.5	12084.9
Length Wtd. (ft)	50.00	Wetted Per. (ft)	36.94	12.34	751.09
Min Ch El (ft)	685.70	Shear (lb/sq ft)	0.00	0.01	0.00
Alpha	1.41	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.11	0.15	2.33
C & E Loss (ft)	0.00	Cum SA (acres)	0.28	0.09	3.41

Warning: Multiple water surfaces were found that could balance the energy equation. The program selected the water surface whose main channel velocity head was the closest to the previously computed cross section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #10 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	687.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.94	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.90	Flow Area (sq ft)	17.87	19.86	600.04
E.G. Slope (ft/ft)	0.000253	Area (sq ft)	17.87	19.86	600.04
Q Total (cfs)	226.00	Flow (cfs)	4.26	18.42	203.32
Top Width (ft)	802.46	Top Width (ft)	38.01	12.04	752.41
Vel Total (ft/s)	0.35	Avg. Vel. (ft/s)	0.24	0.93	0.34
Max Chl Dpth (ft)	2.24	Hydr. Depth (ft)	0.47	1.65	0.80
Conv. Total (cfs)	14204.2	Conv. (cfs)	267.5	1157.8	12778.9

Length Wtd. (ft)	50.00	Wetted Per. (ft)	38.02	12.34	752.45
Min Ch El (ft)	685.70	Shear (lb/sq ft)	0.01	0.03	0.01
Alpha	1.39	Stream Power (lb/ft s)	0.00	0.02	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.15	0.17	2.80
C & E Loss (ft)	0.00	Cum SA (acres)	0.31	0.09	3.55

Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION OUTPUT Profile #100 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	688.14	Element			
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.13	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.90	Flow Area (sq ft)	26.11	22.14	743.86
E.G. Slope (ft/ft)	0.000424	Area (sq ft)	26.11	22.14	743.86
Q Total (cfs)	409.00	Flow (cfs)	7.23	28.58	373.19
Top Width (ft)	839.32	Top Width (ft)	65.28	12.04	762.00
Vel Total (ft/s)	0.52	Avg. Vel. (ft/s)	0.28	1.29	0.50
Max Chl Dpth (ft)	2.43	Hydr. Depth (ft)	0.40	1.84	0.98
Conv. Total (cfs)	19867.4	Conv. (cfs)	351.0	1388.5	18127.9
Length Wtd. (ft)	50.00	Wetted Per. (ft)	65.29	12.34	762.04
Min Ch El (ft)	685.70	Shear (lb/sq ft)	0.01	0.05	0.03
Alpha	1.30	Stream Power (lb/ft s)	0.00	0.06	0.01
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	0.23	0.19	3.73
C & E Loss (ft)	0.00	Cum SA (acres)	0.42	0.09	3.88

Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION OUTPUT Profile #100 Year + 25 %

			Left OB	Channel	Right OB
E.G. Elev (ft)	688.32	Element			
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.32	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.90	Flow Area (sq ft)	50.56	24.40	887.91
E.G. Slope (ft/ft)	0.000378	Area (sq ft)	50.56	24.40	887.91
Q Total (cfs)	511.25	Flow (cfs)	9.90	31.75	469.60
Top Width (ft)	978.47	Top Width (ft)	194.95	12.04	771.48
Vel Total (ft/s)	0.53	Avg. Vel. (ft/s)	0.20	1.30	0.53
Max Chl Dpth (ft)	2.62	Hydr. Depth (ft)	0.26	2.03	1.15
Conv. Total (cfs)	26290.5	Conv. (cfs)	509.1	1632.8	24148.5
Length Wtd. (ft)	50.00	Wetted Per. (ft)	194.96	12.34	771.53
Min Ch El (ft)	685.70	Shear (lb/sq ft)	0.01	0.05	0.03
Alpha	1.29	Stream Power (lb/ft s)	0.00	0.06	0.01
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.32	0.20	4.40
C & E Loss (ft)	0.00	Cum SA (acres)	0.51	0.09	3.95

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 250

INPUT
Description: RIVER STATION 2+50
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	687	66.96	688.5	109.52	687	112.41	686	117	685.5
120.3	686	124.3	687	146.59	687.7	203.61	687.6	359.99	687.9

428.99 686.9 691.72 686.8 732.84 686 754.14 686 813.04 687.1
959.45 690

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	112.41	.035	120.3	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
112.41	120.3	50	50	50	.1	.3

Left Levee Station= 66.96 Elevation= 688.5
Right Levee Station= 359.99 Elevation= 687.9

CROSS SECTION OUTPUT Profile #2 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	687.91	Element			
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.91	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.90	Flow Area (sq ft)	15.73	17.02	568.79
E.G. Slope (ft/ft)	0.000131	Area (sq ft)	15.73	17.02	568.79
Q Total (cfs)	153.00	Flow (cfs)	2.98	13.75	136.27
Top Width (ft)	769.99	Top Width (ft)	28.62	7.89	733.48
Vel Total (ft/s)	0.25	Avg. Vel. (ft/s)	0.19	0.81	0.24
Max Chl Dpth (ft)	2.41	Hydr. Depth (ft)	0.55	2.16	0.78
Conv. Total (cfs)	13347.7	Conv. (cfs)	260.3	1199.5	11887.9
Length Wtd. (ft)	50.00	Wetted Per. (ft)	28.80	7.95	733.64
Min Ch El (ft)	685.50	Shear (lb/sq ft)	0.00	0.02	0.01
Alpha	1.71	Stream Power (lb/ft s)	0.00	0.01	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.09	0.13	1.67
C & E Loss (ft)	0.00	Cum SA (acres)	0.24	0.08	2.56

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #10 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	687.93	Element			
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.92	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.90	Flow Area (sq ft)	16.13	17.13	578.96
E.G. Slope (ft/ft)	0.000402	Area (sq ft)	16.13	17.13	578.96
Q Total (cfs)	275.00	Flow (cfs)	5.39	24.30	245.30
Top Width (ft)	771.08	Top Width (ft)	29.01	7.89	734.18
Vel Total (ft/s)	0.45	Avg. Vel. (ft/s)	0.33	1.42	0.42
Max Chl Dpth (ft)	2.42	Hydr. Depth (ft)	0.56	2.17	0.79
Conv. Total (cfs)	13717.8	Conv. (cfs)	269.0	1212.4	12236.4
Length Wtd. (ft)	50.00	Wetted Per. (ft)	29.20	7.95	734.34
Min Ch El (ft)	685.50	Shear (lb/sq ft)	0.01	0.05	0.02
Alpha	1.69	Stream Power (lb/ft s)	0.00	0.08	0.01
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.13	0.15	2.13
C & E Loss (ft)	0.00	Cum SA (acres)	0.27	0.08	2.70

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	688.11	Element			
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.10	Reach Len. (ft)	50.00	50.00	50.00

Crit W.S. (ft)	687.90	Flow Area (sq ft)	21.65	18.51	708.25
E.G. Slope (ft/ft)	0.000716	Area (sq ft)	21.65	18.51	708.25
Q Total (cfs)	502.00	Flow (cfs)	10.58	36.92	454.50
Top Width (ft)	784.88	Top Width (ft)	33.98	7.89	743.01
Vel Total (ft/s)	0.67	Avg. Vel. (ft/s)	0.49	1.99	0.64
Max Chl Dpth (ft)	2.60	Hydr. Depth (ft)	0.64	2.35	0.95
Conv. Total (cfs)	18760.9	Conv. (cfs)	395.4	1379.7	16985.8
Length Wtd. (ft)	50.00	Wetted Per. (ft)	34.17	7.95	743.18
Min Ch El (ft)	685.50	Shear (lb/sq ft)	0.03	0.10	0.04
Alpha	1.49	Stream Power (lb/ft s)	0.01	0.21	0.03
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	0.20	0.16	2.90
C & E Loss (ft)	0.00	Cum SA (acres)	0.36	0.08	3.01

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100 Year + 25 %

			Left OB	Channel	Right OB
E.G. Elev (ft)	688.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.29	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.91	Flow Area (sq ft)	28.67	20.02	851.48
E.G. Slope (ft/ft)	0.000628	Area (sq ft)	28.67	20.02	851.48
Q Total (cfs)	627.50	Flow (cfs)	14.35	39.41	573.74
Top Width (ft)	799.99	Top Width (ft)	39.41	7.89	752.68
Vel Total (ft/s)	0.70	Avg. Vel. (ft/s)	0.50	1.97	0.67
Max Chl Dpth (ft)	2.79	Hydr. Depth (ft)	0.73	2.54	1.13
Conv. Total (cfs)	25035.8	Conv. (cfs)	572.6	1572.5	22890.8
Length Wtd. (ft)	50.00	Wetted Per. (ft)	39.61	7.95	752.85
Min Ch El (ft)	685.50	Shear (lb/sq ft)	0.03	0.10	0.04
Alpha	1.37	Stream Power (lb/ft s)	0.01	0.19	0.03
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	0.27	0.18	3.41
C & E Loss (ft)	0.00	Cum SA (acres)	0.37	0.08	3.07

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 200

INPUT
Description: RIVER STATION 2+00
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	688	55.79	687.8	77.45	687.8	120.89	687	123.24	686
127.45	685.4	131.08	686	135.14	687	172.92	687.6	329.3	687.9
398.3	686.9	661.03	686.8	702.15	686	723.45	686	782.35	687.1
928.76	690								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	123.24	.035	131.08	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
123.24	131.08	50	50	50	.1	.3

Right Levee Station= 329.3 Elevation= 687.9

CROSS SECTION OUTPUT Profile #2 Year Event

E.G. Elev (ft)	687.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.90	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.90	Flow Area (sq ft)	28.61	17.25	560.27
E.G. Slope (ft/ft)	0.000127	Area (sq ft)	28.61	17.25	560.27
Q Total (cfs)	153.00	Flow (cfs)	3.56	13.83	135.61
Top Width (ft)	794.98	Top Width (ft)	95.46	7.84	691.68
Vel Total (ft/s)	0.25	Avg. Vel. (ft/s)	0.12	0.80	0.24
Max Chl Dpth (ft)	2.50	Hydr. Depth (ft)	0.30	2.20	0.81
Conv. Total (cfs)	13601.2	Conv. (cfs)	316.8	1229.4	12054.9
Length Wtd. (ft)	50.00	Wetted Per. (ft)	95.67	7.93	691.84
Min Ch El (ft)	685.40	Shear (lb/sq ft)	0.00	0.02	0.01
Alpha	1.73	Stream Power (lb/ft s)	0.00	0.01	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.06	0.11	1.02
C & E Loss (ft)	0.00	Cum SA (acres)	0.17	0.07	1.74

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #10 Year Event

E.G. Elev (ft)	687.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.90	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.90	Flow Area (sq ft)	28.59	17.25	560.10
E.G. Slope (ft/ft)	0.000409	Area (sq ft)	28.59	17.25	560.10
Q Total (cfs)	275.00	Flow (cfs)	6.40	24.86	243.73
Top Width (ft)	794.89	Top Width (ft)	95.39	7.84	691.67
Vel Total (ft/s)	0.45	Avg. Vel. (ft/s)	0.22	1.44	0.44
Max Chl Dpth (ft)	2.50	Hydr. Depth (ft)	0.30	2.20	0.81
Conv. Total (cfs)	13594.7	Conv. (cfs)	316.6	1229.2	12049.0
Length Wtd. (ft)	50.00	Wetted Per. (ft)	95.60	7.93	691.83
Min Ch El (ft)	685.40	Shear (lb/sq ft)	0.01	0.06	0.02
Alpha	1.73	Stream Power (lb/ft s)	0.00	0.08	0.01
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.10	0.13	1.47
C & E Loss (ft)	0.00	Cum SA (acres)	0.20	0.07	1.88

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Year Event

E.G. Elev (ft)	688.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.06	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.90	Flow Area (sq ft)	46.61	18.48	669.68
E.G. Slope (ft/ft)	0.000770	Area (sq ft)	46.61	18.48	669.68

Q Total (cfs)	502.00	Flow (cfs)	16.73	38.28	446.99
Top Width (ft)	830.70	Top Width (ft)	123.24	7.84	699.62
Vel Total (ft/s)	0.68	Avg. Vel. (ft/s)	0.36	2.07	0.67
Max Chl Dpth (ft)	2.66	Hydr. Depth (ft)	0.38	2.36	0.96
Conv. Total (cfs)	18088.0	Conv. (cfs)	602.8	1379.4	16105.9
Length Wtd. (ft)	50.00	Wetted Per. (ft)	123.51	7.93	699.78
Min Ch El (ft)	685.40	Shear (lb/sq ft)	0.02	0.11	0.05
Alpha	1.56	Stream Power (lb/ft s)	0.01	0.23	0.03
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	0.16	0.14	2.10
C & E Loss (ft)	0.00	Cum SA (acres)	0.27	0.07	2.18

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Year + 25 %

E.G. Elev (ft)	688.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.26	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.91	Flow Area (sq ft)	70.93	20.03	808.72
E.G. Slope (ft/ft)	0.000649	Area (sq ft)	70.93	20.03	808.72
Q Total (cfs)	627.50	Flow (cfs)	30.87	40.17	556.46
Top Width (ft)	840.66	Top Width (ft)	123.24	7.84	709.58
Vel Total (ft/s)	0.70	Avg. Vel. (ft/s)	0.44	2.01	0.69
Max Chl Dpth (ft)	2.85	Hydr. Depth (ft)	0.58	2.55	1.14
Conv. Total (cfs)	24638.7	Conv. (cfs)	1212.3	1577.1	21849.3
Length Wtd. (ft)	50.00	Wetted Per. (ft)	123.71	7.93	709.75
Min Ch El (ft)	685.40	Shear (lb/sq ft)	0.02	0.10	0.05
Alpha	1.41	Stream Power (lb/ft s)	0.01	0.21	0.03
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.21	0.15	2.45
C & E Loss (ft)	0.00	Cum SA (acres)	0.28	0.07	2.23

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 150

INPUT
Description: RIVER STATION 1+50
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	687.8	40.57	687.8	82.15	687	84.27	686	90.26	685.2
96.74	686	99.09	687	115.25	687	206.52	686.8	276.65	686.7
334.02	686.9	596.75	686.8	637.87	686	659.17	686	718.07	687.1
864.48	690								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	84.27	.035	96.74	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
84.27	96.74	50	50	50	.1	.3

Right Levee Station= 115.25 Elevation= 687

CROSS SECTION OUTPUT Profile #2 Year Event

E.G. Elev (ft)	687.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.29	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.00	Flow Area (sq ft)	3.82	21.04	330.78
E.G. Slope (ft/ft)	0.000534	Area (sq ft)	3.82	21.04	330.78
Q Total (cfs)	153.00	Flow (cfs)	0.80	29.11	123.09
Top Width (ft)	660.34	Top Width (ft)	17.07	12.47	630.80
Vel Total (ft/s)	0.43	Avg. Vel. (ft/s)	0.21	1.38	0.37
Max Chl Dpth (ft)	2.09	Hydr. Depth (ft)	0.22	1.69	0.52
Conv. Total (cfs)	6619.7	Conv. (cfs)	34.6	1259.5	5325.6
Length Wtd. (ft)	50.00	Wetted Per. (ft)	17.29	12.57	631.03
Min Ch El (ft)	685.20	Shear (lb/sq ft)	0.01	0.06	0.02
Alpha	2.57	Stream Power (lb/ft s)	0.00	0.08	0.01
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	0.04	0.08	0.51
C & E Loss (ft)	0.02	Cum SA (acres)	0.10	0.06	0.98

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION OUTPUT Profile #10 Year Event

E.G. Elev (ft)	687.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.60	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.07	Flow Area (sq ft)	11.82	24.99	532.89
E.G. Slope (ft/ft)	0.000420	Area (sq ft)	11.82	24.99	532.89
Q Total (cfs)	275.00	Flow (cfs)	2.98	34.37	237.65
Top Width (ft)	692.76	Top Width (ft)	33.51	12.47	646.78
Vel Total (ft/s)	0.48	Avg. Vel. (ft/s)	0.25	1.38	0.45
Max Chl Dpth (ft)	2.40	Hydr. Depth (ft)	0.35	2.00	0.82
Conv. Total (cfs)	13418.6	Conv. (cfs)	145.5	1677.2	11595.9
Length Wtd. (ft)	50.00	Wetted Per. (ft)	33.74	12.57	647.00
Min Ch El (ft)	685.20	Shear (lb/sq ft)	0.01	0.05	0.02
Alpha	1.76	Stream Power (lb/ft s)	0.00	0.07	0.01
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	0.08	0.10	0.85
C & E Loss (ft)	0.02	Cum SA (acres)	0.12	0.06	1.11

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION OUTPUT Profile #100 Year Event

E.G. Elev (ft)	688.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.03	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.19	Flow Area (sq ft)	39.16	30.36	816.08
E.G. Slope (ft/ft)	0.000373	Area (sq ft)	39.16	30.36	816.08
Q Total (cfs)	502.00	Flow (cfs)	11.20	44.83	445.97
Top Width (ft)	765.26	Top Width (ft)	84.27	12.47	668.52
Vel Total (ft/s)	0.57	Avg. Vel. (ft/s)	0.29	1.48	0.55
Max Chl Dpth (ft)	2.83	Hydr. Depth (ft)	0.46	2.43	1.22
Conv. Total (cfs)	25978.8	Conv. (cfs)	579.7	2319.9	23079.2
Length Wtd. (ft)	50.00	Wetted Per. (ft)	84.74	12.57	668.75
Min Ch El (ft)	685.20	Shear (lb/sq ft)	0.01	0.06	0.03
Alpha	1.44	Stream Power (lb/ft s)	0.00	0.08	0.02
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	0.12	0.11	1.25

C & E Loss (ft)	0.04	Cum SA (acres)	0.16	0.06	1.40

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Year + 25 %

			Left OB	Channel	Right OB
E.G. Elev (ft)	688.24	Element			
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.23	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.24	Flow Area (sq ft)	55.92	32.84	950.01
E.G. Slope (ft/ft)	0.000359	Area (sq ft)	55.92	32.84	950.01
Q Total (cfs)	627.50	Flow (cfs)	19.85	50.08	557.57
Top Width (ft)	775.29	Top Width (ft)	84.27	12.47	678.55
Vel Total (ft/s)	0.60	Avg. Vel. (ft/s)	0.35	1.53	0.59
Max Chl Dpth (ft)	3.03	Hydr. Depth (ft)	0.66	2.63	1.40
Conv. Total (cfs)	33129.8	Conv. (cfs)	1048.0	2644.2	29437.6
Length Wtd. (ft)	50.00	Wetted Per. (ft)	84.94	12.57	678.79
Min Ch El (ft)	685.20	Shear (lb/sq ft)	0.01	0.06	0.03
Alpha	1.36	Stream Power (lb/ft s)	0.01	0.09	0.02
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	0.14	0.12	1.44
C & E Loss (ft)	0.05	Cum SA (acres)	0.16	0.06	1.44

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 100

INPUT
Description: RIVER STATION 1+00
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	687	33.45	686.6	51.34	686	58.45	685.9	65.46	686
90.29	686.4	158.49	687.8	527.26	687.2	622.2	686	637.69	686
702.74	687.3	810.56	690						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	51.34	.035	65.46	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
51.34	65.46	50	50	50	.1	.3

Right Levee Station= 158.49 Elevation= 687.8

CROSS SECTION OUTPUT Profile #2 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	687.20	Element			
Vel Head (ft)	0.21	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	686.99	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	686.94	Flow Area (sq ft)	18.66	14.67	28.04
E.G. Slope (ft/ft)	0.013266	Area (sq ft)	18.66	14.67	28.04
Q Total (cfs)	153.00	Flow (cfs)	27.42	73.59	51.98
Top Width (ft)	118.07	Top Width (ft)	50.43	14.12	53.53

Vel Total (ft/s)	2.49	Avg. Vel. (ft/s)	1.47	5.02	1.85
Max Chl Dpth (ft)	1.09	Hydr. Depth (ft)	0.37	1.04	0.52
Conv. Total (cfs)	1328.4	Conv. (cfs)	238.1	639.0	451.3
Length Wtd. (ft)	50.00	Wetted Per. (ft)	50.44	14.12	53.54
Min Ch El (ft)	685.90	Shear (lb/sq ft)	0.31	0.86	0.43
Alpha	2.20	Stream Power (lb/ft s)	0.45	4.32	0.80
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	0.03	0.06	0.31
C & E Loss (ft)	0.06	Cum SA (acres)	0.06	0.04	0.59

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #10 Year Event

E.G. Elev (ft)	687.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.30	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.21	Flow Area (sq ft)	34.58	19.05	46.99
E.G. Slope (ft/ft)	0.011660	Area (sq ft)	34.58	19.05	46.99
Q Total (cfs)	275.00	Flow (cfs)	70.76	106.64	97.60
Top Width (ft)	134.10	Top Width (ft)	51.34	14.12	68.64
Vel Total (ft/s)	2.73	Avg. Vel. (ft/s)	2.05	5.60	2.08
Max Chl Dpth (ft)	1.40	Hydr. Depth (ft)	0.67	1.35	0.68
Conv. Total (cfs)	2546.7	Conv. (cfs)	655.3	987.5	903.9
Length Wtd. (ft)	50.00	Wetted Per. (ft)	51.65	14.12	68.65
Min Ch El (ft)	685.90	Shear (lb/sq ft)	0.49	0.98	0.50
Alpha	1.98	Stream Power (lb/ft s)	1.00	5.50	1.03
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	0.05	0.08	0.51
C & E Loss (ft)	0.06	Cum SA (acres)	0.07	0.04	0.70

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100 Year Event

E.G. Elev (ft)	687.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.53	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.53	Flow Area (sq ft)	46.26	22.26	63.87
E.G. Slope (ft/ft)	0.018349	Area (sq ft)	46.26	22.26	63.87
Q Total (cfs)	502.00	Flow (cfs)	143.76	173.44	184.80
Top Width (ft)	145.18	Top Width (ft)	51.34	14.12	79.72
Vel Total (ft/s)	3.79	Avg. Vel. (ft/s)	3.11	7.79	2.89
Max Chl Dpth (ft)	1.63	Hydr. Depth (ft)	0.90	1.58	0.80
Conv. Total (cfs)	3706.0	Conv. (cfs)	1061.3	1280.4	1364.2
Length Wtd. (ft)	50.00	Wetted Per. (ft)	51.88	14.12	79.74
Min Ch El (ft)	685.90	Shear (lb/sq ft)	1.02	1.81	0.92
Alpha	1.87	Stream Power (lb/ft s)	3.17	14.07	2.65
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	0.07	0.08	0.75
C & E Loss (ft)	0.11	Cum SA (acres)	0.08	0.04	0.97

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and

assumed values.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100 Year + 25 %

E.G. Elev (ft)	688.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.46	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.68	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.68	Flow Area (sq ft)	53.98	24.39	76.40
E.G. Slope (ft/ft)	0.018652	Area (sq ft)	53.98	24.39	76.40
Q Total (cfs)	627.50	Flow (cfs)	187.09	203.53	236.87
Top Width (ft)	152.50	Top Width (ft)	51.34	14.12	87.04
Vel Total (ft/s)	4.05	Avg. Vel. (ft/s)	3.47	8.35	3.10
Max Chl Dpth (ft)	1.78	Hydr. Depth (ft)	1.05	1.73	0.88
Conv. Total (cfs)	4594.6	Conv. (cfs)	1369.9	1490.3	1734.4
Length Wtd. (ft)	50.00	Wetted Per. (ft)	52.03	14.12	87.06
Min Ch El (ft)	685.90	Shear (lb/sq ft)	1.21	2.01	1.02
Alpha	1.81	Stream Power (lb/ft s)	4.19	16.78	3.17
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.08	0.09	0.85
C & E Loss (ft)	0.12	Cum SA (acres)	0.08	0.04	1.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 050

INPUT
Description: RIVER STATION 0+50
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	687.8	40.74	686	44.72	685	50	684.9	53.73	685
61.1	686	99.99	686.4	137.1	686.4	220.06	686.5	355.88	686.5
599.26	687.9	614	686	634.32	686	700.87	687.4	802.75	690

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	40.74	.035	61.1	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
40.74	61.1	50	50	50	.1	.3

Right Levee Station= 599.26 Elevation= 687.9

CROSS SECTION OUTPUT Profile #2 Year Event

E.G. Elev (ft)	687.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.02	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	686.39	Flow Area (sq ft)	11.86	35.98	197.78
E.G. Slope (ft/ft)	0.000762	Area (sq ft)	11.86	35.98	197.78
Q Total (cfs)	153.00	Flow (cfs)	5.18	61.23	86.58
Top Width (ft)	429.37	Top Width (ft)	23.17	20.36	385.84
Vel Total (ft/s)	0.62	Avg. Vel. (ft/s)	0.44	1.70	0.44
Max Chl Dpth (ft)	2.12	Hydr. Depth (ft)	0.51	1.77	0.51
Conv. Total (cfs)	5543.8	Conv. (cfs)	187.9	2218.7	3137.2
Length Wtd. (ft)	50.00	Wetted Per. (ft)	23.19	20.55	385.84
Min Ch El (ft)	684.90	Shear (lb/sq ft)	0.02	0.08	0.02
Alpha	3.28	Stream Power (lb/ft s)	0.01	0.14	0.01
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	0.01	0.03	0.18
C & E Loss (ft)	0.00	Cum SA (acres)	0.02	0.02	0.34

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #10 Year Event

E.G. Elev (ft)	687.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.35	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	686.82	Flow Area (sq ft)	20.57	42.58	332.04
E.G. Slope (ft/ft)	0.000738	Area (sq ft)	20.57	42.58	332.04
Q Total (cfs)	275.00	Flow (cfs)	10.63	79.82	184.55
Top Width (ft)	493.08	Top Width (ft)	30.51	20.36	442.21
Vel Total (ft/s)	0.70	Avg. Vel. (ft/s)	0.52	1.87	0.56
Max Chl Dpth (ft)	2.45	Hydr. Depth (ft)	0.67	2.09	0.75
Conv. Total (cfs)	10122.4	Conv. (cfs)	391.3	2938.0	6793.1
Length Wtd. (ft)	50.00	Wetted Per. (ft)	30.54	20.55	442.22
Min Ch El (ft)	684.90	Shear (lb/sq ft)	0.03	0.10	0.03
Alpha	2.56	Stream Power (lb/ft s)	0.02	0.18	0.02
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	0.02	0.04	0.30
C & E Loss (ft)	0.00	Cum SA (acres)	0.03	0.02	0.41

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100 Year Event

E.G. Elev (ft)	687.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.52	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.01	Flow Area (sq ft)	25.97	45.98	408.28
E.G. Slope (ft/ft)	0.001477	Area (sq ft)	25.97	45.98	408.28
Q Total (cfs)	502.00	Flow (cfs)	20.53	128.32	353.15
Top Width (ft)	525.88	Top Width (ft)	34.29	20.36	471.23
Vel Total (ft/s)	1.05	Avg. Vel. (ft/s)	0.79	2.79	0.86
Max Chl Dpth (ft)	2.61	Hydr. Depth (ft)	0.76	2.26	0.87

Conv. Total (cfs)	13062.6	Conv. (cfs)	534.2	3339.1	9189.3
Length Wtd. (ft)	50.00	Wetted Per. (ft)	34.32	20.55	471.24
Min Ch El (ft)	684.90	Shear (lb/sq ft)	0.07	0.21	0.08
Alpha	2.33	Stream Power (lb/ft s)	0.06	0.58	0.07
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	0.03	0.05	0.48
C & E Loss (ft)	0.00	Cum SA (acres)	0.03	0.02	0.65

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION OUTPUT Profile #100 Year + 25 %

			Left OB	Channel	Right OB
E.G. Elev (ft)	687.67	Element			
Vel Head (ft)	0.05	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.62	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.09	Flow Area (sq ft)	29.85	48.20	460.65
E.G. Slope (ft/ft)	0.001704	Area (sq ft)	29.85	48.20	460.65
Q Total (cfs)	627.50	Flow (cfs)	26.54	149.11	451.85
Top Width (ft)	547.29	Top Width (ft)	36.76	20.36	490.17
Vel Total (ft/s)	1.16	Avg. Vel. (ft/s)	0.89	3.09	0.98
Max Chl Dpth (ft)	2.72	Hydr. Depth (ft)	0.81	2.37	0.94
Conv. Total (cfs)	15200.1	Conv. (cfs)	642.9	3611.9	10945.3
Length Wtd. (ft)	50.00	Wetted Per. (ft)	36.79	20.55	490.17
Min Ch El (ft)	684.90	Shear (lb/sq ft)	0.09	0.25	0.10
Alpha	2.21	Stream Power (lb/ft s)	0.08	0.77	0.10
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	0.03	0.05	0.55
C & E Loss (ft)	0.00	Cum SA (acres)	0.03	0.02	0.67

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 000

INPUT
Description: RIVER STATION 0+00 (DOWNSTREAM STUDY LIMIT)
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	686.5	15.36	686	25	685.7	36.63	686	98.52	686.2
170.56	686.5	226.84	686.9	308.71	687.3	443.4	687.2	564.12	686.8
597.73	686	693.54	687.1	793.73	690				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	15.36	.035	36.63	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
15.36	36.63	0	0	0	.1	.3

Right Levee Station= 308.71 Elevation= 687.3

CROSS SECTION OUTPUT Profile #2 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	686.98	Element			
Vel Head (ft)	0.03	Wt. n-Val.	0.060	0.035	0.060

W.S. Elev (ft)	686.94	Reach Len. (ft)			
Crit W.S. (ft)	686.59	Flow Area (sq ft)	10.67	23.28	109.07
E.G. Slope (ft/ft)	0.002500	Area (sq ft)	10.67	23.28	109.07
Q Total (cfs)	153.00	Flow (cfs)	10.16	52.48	90.36
Top Width (ft)	235.96	Top Width (ft)	15.36	21.27	199.33
Vel Total (ft/s)	1.07	Avg. Vel. (ft/s)	0.95	2.25	0.83
Max Chl Dpth (ft)	1.24	Hydr. Depth (ft)	0.69	1.09	0.55
Conv. Total (cfs)	3059.8	Conv. (cfs)	203.2	1049.5	1807.1
Length Wtd. (ft)		Wetted Per. (ft)	15.81	21.28	199.33
Min Ch El (ft)	685.70	Shear (lb/sq ft)	0.11	0.17	0.09
Alpha	1.93	Stream Power (lb/ft s)	0.10	0.38	0.07
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #10 Year Event

E.G. Elev (ft)	687.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.26	Reach Len. (ft)			
Crit W.S. (ft)	686.76	Flow Area (sq ft)	15.51	29.99	182.08
E.G. Slope (ft/ft)	0.002504	Area (sq ft)	15.51	29.99	182.08
Q Total (cfs)	275.00	Flow (cfs)	18.73	80.07	176.20
Top Width (ft)	300.49	Top Width (ft)	15.36	21.27	263.86
Vel Total (ft/s)	1.21	Avg. Vel. (ft/s)	1.21	2.67	0.97
Max Chl Dpth (ft)	1.56	Hydr. Depth (ft)	1.01	1.41	0.69
Conv. Total (cfs)	5495.8	Conv. (cfs)	374.3	1600.2	3521.3
Length Wtd. (ft)		Wetted Per. (ft)	16.13	21.28	263.86
Min Ch El (ft)	685.70	Shear (lb/sq ft)	0.15	0.22	0.11
Alpha	1.90	Stream Power (lb/ft s)	0.18	0.59	0.10
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100 Year Event

E.G. Elev (ft)	687.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.42	Reach Len. (ft)			
Crit W.S. (ft)	687.00	Flow Area (sq ft)	18.01	33.45	420.24
E.G. Slope (ft/ft)	0.002501	Area (sq ft)	18.01	33.45	420.24
Q Total (cfs)	502.00	Flow (cfs)	23.85	96.02	382.13
Top Width (ft)	704.69	Top Width (ft)	15.36	21.27	668.06
Vel Total (ft/s)	1.06	Avg. Vel. (ft/s)	1.32	2.87	0.91
Max Chl Dpth (ft)	1.72	Hydr. Depth (ft)	1.17	1.57	0.63
Conv. Total (cfs)	10037.4	Conv. (cfs)	476.9	1919.9	7640.6
Length Wtd. (ft)		Wetted Per. (ft)	16.29	21.28	668.08
Min Ch El (ft)	685.70	Shear (lb/sq ft)	0.17	0.25	0.10
Alpha	2.02	Stream Power (lb/ft s)	0.23	0.70	0.09
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100 Year + 25 %

E.G. Elev (ft)	687.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.53	Reach Len. (ft)			
Crit W.S. (ft)	687.12	Flow Area (sq ft)	19.63	35.69	490.81
E.G. Slope (ft/ft)	0.002501	Area (sq ft)	19.63	35.69	490.81
Q Total (cfs)	627.50	Flow (cfs)	27.41	106.97	493.12
Top Width (ft)	708.33	Top Width (ft)	15.36	21.27	671.70
Vel Total (ft/s)	1.15	Avg. Vel. (ft/s)	1.40	3.00	1.00
Max Chl Dpth (ft)	1.83	Hydr. Depth (ft)	1.28	1.68	0.73
Conv. Total (cfs)	12547.9	Conv. (cfs)	548.1	2139.0	9860.8
Length Wtd. (ft)		Wetted Per. (ft)	16.40	21.28	671.72
Min Ch El (ft)	685.70	Shear (lb/sq ft)	0.19	0.26	0.11
Alpha	1.83	Stream Power (lb/ft s)	0.26	0.78	0.11
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

SUMMARY OF MANNING'S N VALUES

River:TRIB TO GREENPON

Reach	River Sta.	n1	n2	n3
UPSTR PHIPPS RD.	685.25	.05	.03	.05
UPSTR PHIPPS RD.	655.25	.05	.03	.05
UPSTR PHIPPS RD.	625.25	.05	.03	.05
UPSTR PHIPPS RD.	587.625	Culvert		
UPSTR PHIPPS RD.	550	.06	.035	.06
UPSTR PHIPPS RD.	500	.06	.035	.06
UPSTR PHIPPS RD.	450	.06	.035	.06
UPSTR PHIPPS RD.	400	.06	.035	.06
UPSTR PHIPPS RD.	350	.06	.035	.06
UPSTR PHIPPS RD.	300	.06	.035	.06
UPSTR PHIPPS RD.	250	.06	.035	.06
UPSTR PHIPPS RD.	200	.06	.035	.06
UPSTR PHIPPS RD.	150	.06	.035	.06
UPSTR PHIPPS RD.	100	.06	.035	.06
UPSTR PHIPPS RD.	050	.06	.035	.06
UPSTR PHIPPS RD.	000	.06	.035	.06

SUMMARY OF REACH LENGTHS

River: TRIB TO GREENPON

Reach	River Sta.	Left	Channel	Right
UPSTR PHIPPS RD.	685.25	30	30	30
UPSTR PHIPPS RD.	655.25	30	30	30
UPSTR PHIPPS RD.	625.25	75.25	75.25	75.25
UPSTR PHIPPS RD.	587.625	Culvert		

UPSTR PHIPPS RD.	550	50	50	50
UPSTR PHIPPS RD.	500	50	50	50
UPSTR PHIPPS RD.	450	50	50	50
UPSTR PHIPPS RD.	400	50	50	50
UPSTR PHIPPS RD.	350	50	50	50
UPSTR PHIPPS RD.	300	50	50	50
UPSTR PHIPPS RD.	250	50	50	50
UPSTR PHIPPS RD.	200	50	50	50
UPSTR PHIPPS RD.	150	50	50	50
UPSTR PHIPPS RD.	100	50	50	50
UPSTR PHIPPS RD.	050	50	50	50
UPSTR PHIPPS RD.	000	0	0	0

Profile Output Table - Standard Table 1

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
UPSTR PHIPPS RD.	685.25	128.00	688.00	692.89	690.09	692.89	0	0	594	278	0
UPSTR PHIPPS RD.	685.25	226.00	688.00	693.43	690.38	693.43	0	1	750	306	0
UPSTR PHIPPS RD.	685.25	409.00	688.00	693.62	690.72	693.63	0	1	810	317	0
UPSTR PHIPPS RD.	685.25	511.25	688.00	693.77	690.87	693.78	0	1	858	326	0
UPSTR PHIPPS RD.	655.25	128.00	688.00	692.89	690.60	692.89	0	1	438	289	0
UPSTR PHIPPS RD.	655.25	226.00	688.00	693.42	691.41	693.43	0	1	603	327	0
UPSTR PHIPPS RD.	655.25	409.00	688.00	693.61	691.80	693.62	0	1	666	341	0
UPSTR PHIPPS RD.	655.25	511.25	688.00	693.76	691.94	693.77	0	2	717	352	0
UPSTR PHIPPS RD.	625.25	128.00	686.04	692.45	689.30	692.85	0	5	25	224	0
UPSTR PHIPPS RD.	625.25	226.00	686.04	693.42	690.76	693.43	0	1	807	298	0
UPSTR PHIPPS RD.	625.25	409.00	686.04	693.61	693.01	693.62	0	1	866	335	0
UPSTR PHIPPS RD.	625.25	511.25	686.04	693.76	693.01	693.77	0	1	918	372	0
UPSTR PHIPPS RD.	587.625	Culvert									
UPSTR PHIPPS RD.	550	128.00	686.04	689.24	689.24	690.82	0	10	13	275	1
UPSTR PHIPPS RD.	550	226.00	686.04	690.68	690.68	693.01	0	12	18	342	1

UPSTR PHIPPS RD.	550	409.00	686.04	692.76	692.76	692.76	0	0	1600	415
UPSTR PHIPPS RD.	550	511.25	686.04	692.76	692.76	692.76	0	1	1600	415
UPSTR PHIPPS RD.	500	128.00	686.70	687.55	687.90	689.26	0	15	19	60
UPSTR PHIPPS RD.	500	226.00	686.70	687.61	688.24	691.28	0	22	23	66
UPSTR PHIPPS RD.	500	409.00	686.70	687.79	688.48	692.30	0	26	36	84
UPSTR PHIPPS RD.	500	511.25	686.70	687.89	688.57	692.32	0	27	45	94
UPSTR PHIPPS RD.	450	128.00	686.40	688.17	687.90	688.17	0	1	487	539
UPSTR PHIPPS RD.	450	226.00	686.40	688.37	687.90	688.38	0	1	603	602
UPSTR PHIPPS RD.	450	409.00	686.40	688.63	687.90	688.63	0	1	835	758
UPSTR PHIPPS RD.	450	511.25	686.40	688.69	687.91	688.69	0	1	880	761
UPSTR PHIPPS RD.	400	128.00	686.10	688.10	687.93	688.15	0	3	147	393
UPSTR PHIPPS RD.	400	226.00	686.10	688.30	688.12	688.35	0	3	232	445
UPSTR PHIPPS RD.	400	409.00	686.10	688.54	688.26	688.59	0	4	346	505
UPSTR PHIPPS RD.	400	511.25	686.10	688.57	688.33	688.64	0	4	359	512
UPSTR PHIPPS RD.	350	128.00	685.80	687.85	687.76	687.97	0	4	86	199
UPSTR PHIPPS RD.	350	226.00	685.80	687.99	687.99	688.14	0	5	150	395
UPSTR PHIPPS RD.	350	409.00	685.80	688.15	688.15	688.33	0	6	213	419
UPSTR PHIPPS RD.	350	511.25	685.80	688.26	688.21	688.43	0	6	262	437
UPSTR PHIPPS RD.	300	128.00	685.70	687.91	687.67	687.91	0	1	616	800
UPSTR PHIPPS RD.	300	226.00	685.70	687.94	687.90	687.94	0	1	638	802
UPSTR PHIPPS RD.	300	409.00	685.70	688.13	687.90	688.14	0	1	792	839
UPSTR PHIPPS RD.	300	511.25	685.70	688.32	687.90	688.32	0	1	963	978
UPSTR PHIPPS RD.	250	153.00	685.50	687.91	687.90	687.91	0	1	602	770
UPSTR PHIPPS RD.	250	275.00	685.50	687.92	687.90	687.93	0	1	612	771
UPSTR PHIPPS RD.	250	502.00	685.50	688.10	687.90	688.11	0	2	748	

785	0									
UPSTR PHIPPS RD.		250	627.50	685.50	688.29	687.91	688.30	0	2	900
800	0									
UPSTR PHIPPS RD.		200	153.00	685.40	687.90	687.90	687.90	0	1	606
795	0									
UPSTR PHIPPS RD.		200	275.00	685.40	687.90	687.90	687.91	0	1	606
795	0									
UPSTR PHIPPS RD.		200	502.00	685.40	688.06	687.90	688.07	0	2	735
831	0									
UPSTR PHIPPS RD.		200	627.50	685.40	688.26	687.91	688.27	0	2	900
841	0									
UPSTR PHIPPS RD.		150	153.00	685.20	687.29	687.00	687.30	0	1	356
660	0									
UPSTR PHIPPS RD.		150	275.00	685.20	687.60	687.07	687.61	0	1	570
693	0									
UPSTR PHIPPS RD.		150	502.00	685.20	688.03	687.19	688.04	0	1	886
765	0									
UPSTR PHIPPS RD.		150	627.50	685.20	688.23	687.24	688.24	0	2	1039
775	0									
UPSTR PHIPPS RD.		100	153.00	685.90	686.99	686.94	687.20	0	5	61
118	1									
UPSTR PHIPPS RD.		100	275.00	685.90	687.30	687.21	687.53	0	6	101
134	1									
UPSTR PHIPPS RD.		100	502.00	685.90	687.53	687.53	687.94	0	8	132
145	1									
UPSTR PHIPPS RD.		100	627.50	685.90	687.68	687.68	688.14	0	8	155
153	1									
UPSTR PHIPPS RD.		050	153.00	684.90	687.02	686.39	687.04	0	2	246
429	0									
UPSTR PHIPPS RD.		050	275.00	684.90	687.35	686.82	687.37	0	2	395
493	0									
UPSTR PHIPPS RD.		050	502.00	684.90	687.52	687.01	687.55	0	3	480
526	0									
UPSTR PHIPPS RD.		050	627.50	684.90	687.62	687.09	687.67	0	3	539
547	0									
UPSTR PHIPPS RD.		000	153.00	685.70	686.94	686.59	686.98	0	2	143
236	0									
UPSTR PHIPPS RD.		000	275.00	685.70	687.26	686.76	687.30	0	3	228
300	0									
UPSTR PHIPPS RD.		000	502.00	685.70	687.42	687.00	687.46	0	3	472
705	0									
UPSTR PHIPPS RD.		000	627.50	685.70	687.53	687.12	687.57	0	3	546
708	0									

Profile Output Table - Standard Table 2

Reach	River Sta	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width

		(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
UPSTR PHIPPS RD.	685.25	692.8928	692.89	0.00	0.00	0.00	4.64	27.24	96.12	278
UPSTR PHIPPS RD.	685.25	693.4294	693.43	0.00	0.00	0.00	10.74	44.01	171.25	306
UPSTR PHIPPS RD.	685.25	693.6269	693.62	0.01	0.00	0.00	21.57	77.42	310.01	317
UPSTR PHIPPS RD.	685.25	693.7774	693.77	0.01	0.00	0.00	29.19	94.81	387.24	326
UPSTR PHIPPS RD.	655.25	692.8920	692.89	0.00	0.00	0.04	4.05	39.59	84.36	289
UPSTR PHIPPS RD.	655.25	693.4282	693.42	0.00	0.00	0.00	10.74	57.71	157.54	327
UPSTR PHIPPS RD.	655.25	693.6239	693.61	0.01	0.00	0.00	22.54	98.67	287.80	341
UPSTR PHIPPS RD.	655.25	693.7735	693.76	0.01	0.00	0.00	31.36	118.39	361.50	352
UPSTR PHIPPS RD.	625.25	692.8493	692.45	0.40				128.00		224
UPSTR PHIPPS RD.	625.25	693.4269	693.42	0.00			18.90	68.51	138.59	298
UPSTR PHIPPS RD.	625.25	693.6208	693.61	0.01			37.02	120.84	251.13	335
UPSTR PHIPPS RD.	625.25	693.7695	693.76	0.01			49.35	147.55	314.35	372
UPSTR PHIPPS RD.	587.625	Culvert								
UPSTR PHIPPS RD.	550	690.8159	689.24	1.57	0.59	0.43		128.00		275
UPSTR PHIPPS RD.	550	693.0059	690.68	2.32	0.58	0.65		226.00		342
UPSTR PHIPPS RD.	550	692.7592	692.76	0.00	0.00	0.02	115.88	124.18	168.94	415
UPSTR PHIPPS RD.	550	692.7601	692.76	0.00	0.00	0.02	144.85	155.23	211.18	415
UPSTR PHIPPS RD.	500	689.2648	687.55	1.72	1.54	0.01	31.63	60.08	36.29	60
UPSTR PHIPPS RD.	500	691.2803	687.61	3.67	1.59	0.13	59.49	98.26	68.26	66
UPSTR PHIPPS RD.	500	692.3022	687.79	4.52	0.00	0.45	122.90	145.10	141.01	84
UPSTR PHIPPS RD.	500	692.3152	687.89	4.43	0.00	0.44	161.53	164.38	185.34	94
UPSTR PHIPPS RD.	450	688.1727	688.17	0.00	0.02	0.00	4.62	6.69	116.69	539
UPSTR PHIPPS RD.	450	688.3775	688.37	0.00	0.02	0.00	9.13	10.72	206.15	602

UPSTR PHIPPS RD.	450	688.6318	688.63	0.00	0.03	0.00	46.84	16.45	345.71	758
UPSTR PHIPPS RD.	450	688.6927	688.69	0.01	0.05	0.01	63.53	20.01	427.72	761
UPSTR PHIPPS RD.	400	688.1517	688.10	0.05	0.18	0.01	46.84	45.39	35.77	393
UPSTR PHIPPS RD.	400	688.3491	688.30	0.04	0.20	0.01	104.76	55.51	65.73	445
UPSTR PHIPPS RD.	400	688.5935	688.54	0.05	0.25	0.01	208.04	73.03	127.93	505
UPSTR PHIPPS RD.	400	688.6407	688.57	0.07	0.27	0.01	261.36	88.63	161.26	512
UPSTR PHIPPS RD.	350	687.9677	687.85	0.12	0.01	0.04	16.72	65.16	46.12	199
UPSTR PHIPPS RD.	350	688.1384	687.99	0.15	0.04	0.04	46.82	88.76	90.42	395
UPSTR PHIPPS RD.	350	688.3349	688.15	0.19	0.06	0.05	119.96	122.70	166.34	419
UPSTR PHIPPS RD.	350	688.4283	688.26	0.17	0.05	0.05	171.60	130.41	209.24	437
UPSTR PHIPPS RD.	300	687.9142	687.91	0.00	0.01	0.00	2.35	10.71	114.93	800
UPSTR PHIPPS RD.	300	687.9429	687.94	0.00	0.02	0.00	4.26	18.42	203.32	802
UPSTR PHIPPS RD.	300	688.1355	688.13	0.01	0.03	0.00	7.23	28.58	373.19	839
UPSTR PHIPPS RD.	300	688.3236	688.32	0.01	0.02	0.00	9.90	31.75	469.60	978
UPSTR PHIPPS RD.	250	687.9086	687.91	0.00	0.01	0.00	2.98	13.75	136.27	770
UPSTR PHIPPS RD.	250	687.9260	687.92	0.01	0.02	0.00	5.39	24.30	245.30	771
UPSTR PHIPPS RD.	250	688.1062	688.10	0.01	0.04	0.00	10.58	36.92	454.50	785
UPSTR PHIPPS RD.	250	688.2976	688.29	0.01	0.03	0.00	14.35	39.41	573.74	800
UPSTR PHIPPS RD.	200	687.9021	687.90	0.00	0.01	0.00	3.56	13.83	135.61	795
UPSTR PHIPPS RD.	200	687.9057	687.90	0.01	0.02	0.00	6.40	24.86	243.73	795
UPSTR PHIPPS RD.	200	688.0690	688.06	0.01	0.03	0.00	16.73	38.28	446.99	831
UPSTR PHIPPS RD.	200	688.2657	688.26	0.01	0.02	0.00	30.87	40.17	556.46	841
UPSTR PHIPPS RD.	150	687.2950	687.29	0.01	0.07	0.02	0.80	29.11	123.09	660
UPSTR PHIPPS RD.	150	687.6104	687.60	0.01	0.06	0.02	2.98	34.37	237.65	693

UPSTR PHIPPS RD.	150	688.0417	688.03	0.01	0.06	0.04	11.20	44.83	445.97	765
UPSTR PHIPPS RD.	150	688.2411	688.23	0.01	0.06	0.05	19.85	50.08	557.57	775
UPSTR PHIPPS RD.	100	687.2011	686.99	0.21	0.10	0.06	27.42	73.59	51.98	118
UPSTR PHIPPS RD.	100	687.5284	687.30	0.23	0.09	0.06	70.76	106.64	97.60	134
UPSTR PHIPPS RD.	100	687.9432	687.53	0.42	0.18	0.11	143.76	173.44	184.80	145
UPSTR PHIPPS RD.	100	688.1399	687.68	0.46	0.20	0.12	187.09	203.53	236.87	153
UPSTR PHIPPS RD.	050	687.0436	687.02	0.02	0.06	0.00	5.18	61.23	86.58	429
UPSTR PHIPPS RD.	050	687.3673	687.35	0.02	0.06	0.00	10.63	79.82	184.55	493
UPSTR PHIPPS RD.	050	687.5545	687.52	0.04	0.09	0.00	20.53	128.32	353.15	526
UPSTR PHIPPS RD.	050	687.6705	687.62	0.05	0.10	0.00	26.54	149.11	451.85	547
UPSTR PHIPPS RD.	000	686.9789	686.94	0.03			10.16	52.48	90.36	236
UPSTR PHIPPS RD.	000	687.3029	687.26	0.04			18.73	80.07	176.20	300
UPSTR PHIPPS RD.	000	687.4581	687.42	0.04			23.85	96.02	382.13	705
UPSTR PHIPPS RD.	000	687.5654	687.53	0.04			27.41	106.97	493.12	708

Profile Output Table - Culvert Only

Reach	River Sta		E.G. US.	W.S. US.	E.G. IC	E.G. OC	Min El Weir Flow	Q Culv Group	Q Weir	Delta
WS	Culv Vel US	Culv Vel DS	(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	
(ft)	(ft/s)	(ft/s)								
UPSTR PHIPPS RD.	587.625	Culvert #1	692.85	692.45	692.85	692.61	693.01	128.00		
3.21	10.19	11.27								
UPSTR PHIPPS RD.	587.625	Culvert #1	693.43	693.42	693.29	693.43	693.01	74.68	151.32	
2.74	5.94	5.94								
UPSTR PHIPPS RD.	587.625	Culvert #1	693.62	693.61	693.61	693.62	693.01	70.53	338.47	
0.86	5.61	5.61								
UPSTR PHIPPS RD.	587.625	Culvert #1	693.77	693.76	693.69	693.77	693.01	76.37	434.88	
1.00	6.08	6.08								

ERRORS WARNINGS AND NOTES
Errors Warnings and Notes for Plan : Ex 08-27-07

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River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 685.25     Profile: 2 Year Event
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 685.25     Profile: 10 Year Event
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 655.25     Profile: 2 Year Event
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
             used.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 655.25     Profile: 10 Year Event
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
             used.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 655.25     Profile: 100 Year Event
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
             used.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 655.25     Profile: 100 Year + 25 %
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
             used.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 625.25     Profile: 2 Year Event
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 625.25     Profile: 10 Year Event
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 625.25     Profile: 100 Year + 25 %
     Warning:The cross section had to be extended vertically during the critical depth calculations.
     Warning:The parabolic search method failed to converge on critical depth.  The program will try the cross section
             slice/secant method to find critical depth.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 587.625     Profile: 2 Year Event     Culv: Culvert #1
     Note:   During the supercritical calculations a hydraulic jump occurred inside of the culvert.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 550     Profile: 2 Year Event
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
     Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
             water surface came back below critical depth.  This indicates that there is not a valid subcritical answer.  The
             program defaulted to critical depth.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 550     Profile: 10 Year Event
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
     Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
             water surface came back below critical depth.  This indicates that there is not a valid subcritical answer.  The
             program defaulted to critical depth.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 550     Profile: 100 Year Event
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
```

This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 550 Profile: 100 Year + 25 %
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 500 Profile: 2 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 500 Profile: 10 Year Event
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 500 Profile: 100 Year Event
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 500 Profile: 100 Year + 25 %
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 450 Profile: 2 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 450 Profile: 10 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 450 Profile: 100 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 450 Profile: 100 Year + 25 %
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 400 Profile: 2 Year Event
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 400 Profile: 10 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 400 Profile: 100 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 400 Profile: 100 Year + 25 %
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 350 Profile: 2 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 350 Profile: 10 Year Event
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 350 Profile: 100 Year Event
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 350 Profile: 100 Year + 25 %
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 300 Profile: 2 Year Event
Warning:Multiple water surfaces were found that could balance the energy equation. The program selected the water surface whose main channel velocity head was the closest to the previously computed cross section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 300 Profile: 10 Year Event
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 300 Profile: 100 Year Event
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 250 Profile: 2 Year Event
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 250 Profile: 10 Year Event
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 250 Profile: 100 Year Event
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was

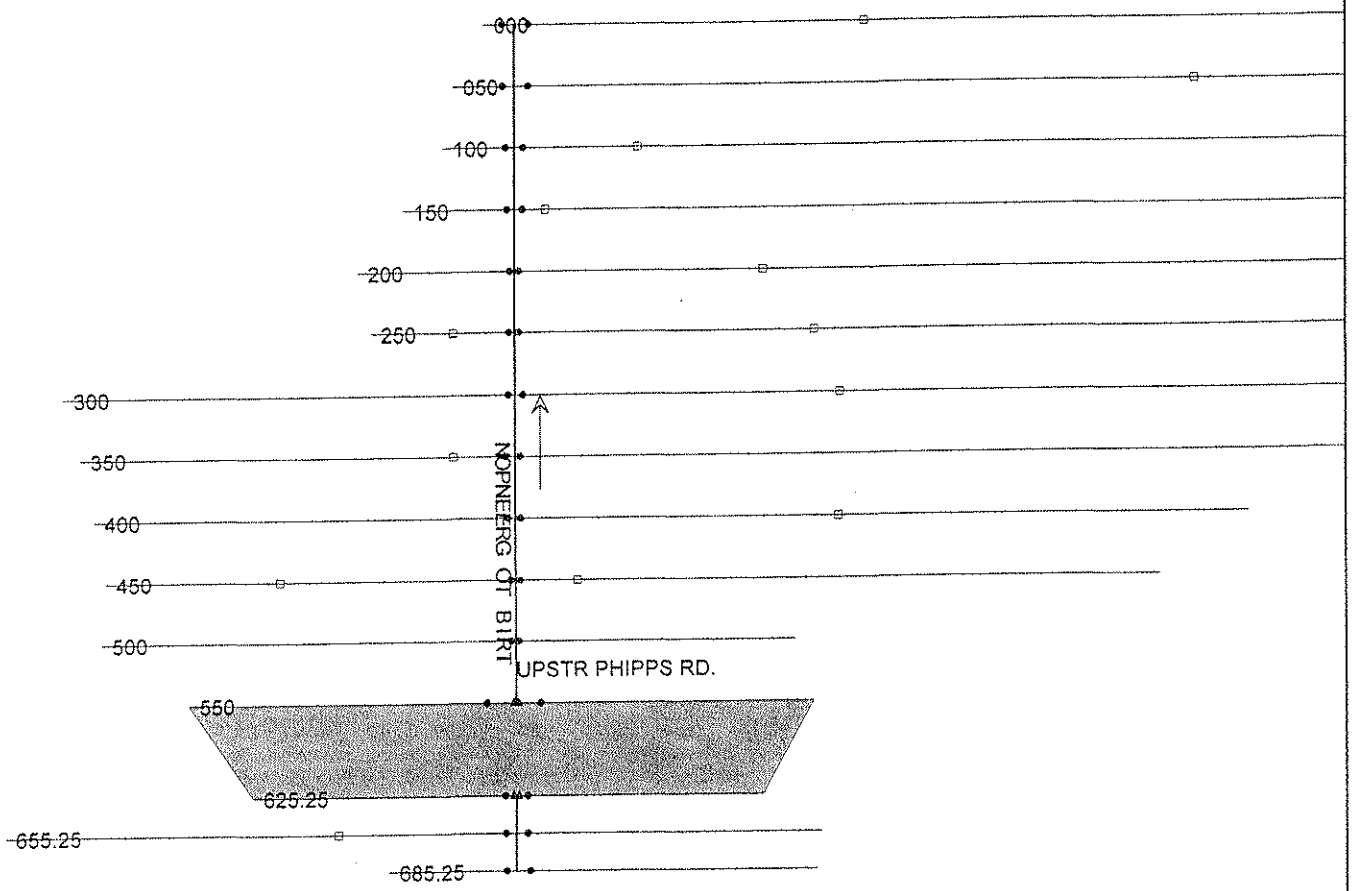
used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 250 Profile: 100 Year + 25 %
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 200 Profile: 2 Year Event
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 200 Profile: 10 Year Event
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 200 Profile: 100 Year Event
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 200 Profile: 100 Year + 25 %
Warning:The cross-section end points had to be extended vertically for the computed water surface.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 150 Profile: 2 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 150 Profile: 10 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 150 Profile: 100 Year Event
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 150 Profile: 100 Year + 25 %
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 100 Profile: 2 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 100 Profile: 10 Year Event
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 100 Profile: 100 Year Event
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was

used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 100 Profile: 100 Year + 25 %
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 050 Profile: 2 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 050 Profile: 10 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 050 Profile: 100 Year Event
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 050 Profile: 100 Year + 25 %
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 000 Profile: 2 Year Event
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 000 Profile: 10 Year Event
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 000 Profile: 100 Year Event
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 000 Profile: 100 Year + 25 %
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

APPENDIX 3

PROPOSED ROUTE 15

HEC-RAS MODEL


000
050
100
150
200
250
300
350
400
450
500
550
625.25
655.25
685.25
NOPNEERG CT BIRT
UPSTR PHIPPS RD.

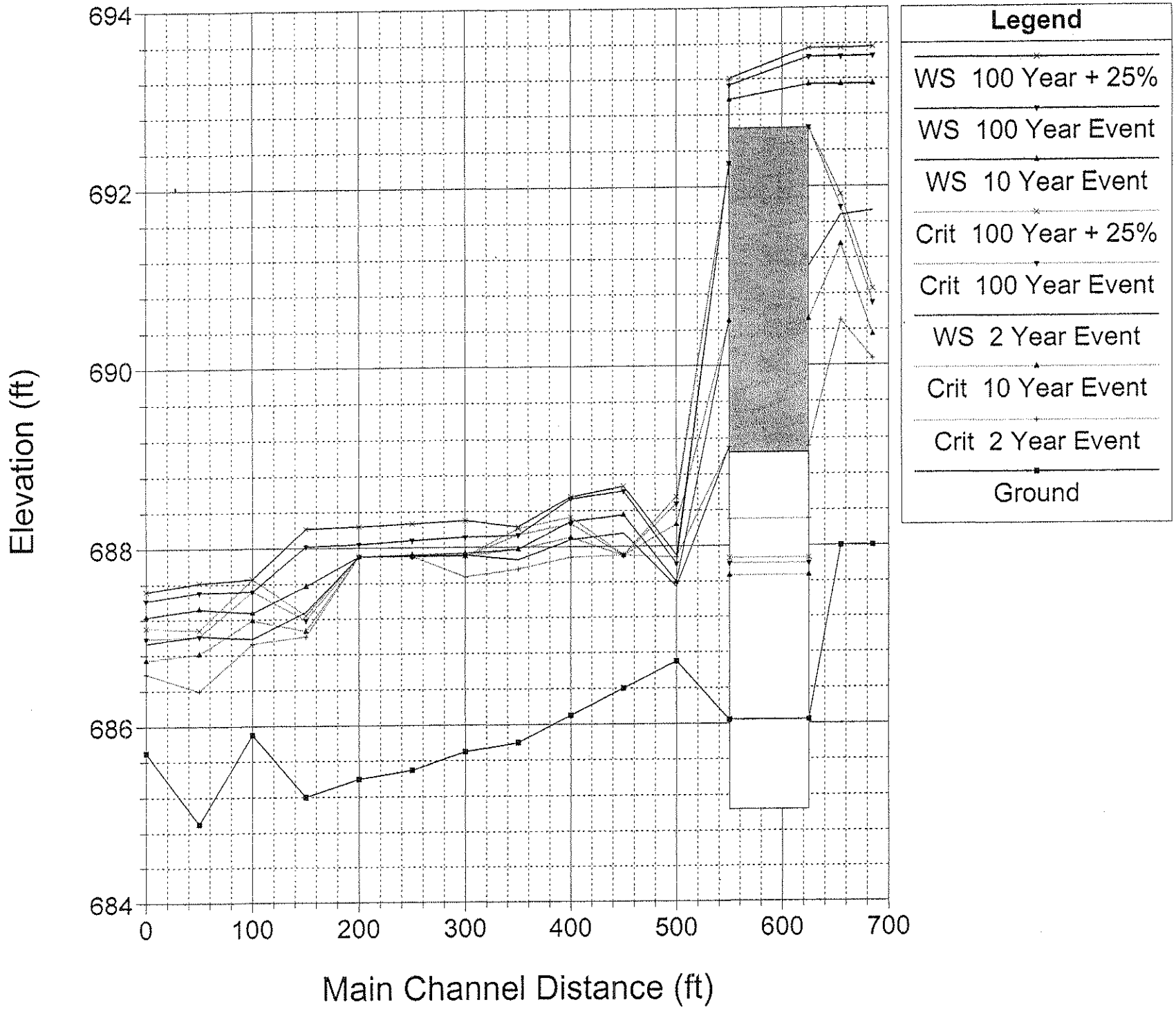
HEC-RAS Plan: Pr 00 2 07 River: [illegible]IB TO [illegible]ENPC Reach: [illegible]R PHI[illegible]D.

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
UPSTR PHIPPS RD.	685.25	117.00	688.00	691.73	690.07	691.73	0	1	292	240	0
UPSTR PHIPPS RD.	685.25	208.00	688.00	693.14	690.34	693.15	0	1	665	286	0
UPSTR PHIPPS RD.	685.25	393.00	688.00	693.45	690.70	693.46	0	1	755	297	0
UPSTR PHIPPS RD.	685.25	491.25	688.00	693.56	690.85	693.57	0	1	787	300	0
UPSTR PHIPPS RD.	655.25	117.00	688.00	691.68	690.51	691.72	0	2	129	199	0
UPSTR PHIPPS RD.	655.25	208.00	688.00	693.14	691.35	693.15	0	1	513	307	0
UPSTR PHIPPS RD.	655.25	393.00	688.00	693.45	691.77	693.46	0	1	610	329	0
UPSTR PHIPPS RD.	655.25	491.25	688.00	693.55	691.91	693.56	0	2	644	336	0
UPSTR PHIPPS RD.	625.25	117.00	686.04	691.11	689.11	691.64	0	6	20	165	0
UPSTR PHIPPS RD.	625.25	208.00	686.04	693.14	690.52	693.14	0	1	726	272	0
UPSTR PHIPPS RD.	625.25	393.00	686.04	693.45	692.66	693.45	0	1	813	300	0
UPSTR PHIPPS RD.	625.25	491.25	686.04	693.55	692.66	693.56	0	1	845	318	0
UPSTR PHIPPS RD.	587.625	Culvert									
UPSTR PHIPPS RD.	550	120.00	686.04	689.11	689.11	690.62	0	10	12	267	1
UPSTR PHIPPS RD.	550	212.00	686.04	690.50	690.50	692.72	0	12	18	335	1
UPSTR PHIPPS RD.	550	400.00	686.04	692.26	692.26	692.26	0	1	1397	397	0
UPSTR PHIPPS RD.	550	500.00	686.04	692.26	692.26	692.26	0	1	1397	397	0
UPSTR PHIPPS RD.	500	120.00	686.70	687.54	687.87	689.08	0	14	19	60	3
UPSTR PHIPPS RD.	500	212.00	686.70	687.60	688.24	691.01	0	21	22	65	4
UPSTR PHIPPS RD.	500	400.00	686.70	687.80	688.47	691.85	0	25	37	85	5
UPSTR PHIPPS RD.	500	500.00	686.70	687.90	688.55	691.86	0	25	46	95	4
UPSTR PHIPPS RD.	450	120.00	686.40	688.15	687.90	688.15	0	1	475	532	0
UPSTR PHIPPS RD.	450	212.00	686.40	688.35	687.90	688.35	0	1	589	595	0
UPSTR PHIPPS RD.	450	400.00	686.40	688.62	687.90	688.62	0	1	828	758	0
UPSTR PHIPPS RD.	450	500.00	686.40	688.67	687.91	688.68	0	1	871	760	0
UPSTR PHIPPS RD.	400	120.00	686.10	688.08	687.88	688.13	0	3	138	387	0
UPSTR PHIPPS RD.	400	212.00	686.10	688.28	688.10	688.33	0	3	223	439	0
UPSTR PHIPPS RD.	400	400.00	686.10	688.54	688.26	688.59	0	4	342	504	0
UPSTR PHIPPS RD.	400	500.00	686.10	688.56	688.33	688.63	0	4	353	509	1
UPSTR PHIPPS RD.	350	120.00	685.80	687.86	687.75	687.96	0	3	88	201	1
UPSTR PHIPPS RD.	350	212.00	685.80	687.97	687.97	688.12	0	5	143	392	1
UPSTR PHIPPS RD.	350	400.00	685.80	688.13	688.13	688.33	0	6	207	417	1
UPSTR PHIPPS RD.	350	500.00	685.80	688.23	688.21	688.41	0	6	248	432	1
UPSTR PHIPPS RD.	300	120.00	685.70	687.91	687.67	687.91	0	1	616	800	0
UPSTR PHIPPS RD.	300	212.00	685.70	687.94	687.90	687.94	0	1	635	802	0
UPSTR PHIPPS RD.	300	400.00	685.70	688.11	687.90	688.12	0	1	779	828	0
UPSTR PHIPPS RD.	300	500.00	685.70	688.30	687.90	688.31	0	1	946	965	0
UPSTR PHIPPS RD.	250	150.00	685.50	687.91	687.90	687.91	0	1	601	770	0
UPSTR PHIPPS RD.	250	261.00	685.50	687.92	687.90	687.92	0	1	611	771	0

HEC-RAS Plan: Pr 00 ... 07 River: ...IB TC ...ENPC Reach: ... PHI ...D. (C ...ed)

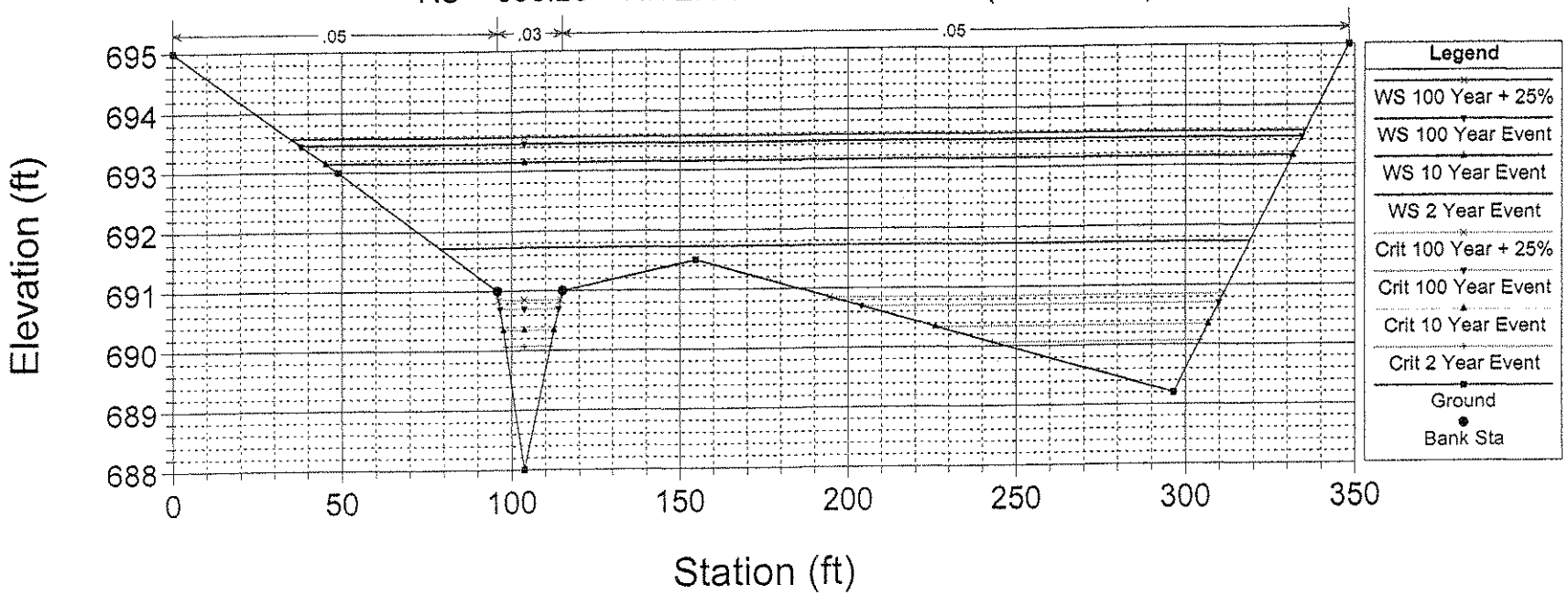
Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
UPSTR PHIPPS RD.	250	492.00	685.50	688.08	687.90	688.09	0	2	736	784	0
UPSTR PHIPPS RD.	250	615.00	685.50	688.27	687.91	688.28	0	2	886	799	0
UPSTR PHIPPS RD.	200	150.00	685.40	687.90	687.90	687.90	0	1	606	795	0
UPSTR PHIPPS RD.	200	261.00	685.40	687.90	687.90	687.91	0	1	606	795	0
UPSTR PHIPPS RD.	200	492.00	685.40	688.04	687.90	688.05	0	2	721	830	0
UPSTR PHIPPS RD.	200	615.00	685.40	688.24	687.91	688.25	0	2	884	840	0
UPSTR PHIPPS RD.	150	150.00	685.20	687.28	687.00	687.29	0	1	349	659	0
UPSTR PHIPPS RD.	150	261.00	685.20	687.57	687.06	687.58	0	1	547	689	0
UPSTR PHIPPS RD.	150	492.00	685.20	688.02	687.18	688.02	0	1	873	764	0
UPSTR PHIPPS RD.	150	615.00	685.20	688.22	687.24	688.22	0	2	1025	774	0
UPSTR PHIPPS RD.	100	150.00	685.90	686.98	686.93	687.19	0	5	60	117	1
UPSTR PHIPPS RD.	100	261.00	685.90	687.27	687.19	687.50	0	6	97	133	1
UPSTR PHIPPS RD.	100	492.00	685.90	687.52	687.52	687.93	0	8	131	145	1
UPSTR PHIPPS RD.	100	615.00	685.90	687.66	687.66	688.12	0	8	152	152	1
UPSTR PHIPPS RD.	050	150.00	684.90	687.01	686.39	687.03	0	2	241	427	0
UPSTR PHIPPS RD.	050	261.00	684.90	687.32	686.81	687.34	0	2	380	487	0
UPSTR PHIPPS RD.	050	492.00	684.90	687.51	687.01	687.54	0	3	475	524	0
UPSTR PHIPPS RD.	050	615.00	684.90	687.61	687.08	687.66	0	3	533	545	0
UPSTR PHIPPS RD.	000	150.00	685.70	686.94	686.59	686.97	0	2	141	234	0
UPSTR PHIPPS RD.	000	261.00	685.70	687.23	686.74	687.27	0	3	218	294	0
UPSTR PHIPPS RD.	000	492.00	685.70	687.41	686.98	687.45	0	3	465	704	0
UPSTR PHIPPS RD.	000	615.00	685.70	687.52	687.10	687.56	0	3	539	708	0

Route 15 Pondview Estates-08-27-07 Plan: Proposed Conditions 08-27-07



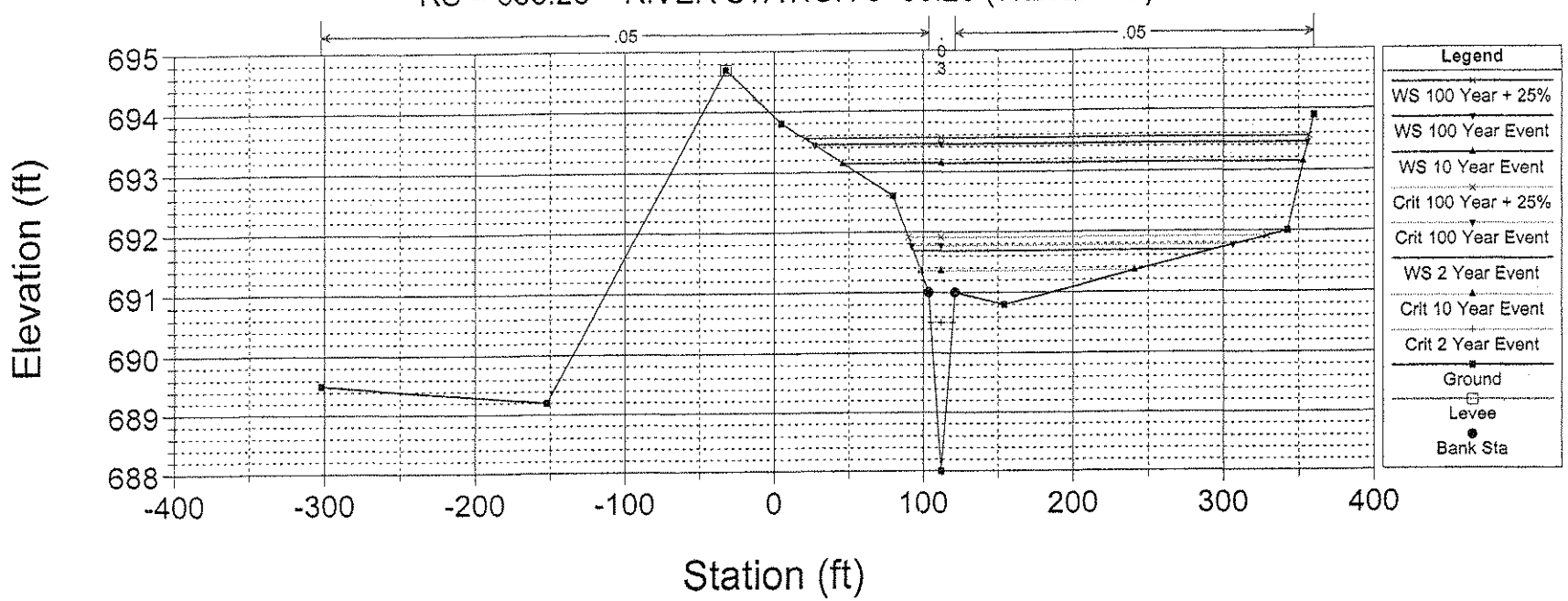
Route 15 Pondview Estates-08-27-07 Plan: Proposed Conditions 08-27-07

RS = 685.25 RIVER STATION 6+85.25 (WETLAND)



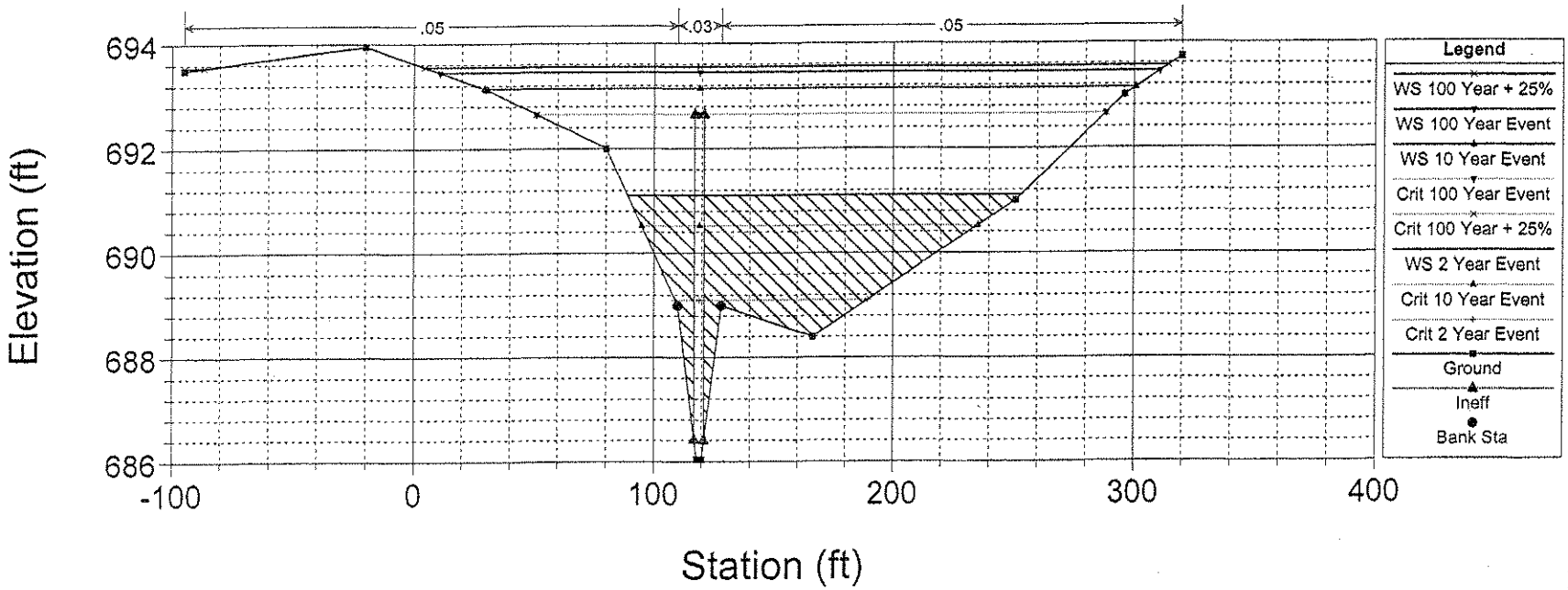
Route 15 Pondview Estates-08-27-07 Plan: Proposed Conditions 08-27-07

RS = 655.25 RIVER STATION 6+55.25 (WETLAND)



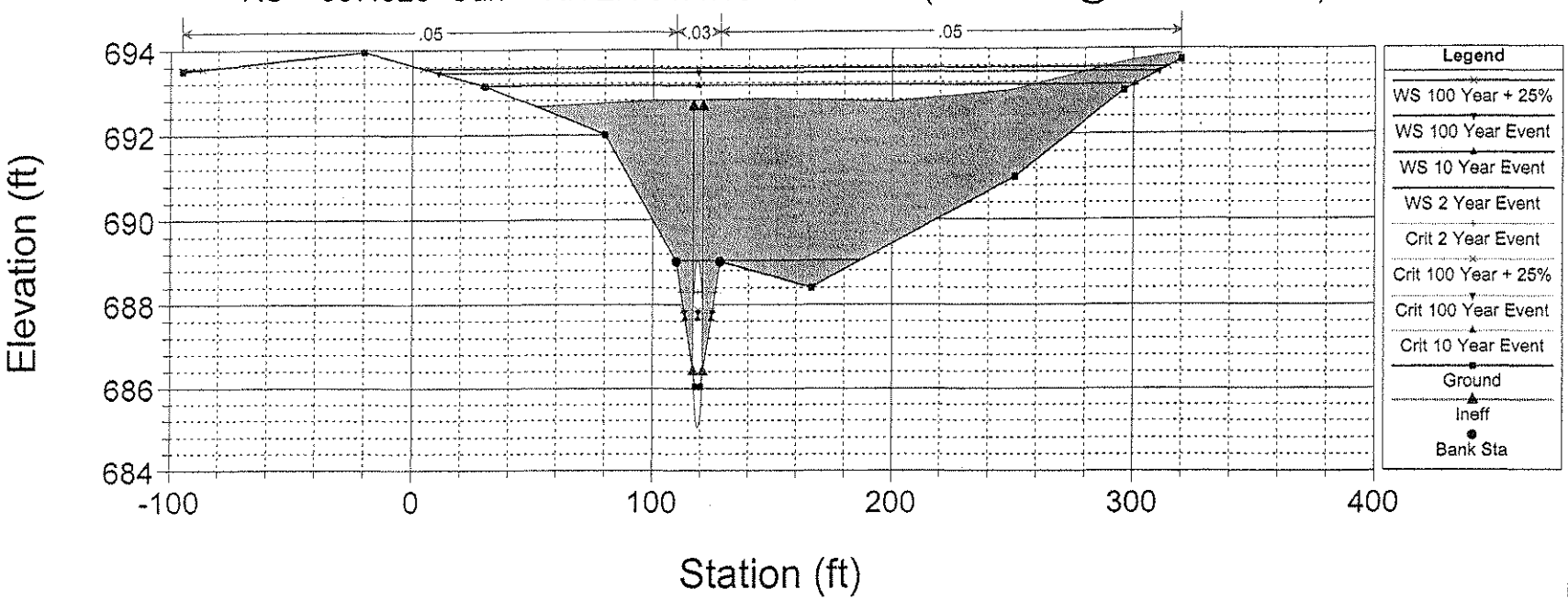
Route 15 Pondview Estates-08-27-07 Plan: Proposed Conditions 08-27-07

RS = 625.25 RIVER STATION 6+25.25 (UPSTREAM CULVERT FACE)



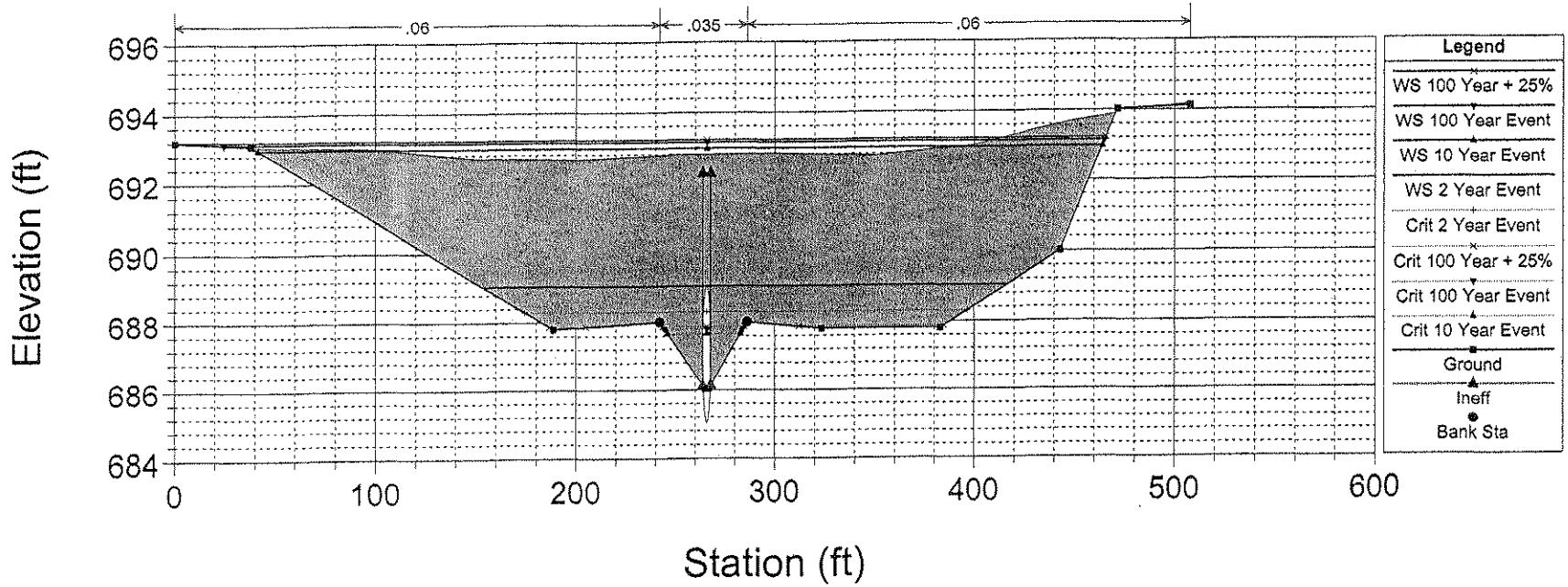
Route 15 Pondview Estates-08-27-07 Plan: Proposed Conditions 08-27-07

RS = 587.625 Culv RIVER STATION 5+87.625 (CULVERT@PHIPPS ROAD)



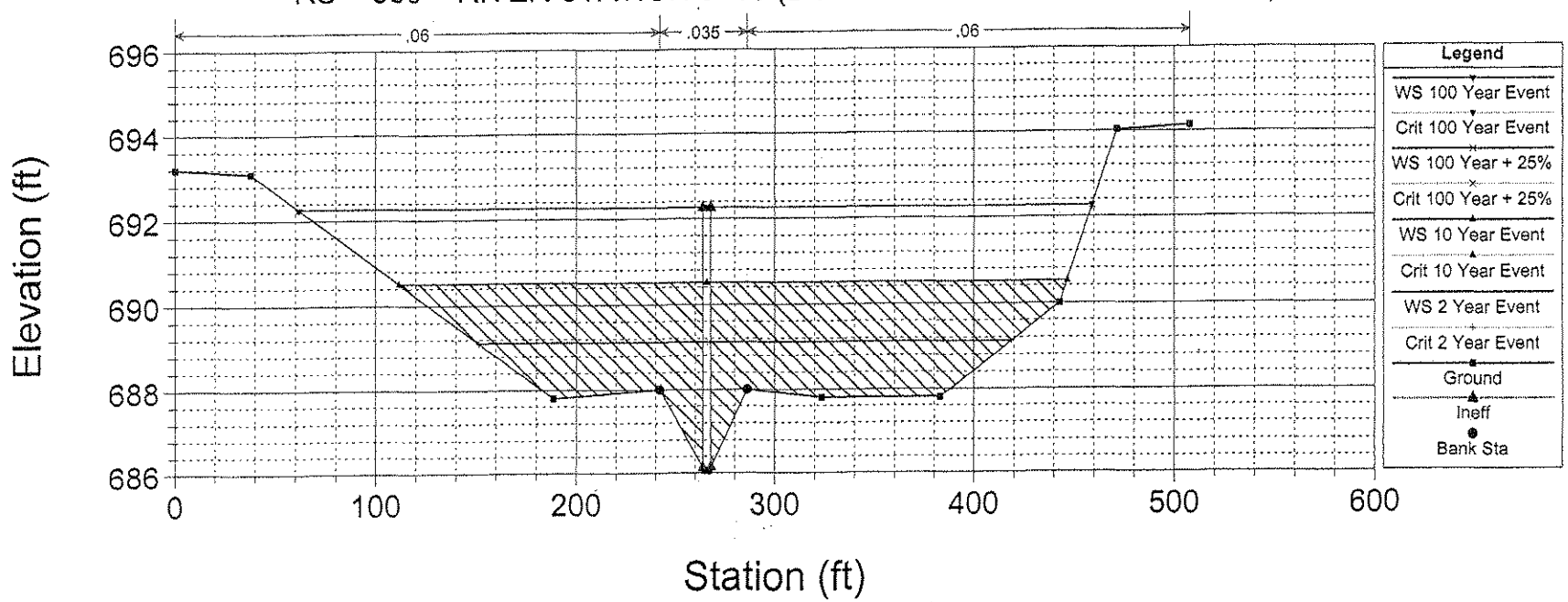
Route 15 Pondview Estates-08-27-07 Plan: Proposed Conditions 08-27-07

RS = 587.625 Culv RIVER STATION 5+87.625 (CULVERT@PHIPPS ROAD)



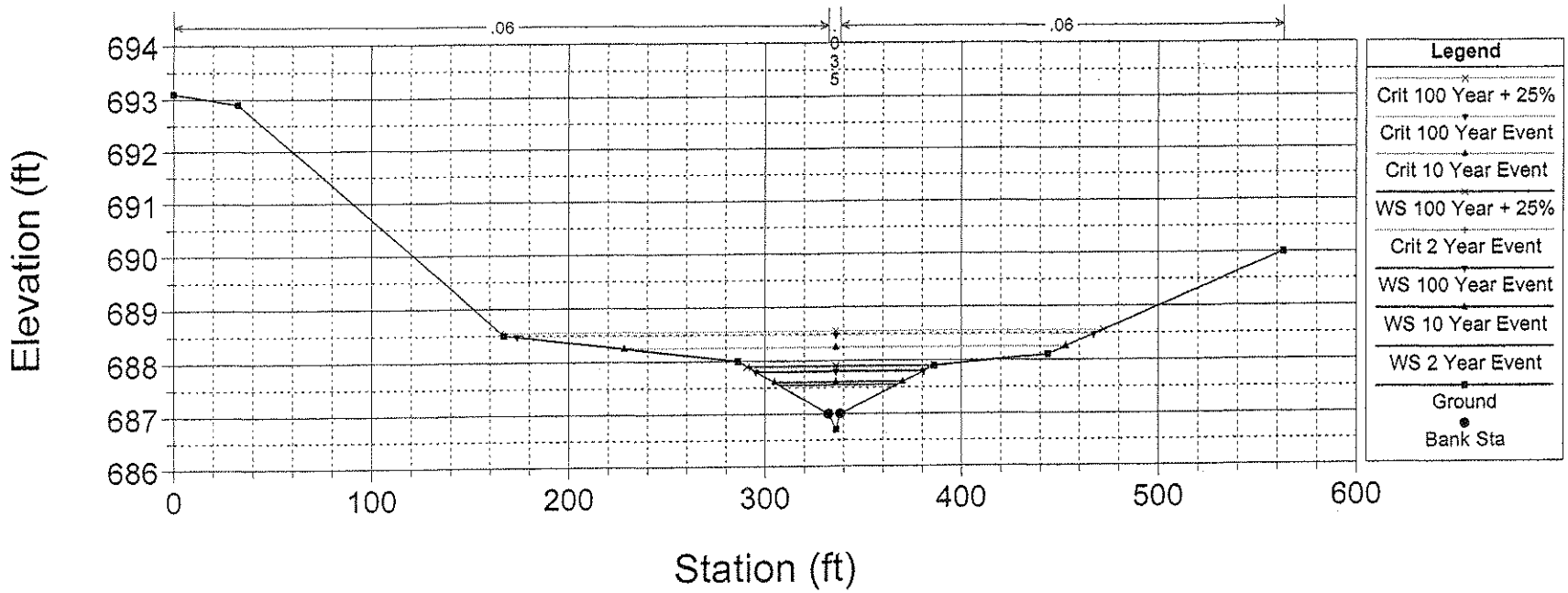
Route 15 Pondview Estates-08-27-07 Plan: Proposed Conditions 08-27-07

RS = 550 RIVER STATION 5+50 (DOWNSTREAM PROJECT LIMITS)



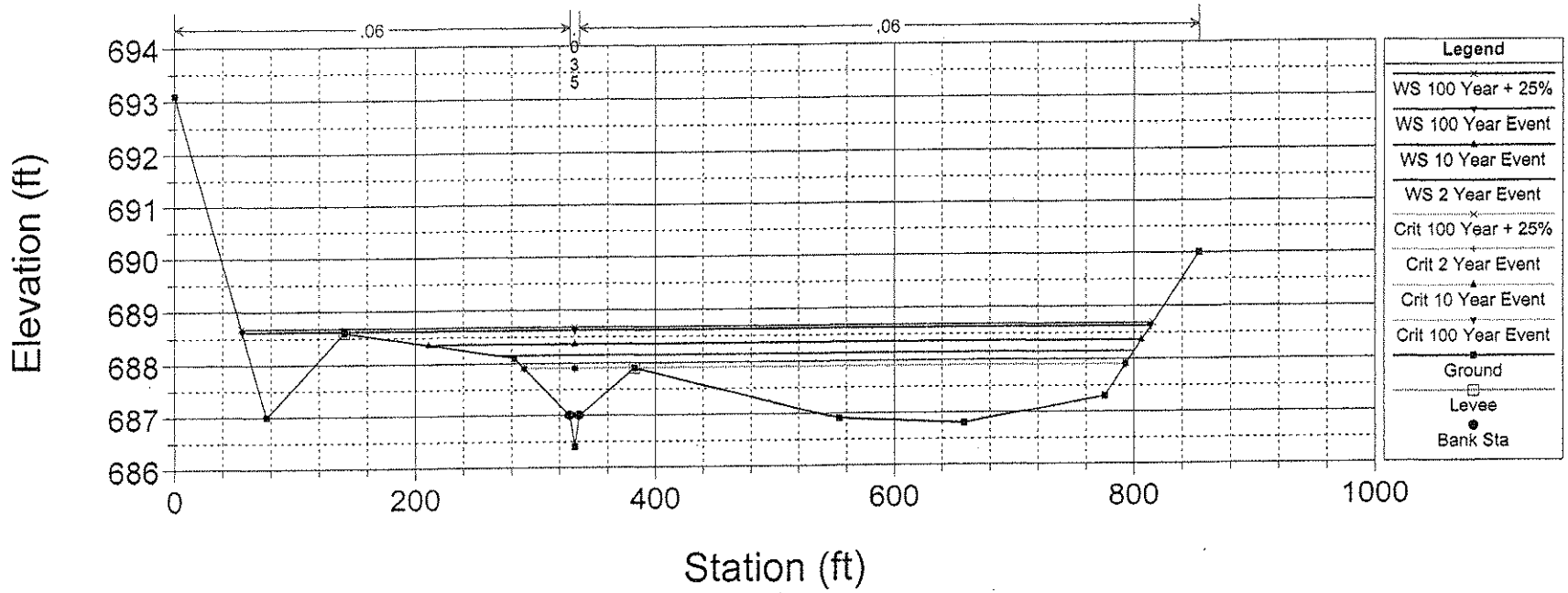
Route 15 Pondview Estates-08-27-07 Plan: Proposed Conditions 08-27-07

RS = 500 RIVER STATION 5+00



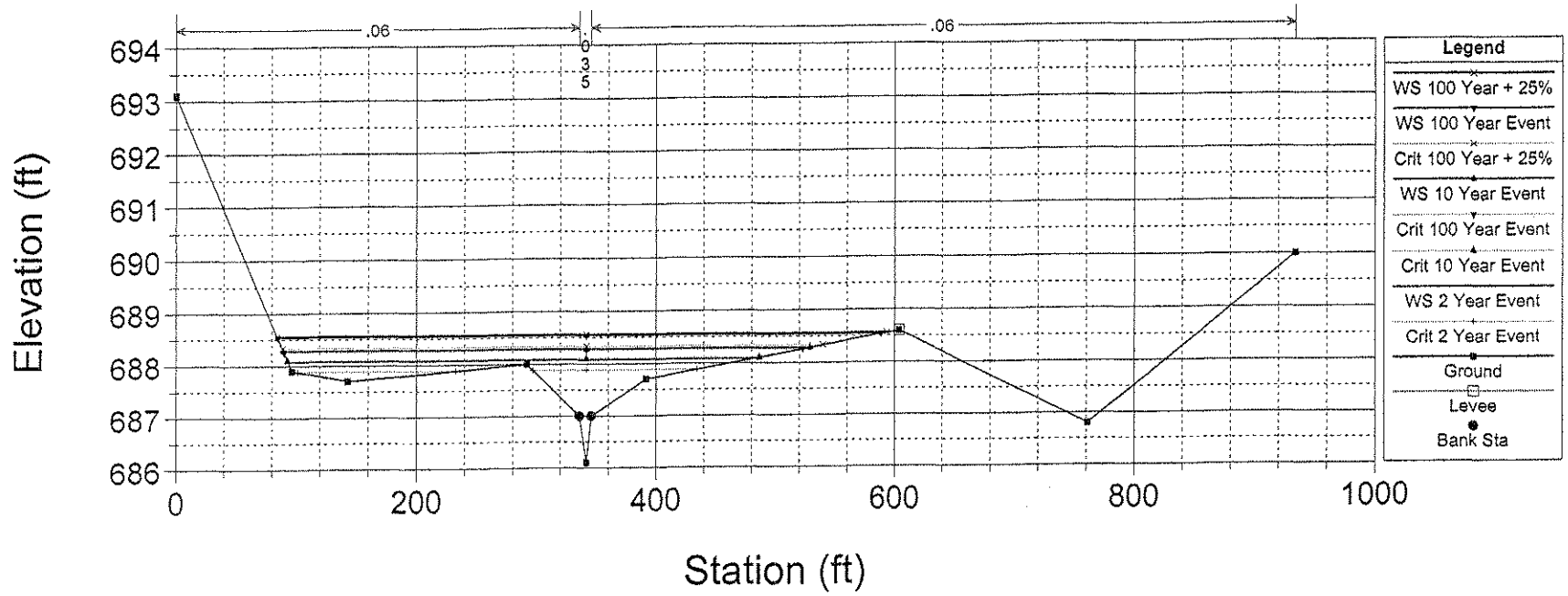
Route 15 Pondview Estates-08-27-07 Plan: Proposed Conditions 08-27-07

RS = 450 RIVER STATION 4+50



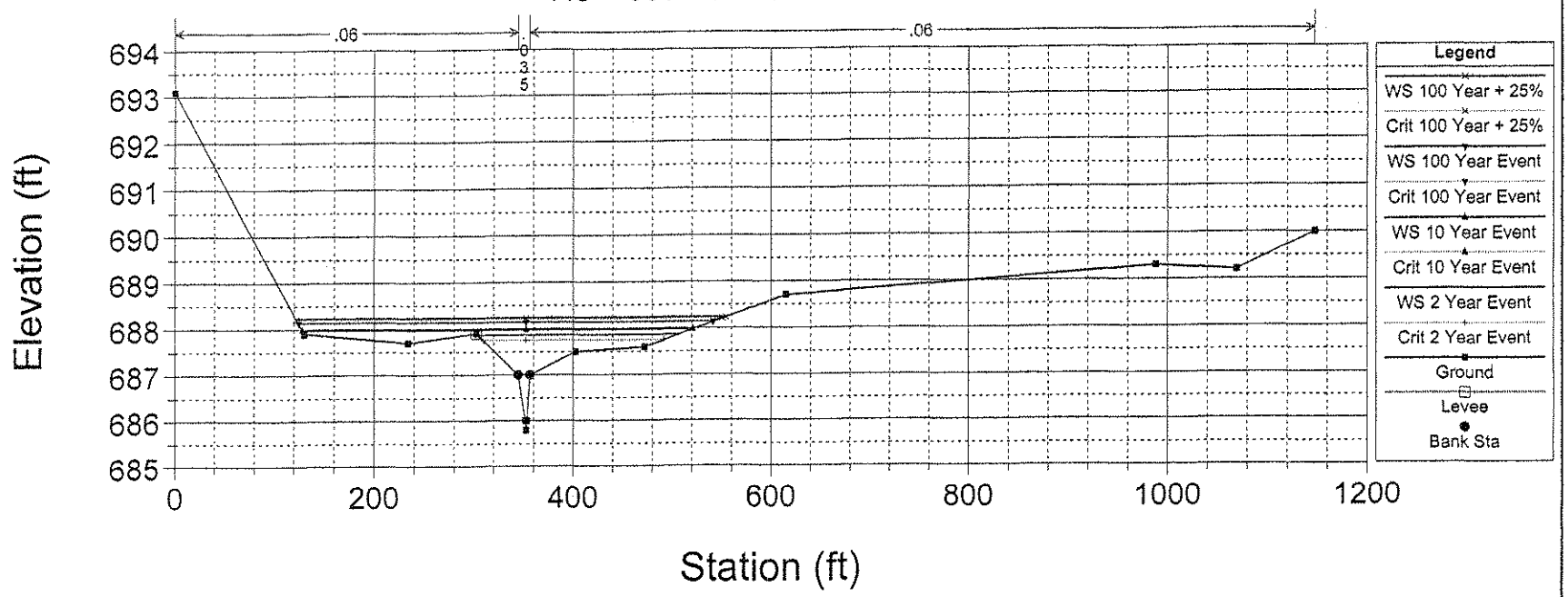
Route 15 Pondview Estates-08-27-07 Plan: Proposed Conditions 08-27-07

RS = 400 RIVER STATION 4+00



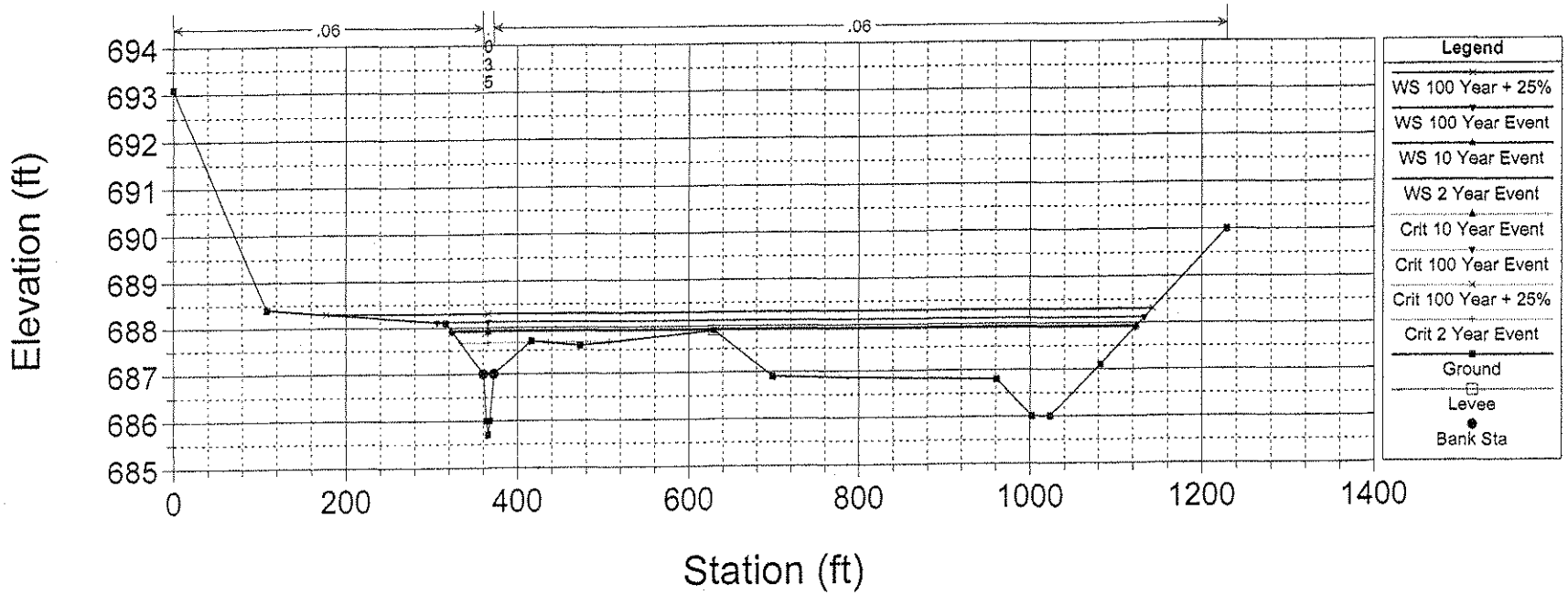
Route 15 Pondview Estates-08-27-07 Plan: Proposed Conditions 08-27-07

RS = 350 RIVER STATION 3+50



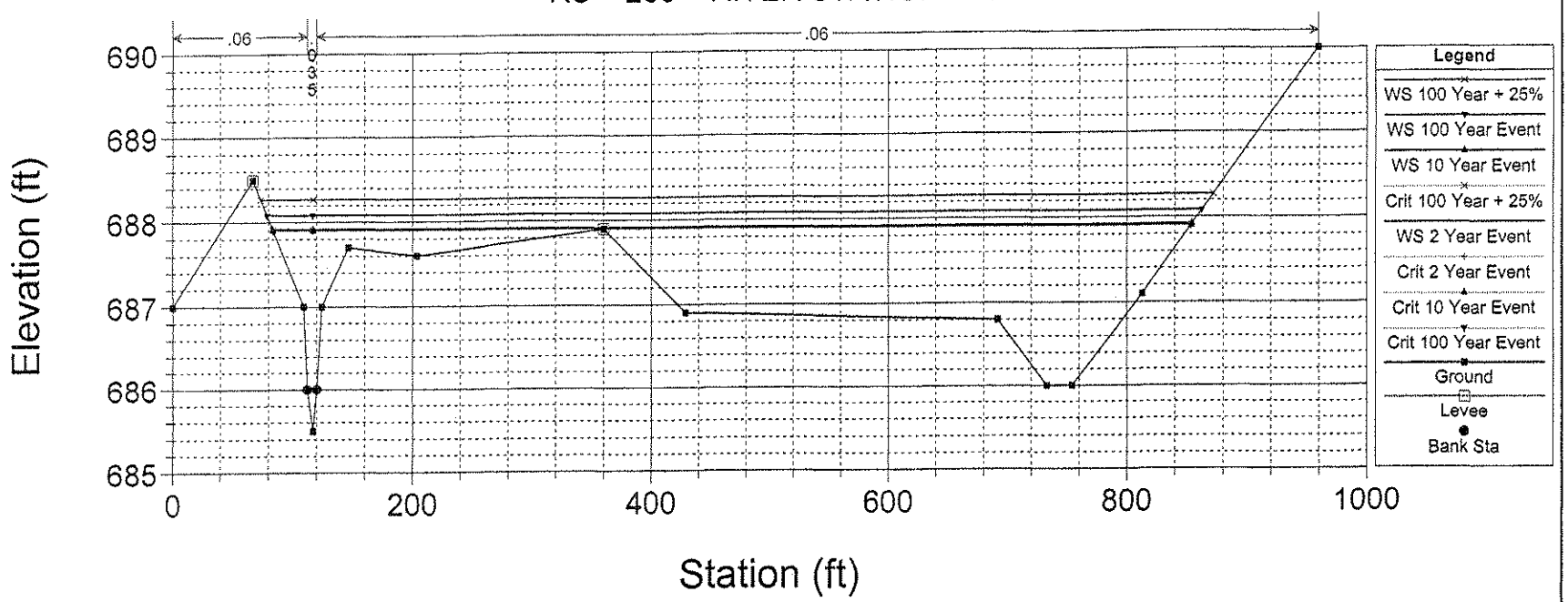
Route 15 Pondview Estates-08-27-07 Plan: Proposed Conditions 08-27-07

RS = 300 RIVER STATION 3+00



Route 15 Pondview Estates-08-27-07 Plan: Proposed Conditions 08-27-07

RS = 250 RIVER STATION 2+50



Route 15 Pondview Estates-08-27-07 Plan: Proposed Conditions 08-27-07

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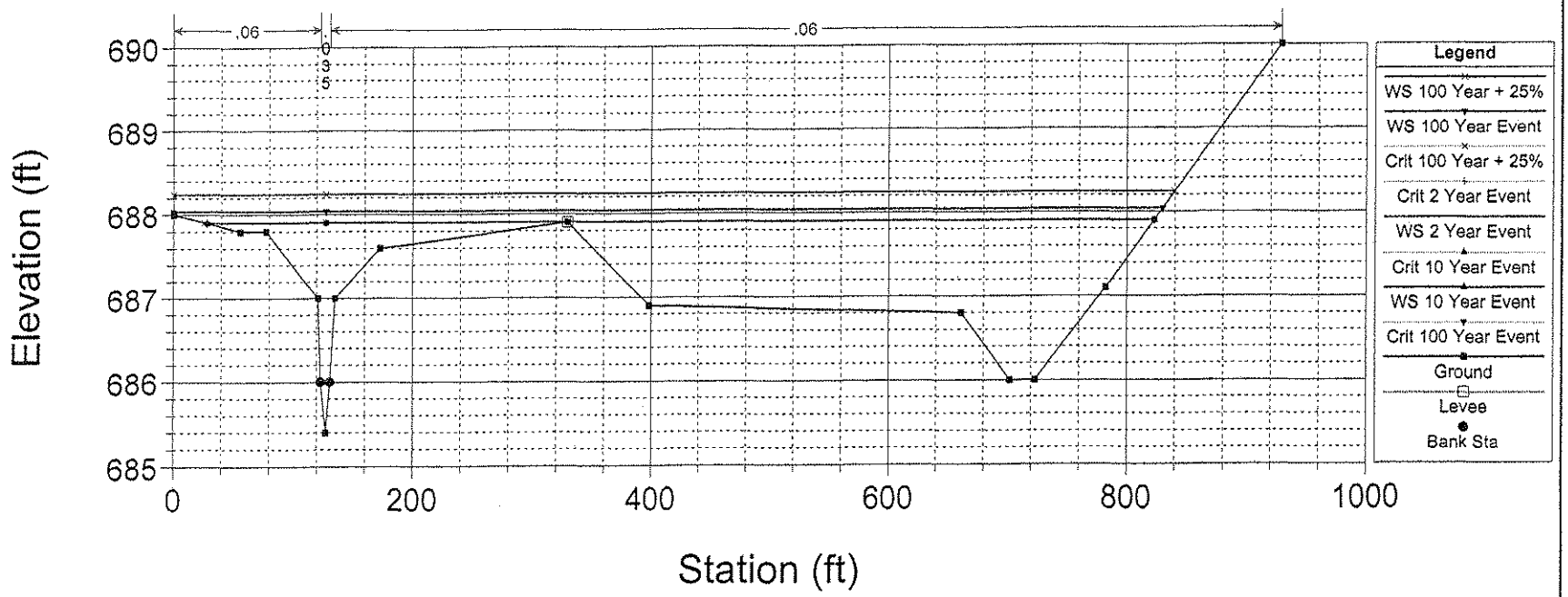
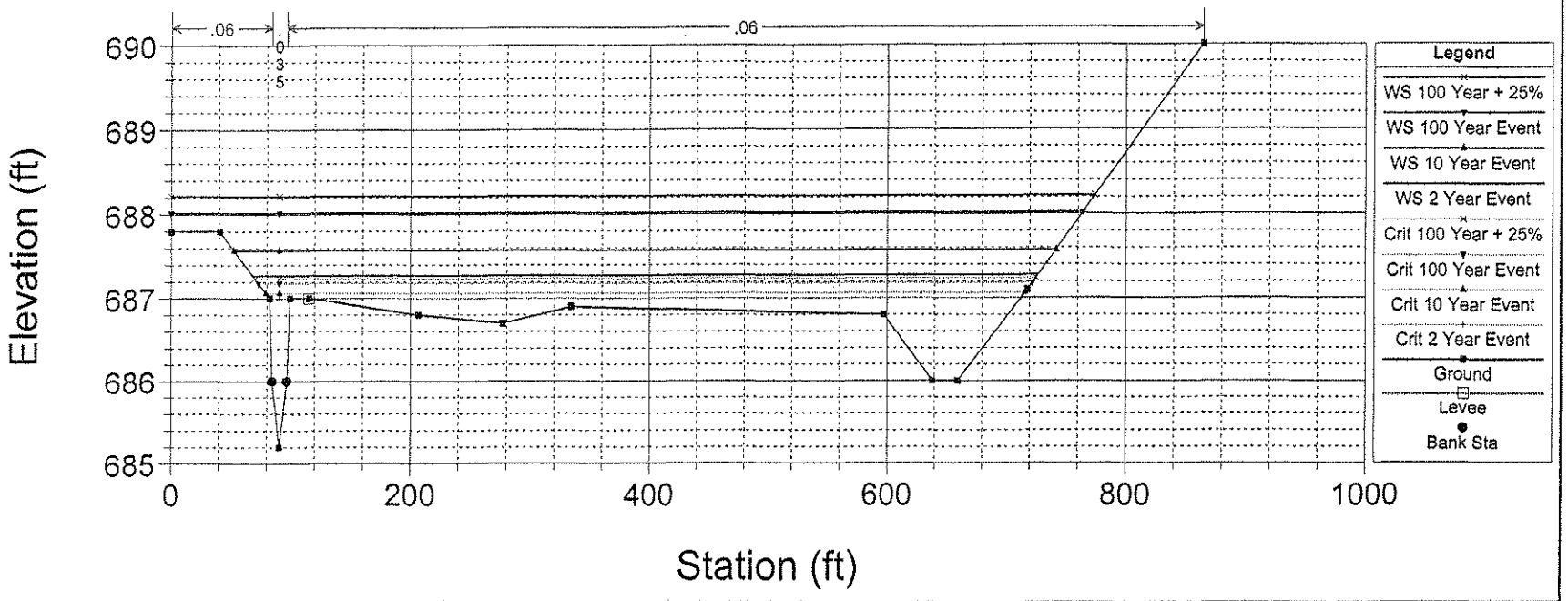


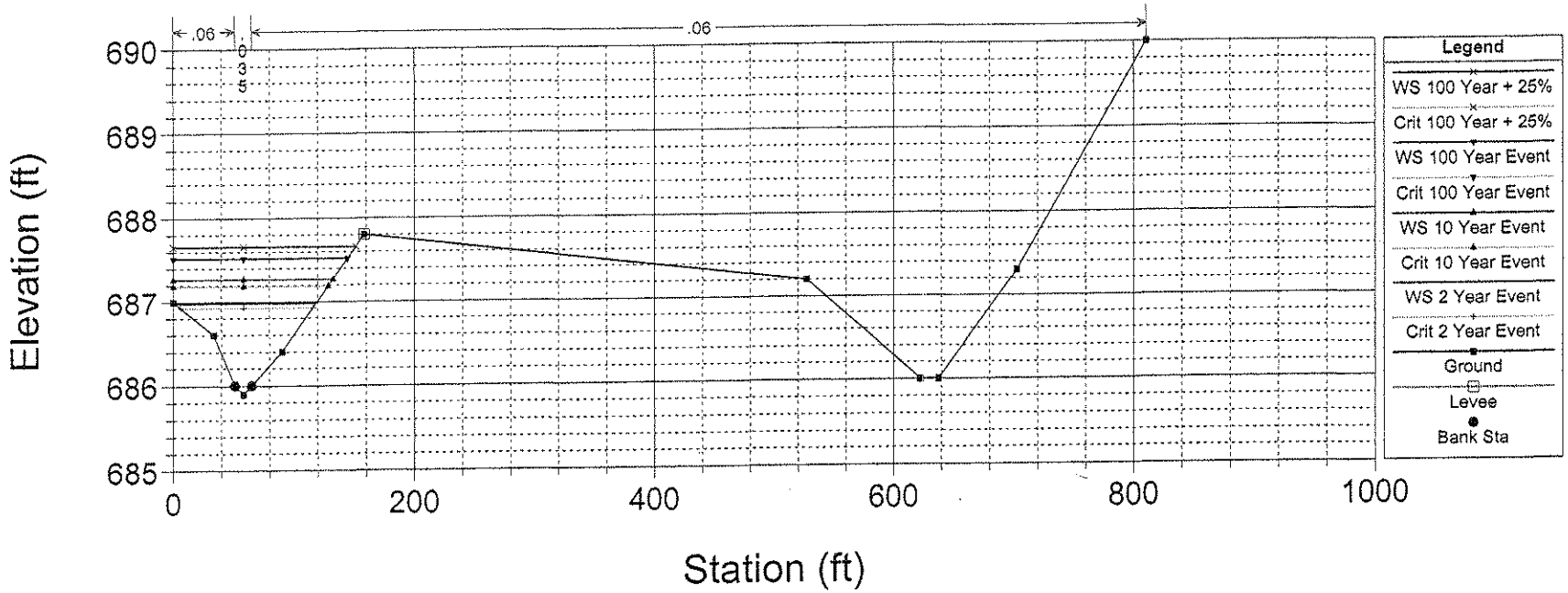
Route 15 Pondview Estates-08-27-07 Plan: Proposed Conditions 08-27-07

RS = 150 RIVER STATION 1+50



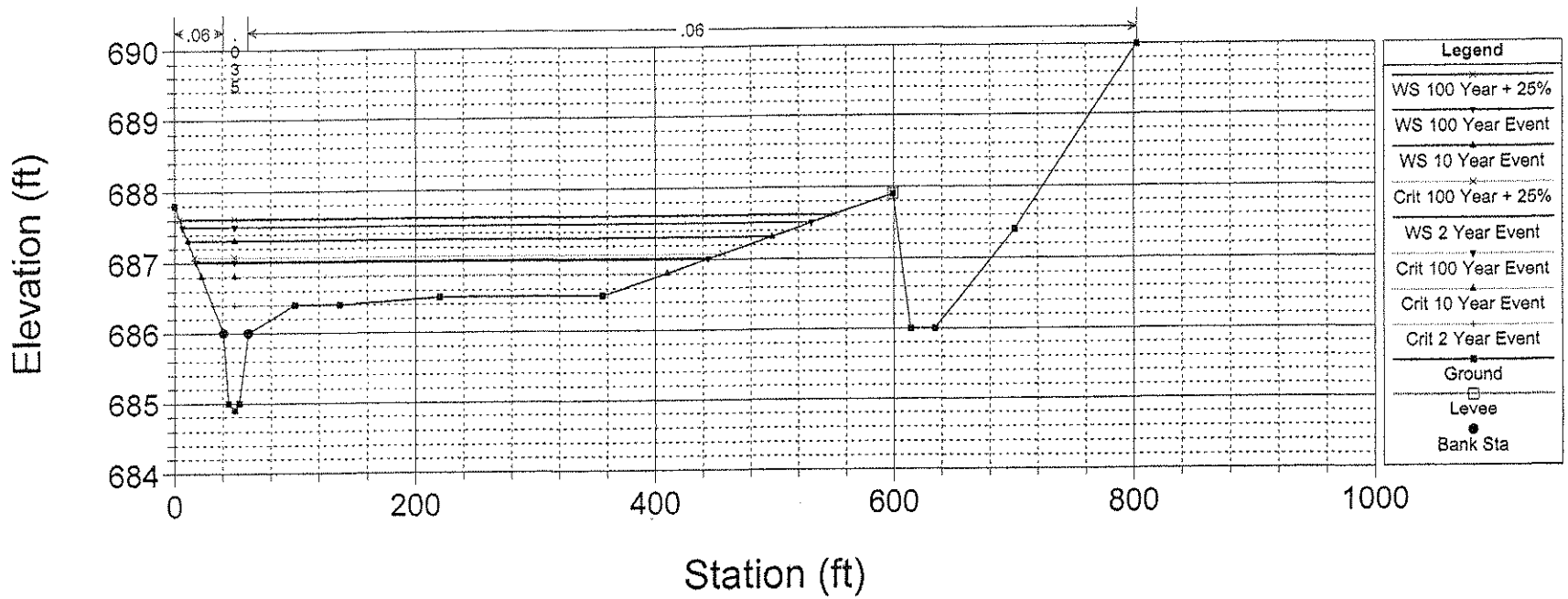
Route 15 Pondview Estates-08-27-07 Plan: Proposed Conditions 08-27-07

RS = 100 RIVER STATION 1+00



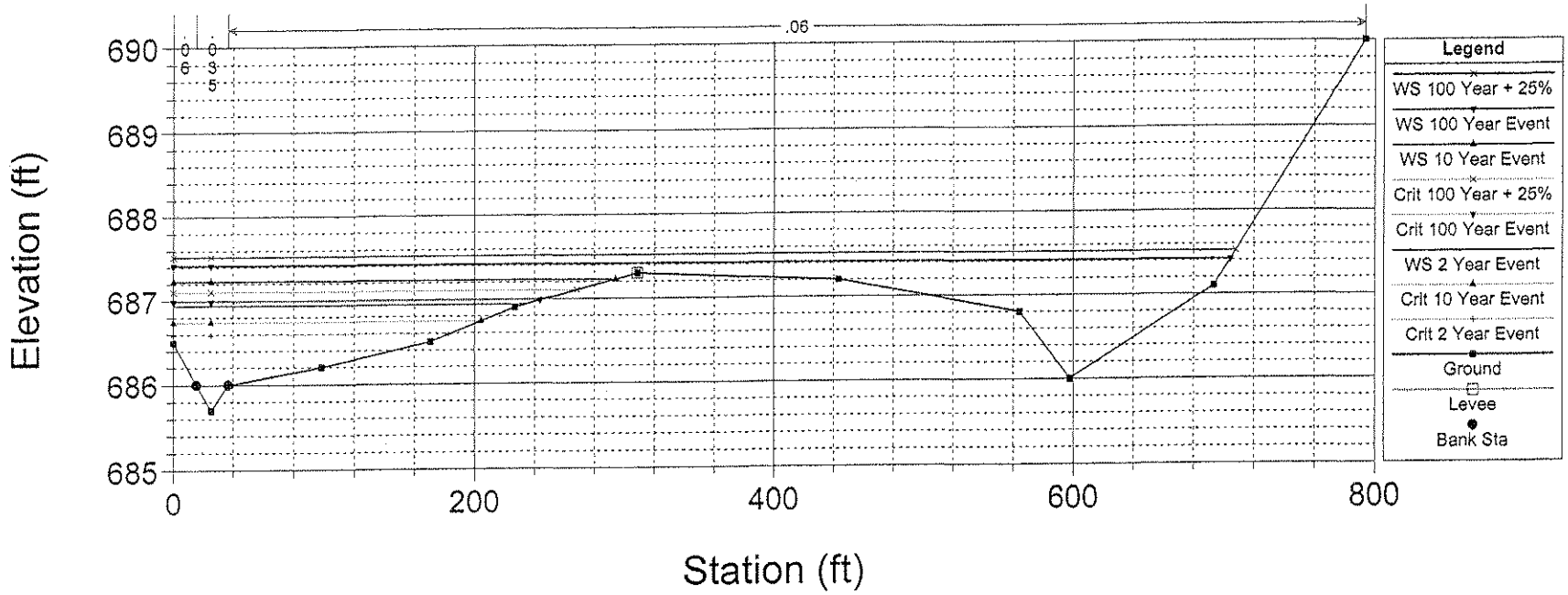
Route 15 Pondview Estates-08-27-07 Plan: Proposed Conditions 08-27-07

RS = 050 RIVER STATION 0+50



Route 15 Pondview Estates-08-27-07 Plan: Proposed Conditions 08-27-07

RS = 000 RIVER STATION 0+00 (DOWNSTREAM STUDY LIMIT)



```
HEC-RAS Version 3.1.3 May 2005
 U.S. Army Corp of Engineers
Hydrologic Engineering Center
      609 Second Street
      Davis, California

X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
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PROJECT DATA
Project Title: Route 15 Pondview Estates-08-27-07
Project File : pondview.prj
Run Date and Time: 9/13/2007 4:13:24 PM

Project in English units

PLAN DATA

Plan Title: Proposed Conditions 08-27-07
Plan File : n:\project\2002\0207212\01\H&H\Hydraulics\HEC-RAS final\pondview.p08

Geometry Title: Proposed Conditions
Geometry File : n:\project\2002\0207212\01\H&H\Hydraulics\HEC-RAS final\pondview.g03

Flow Title : Proposed Conditions2 Flow 08-27-07
Flow File : n:\project\2002\0207212\01\H&H\Hydraulics\HEC-RAS final\pondview.f06

Plan Summary Information:

Number of:					
Cross Sections	=	15	Multiple Openings	=	0
Culverts	=	1	Inline Structures	=	0
Bridges	=	0	Lateral Structures	=	0

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

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

FLOW DATA

Flow Title: Proposed Conditions2 Flow 08-27-07
Flow File : n:\project\2002\0207212\01\H&H\Hydraulics\HEC-RAS final\pondview.f06

Flow Data (cfs)

River	Reach	RS	2 Year Event	10 Year Event	100 Year Event	100 Year + 25%
TRIB TO GREENPON	UPSTR PHIPPS RD.	685.25	117	208	393	491.25
TRIB TO GREENPON	UPSTR PHIPPS RD.	550	120	212	400	500
TRIB TO GREENPON	UPSTR PHIPPS RD.	250	150	261	492	615

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
TRIB TO GREENPON	UPSTR PHIPPS RD.	2 Year Event	Normal S = 0.0002	Normal S = 0.0025
TRIB TO GREENPON	UPSTR PHIPPS RD.	10 Year Event	Normal S = 0.0002	Normal S = 0.0025
TRIB TO GREENPON	UPSTR PHIPPS RD.	100 Year Event	Normal S = 0.0002	Normal S = 0.0025

GEOMETRY DATA

Geometry Title: Proposed Conditions
Geometry File : n:\project\2002\0207212\01\H&H\Hydraulics\HEC-RAS final\pondview.g03

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 685.25

INPUT
Description: RIVER STATION 6+85.25 (WETLAND)
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	695	48.79	693	95.8	691	103.71	688	115.03	691
154.73	691.5	296.5	689.2	348.24	695				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	95.8	.03	115.03	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
95.8	115.03	30	30	30	.1	.3

CROSS SECTION OUTPUT Profile #2 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	691.73	Element			
Vel Head (ft)	0.00	Wt. n-Val.	0.050	0.030	0.050
W.S. Elev (ft)	691.73	Reach Len. (ft)	30.00	30.00	30.00

Crit W.S. (ft)	690.07	Flow Area (sq ft)	6.23	42.85	242.86
E.G. Slope (ft/ft)	0.000100	Area (sq ft)	6.23	42.85	242.86
Q Total (cfs)	117.00	Flow (cfs)	0.94	35.06	81.00
Top Width (ft)	240.37	Top Width (ft)	17.11	19.23	204.02
Vel Total (ft/s)	0.40	Avg. Vel. (ft/s)	0.15	0.82	0.33
Max Chl Dpth (ft)	3.73	Hydr. Depth (ft)	0.36	2.23	1.19
Conv. Total (cfs)	11703.2	Conv. (cfs)	94.3	3506.8	8102.1
Length Wtd. (ft)	30.00	Wetted Per. (ft)	17.13	20.17	204.19
Min Ch El (ft)	688.00	Shear (lb/sq ft)	0.00	0.01	0.01
Alpha	1.73	Stream Power (lb/ft s)	0.00	0.01	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.42	0.47	3.89
C & E Loss (ft)	0.00	Cum SA (acres)	0.89	0.24	5.26

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #10 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	693.15	Element			
Vel Head (ft)	0.00	Wt. n-Val.	0.050	0.030	0.050
W.S. Elev (ft)	693.14	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	690.34	Flow Area (sq ft)	54.08	70.09	540.87
E.G. Slope (ft/ft)	0.000028	Area (sq ft)	54.08	70.09	540.87
Q Total (cfs)	208.00	Flow (cfs)	8.91	42.26	156.83
Top Width (ft)	286.44	Top Width (ft)	50.54	19.23	216.66
Vel Total (ft/s)	0.31	Avg. Vel. (ft/s)	0.16	0.60	0.29
Max Chl Dpth (ft)	5.14	Hydr. Depth (ft)	1.07	3.64	2.50
Conv. Total (cfs)	39202.6	Conv. (cfs)	1680.1	7964.7	29557.8
Length Wtd. (ft)	30.00	Wetted Per. (ft)	50.59	20.17	216.90
Min Ch El (ft)	688.00	Shear (lb/sq ft)	0.00	0.01	0.00
Alpha	1.41	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.94	0.66	5.49
C & E Loss (ft)	0.00	Cum SA (acres)	1.36	0.24	5.62

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	693.46	Element			
Vel Head (ft)	0.01	Wt. n-Val.	0.050	0.030	0.050
W.S. Elev (ft)	693.45	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	690.70	Flow Area (sq ft)	70.89	76.04	608.34
E.G. Slope (ft/ft)	0.000069	Area (sq ft)	70.89	76.04	608.34
Q Total (cfs)	393.00	Flow (cfs)	20.03	76.00	296.98
Top Width (ft)	296.75	Top Width (ft)	58.09	19.23	219.42
Vel Total (ft/s)	0.52	Avg. Vel. (ft/s)	0.28	1.00	0.49
Max Chl Dpth (ft)	5.45	Hydr. Depth (ft)	1.22	3.95	2.77
Conv. Total (cfs)	47179.0	Conv. (cfs)	2404.1	9123.3	35651.6
Length Wtd. (ft)	30.00	Wetted Per. (ft)	58.15	20.17	219.68
Min Ch El (ft)	688.00	Shear (lb/sq ft)	0.01	0.02	0.01
Alpha	1.39	Stream Power (lb/ft s)	0.00	0.02	0.01
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1.72	0.81	7.29
C & E Loss (ft)	0.00	Cum SA (acres)	1.79	0.24	6.10

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Year + 25%

			Left OB	Channel	Right OB
E.G. Elev (ft)	693.57	Element			
Vel Head (ft)	0.01	Wt. n-Val.	0.050	0.030	0.050
W.S. Elev (ft)	693.56	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	690.85	Flow Area (sq ft)	77.22	78.09	631.81
E.G. Slope (ft/ft)	0.000096	Area (sq ft)	77.22	78.09	631.81
Q Total (cfs)	491.25	Flow (cfs)	26.41	93.53	371.31
Top Width (ft)	300.30	Top Width (ft)	60.70	19.23	220.37
Vel Total (ft/s)	0.62	Avg. Vel. (ft/s)	0.34	1.20	0.59
Max Chl Dpth (ft)	5.56	Hydr. Depth (ft)	1.27	4.06	2.87
Conv. Total (cfs)	50092.7	Conv. (cfs)	2693.0	9537.2	37862.5
Length Wtd. (ft)	30.00	Wetted Per. (ft)	60.75	20.17	220.64
Min Ch El (ft)	688.00	Shear (lb/sq ft)	0.01	0.02	0.02
Alpha	1.39	Stream Power (lb/ft s)	0.00	0.03	0.01
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1.89	0.83	8.15
C & E Loss (ft)	0.00	Cum SA (acres)	1.98	0.24	6.21

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 655.25

INPUT
Description: RIVER STATION 6+55.25 (WETLAND)
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-302	689.5	-152.5	689.2	-32.5	694.7	4.73	693.8	79.73	692.6
103.65	691	111.93	688	121.32	691	154.1	690.8	342.56	692
360	693.89								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-302	.05	103.65	.03	121.32	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
103.65	121.32	30	30	30	.1	.3

Left Levee Station= -32.5 Elevation=

CROSS SECTION OUTPUT Profile #2 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	691.72	Element			
Vel Head (ft)	0.04	Wt. n-Val.	0.050	0.030	0.050
W.S. Elev (ft)	691.68	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	690.51	Flow Area (sq ft)	3.49	38.57	86.89
E.G. Slope (ft/ft)	0.000596	Area (sq ft)	3.49	38.57	86.89
Q Total (cfs)	117.00	Flow (cfs)	1.23	75.69	40.08
Top Width (ft)	199.33	Top Width (ft)	10.21	17.67	171.45

Vel Total (ft/s)	0.91	Avg. Vel. (ft/s)	0.35	1.96	0.46
Max Chl Dpth (ft)	3.68	Hydr. Depth (ft)	0.34	2.18	0.51
Conv. Total (cfs)	4791.8	Conv. (cfs)	50.6	3099.9	1641.4
Length Wtd. (ft)	30.00	Wetted Per. (ft)	10.23	18.66	171.46
Min Ch El (ft)	688.00	Shear (lb/sq ft)	0.01	0.08	0.02
Alpha	3.12	Stream Power (lb/ft s)	0.00	0.15	0.01
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	0.41	0.44	3.77
C & E Loss (ft)	0.05	Cum SA (acres)	0.88	0.23	5.13

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #10 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	693.15	Element			
Vel Head (ft)	0.00	Wt. n-Val.	0.050	0.030	0.050
W.S. Elev (ft)	693.14	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	691.35	Flow Area (sq ft)	41.20	64.33	407.49
E.G. Slope (ft/ft)	0.000065	Area (sq ft)	41.20	64.33	407.49
Q Total (cfs)	208.00	Flow (cfs)	7.85	58.42	141.73
Top Width (ft)	307.15	Top Width (ft)	57.71	17.67	231.77
Vel Total (ft/s)	0.41	Avg. Vel. (ft/s)	0.19	0.91	0.35
Max Chl Dpth (ft)	5.14	Hydr. Depth (ft)	0.71	3.64	1.76
Conv. Total (cfs)	25885.4	Conv. (cfs)	977.5	7270.3	17637.6
Length Wtd. (ft)	30.00	Wetted Per. (ft)	57.77	18.66	231.83
Min Ch El (ft)	688.00	Shear (lb/sq ft)	0.00	0.01	0.01
Alpha	1.92	Stream Power (lb/ft s)	0.00	0.01	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.91	0.61	5.16
C & E Loss (ft)	0.00	Cum SA (acres)	1.33	0.23	5.46

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	693.46	Element			
Vel Head (ft)	0.01	Wt. n-Val.	0.050	0.030	0.050
W.S. Elev (ft)	693.45	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	691.77	Flow Area (sq ft)	61.66	69.71	478.46
E.G. Slope (ft/ft)	0.000144	Area (sq ft)	61.66	69.71	478.46
Q Total (cfs)	393.00	Flow (cfs)	18.99	99.71	274.30
Top Width (ft)	328.98	Top Width (ft)	76.73	17.67	234.57
Vel Total (ft/s)	0.64	Avg. Vel. (ft/s)	0.31	1.43	0.57
Max Chl Dpth (ft)	5.45	Hydr. Depth (ft)	0.80	3.95	2.04
Conv. Total (cfs)	32758.4	Conv. (cfs)	1583.1	8311.4	22863.9
Length Wtd. (ft)	30.00	Wetted Per. (ft)	76.79	18.66	234.66
Min Ch El (ft)	688.00	Shear (lb/sq ft)	0.01	0.03	0.02
Alpha	1.81	Stream Power (lb/ft s)	0.00	0.05	0.01
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1.68	0.76	6.92
C & E Loss (ft)	0.00	Cum SA (acres)	1.75	0.23	5.95

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100 Year + 25%

			Left OB	Channel	Right OB
E.G. Elev (ft)	693.56	Element			
Vel Head (ft)	0.02	Wt. n-Val.	0.050	0.030	0.050
W.S. Elev (ft)	693.55	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	691.91	Flow Area (sq ft)	69.95	71.54	502.81
E.G. Slope (ft/ft)	0.000194	Area (sq ft)	69.95	71.54	502.81
Q Total (cfs)	491.25	Flow (cfs)	25.76	120.78	344.71
Top Width (ft)	336.41	Top Width (ft)	83.21	17.67	235.53
Vel Total (ft/s)	0.76	Avg. Vel. (ft/s)	0.37	1.69	0.69
Max Chl Dpth (ft)	5.55	Hydr. Depth (ft)	0.84	4.05	2.13
Conv. Total (cfs)	35296.9	Conv. (cfs)	1850.6	8678.2	24768.0
Length Wtd. (ft)	30.00	Wetted Per. (ft)	83.27	18.66	235.62
Min Ch El (ft)	688.00	Shear (lb/sq ft)	0.01	0.05	0.03
Alpha	1.79	Stream Power (lb/ft s)	0.00	0.08	0.02
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1.84	0.78	7.76
C & E Loss (ft)	0.00	Cum SA (acres)	1.93	0.23	6.05

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 625.25

INPUT
Description: RIVER STATION 6+25.25 (UPSTREAM CULVERT FACE)
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-95	693.5	-20	693.95	30	693.13	80.08	692	109.94	689
117.92	686.04	118.92	686.04	119.92	686.04	128.17	689	166.43	688.4
251.02	691	296.2	693	320	693.72				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-95	.05	109.94	.03	128.17	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
109.94	128.17	75.25	75.25	75.25	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-95	116.92	692.65	F
120.92	320	692.65	F

CROSS SECTION OUTPUT Profile #2 Year Event

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	691.64	Wt. n-Val.		0.030	
Vel Head (ft)	0.54	Reach Len. (ft)	75.25	75.25	75.25
W.S. Elev (ft)	691.11	Flow Area (sq ft)		19.91	
Crit W.S. (ft)	689.11	Area (sq ft)	22.12	68.38	211.42
E.G. Slope (ft/ft)	0.001728	Flow (cfs)		117.00	
Q Total (cfs)	117.00	Top Width (ft)	20.99	18.23	125.30
Top Width (ft)	164.52	Avg. Vel. (ft/s)		5.88	
Vel Total (ft/s)	5.88	Hydr. Depth (ft)		4.98	
Max Chl Dpth (ft)	5.07	Conv. (cfs)		2814.5	
Conv. Total (cfs)	2814.5	Wetted Per. (ft)		4.13	
Length Wtd. (ft)	75.25	Shear (lb/sq ft)		0.52	
Min Ch El (ft)	686.04	Stream Power (lb/ft s)		3.06	
Alpha	1.00	Cum Volume (acre-ft)	0.40	0.41	3.67
Frctn Loss (ft)		Cum SA (acres)	0.87	0.22	5.03

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #10 Year Event

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	693.14	Wt. n-Val.	0.050	0.030	0.050
Vel Head (ft)	0.00	Reach Len. (ft)	75.25	75.25	75.25
W.S. Elev (ft)	693.14	Flow Area (sq ft)	107.74	105.44	512.94
Crit W.S. (ft)	690.52	Area (sq ft)	107.74	105.44	512.94
E.G. Slope (ft/ft)	0.000016	Flow (cfs)	15.64	65.38	126.97
Q Total (cfs)	208.00	Top Width (ft)	80.64	18.23	172.70
Top Width (ft)	271.57	Avg. Vel. (ft/s)	0.15	0.62	0.25
Vel Total (ft/s)	0.29	Hydr. Depth (ft)	1.34	5.78	2.97
Max Chl Dpth (ft)	7.10	Conv. (cfs)	3879.2	16212.8	31485.4
Conv. Total (cfs)	51577.4	Wetted Per. (ft)	80.80	19.28	172.80
Length Wtd. (ft)	75.25	Shear (lb/sq ft)	0.00	0.01	0.00
Min Ch El (ft)	686.04	Stream Power (lb/ft s)	0.00	0.00	0.00
Alpha	1.95	Cum Volume (acre-ft)	0.86	0.55	4.85
Frctn Loss (ft)		Cum SA (acres)	1.28	0.22	5.32
C & E Loss (ft)					

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #100 Year Event

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	693.45	Wt. n-Val.	0.050	0.030	0.050
Vel Head (ft)	0.01	Reach Len. (ft)	75.25	75.25	75.25
W.S. Elev (ft)	693.45	Flow Area (sq ft)	135.12	110.99	567.06
Crit W.S. (ft)	692.66	Area (sq ft)	135.12	110.99	567.06
E.G. Slope (ft/ft)	0.000045	Flow (cfs)	33.15	118.79	241.05
Q Total (cfs)	393.00	Top Width (ft)	99.20	18.23	182.77
Top Width (ft)	300.20	Avg. Vel. (ft/s)	0.25	1.07	0.43
Vel Total (ft/s)	0.48	Hydr. Depth (ft)	1.36	6.09	3.10
Max Chl Dpth (ft)	7.41	Conv. (cfs)	4928.9	17660.3	35835.7
Conv. Total (cfs)	58424.8	Wetted Per. (ft)	99.37	19.28	182.87
Length Wtd. (ft)	75.25	Shear (lb/sq ft)	0.00	0.02	0.01
Min Ch El (ft)	686.04	Stream Power (lb/ft s)	0.00	0.02	0.00
Alpha	1.98				

Frctn Loss (ft)	Cum Volume (acre-ft)	1.61	0.70	6.56
C & E Loss (ft)	Cum SA (acres)	1.69	0.22	5.80

CROSS SECTION OUTPUT Profile #100 Year + 25%

			Left OB	Channel	Right OB
E.G. Elev (ft)	693.56	Element			
Vel Head (ft)	0.01	Wt. n-Val.	0.050	0.030	0.050
W.S. Elev (ft)	693.55	Reach Len. (ft)	75.25	75.25	75.25
Crit W.S. (ft)	692.66	Flow Area (sq ft)	145.92	112.88	586.14
E.G. Slope (ft/ft)	0.000065	Area (sq ft)	145.92	112.88	586.14
Q Total (cfs)	491.25	Flow (cfs)	43.26	146.44	301.56
Top Width (ft)	318.16	Top Width (ft)	113.74	18.23	186.19
Vel Total (ft/s)	0.58	Avg. Vel. (ft/s)	0.30	1.30	0.51
Max Chl Dpth (ft)	7.51	Hydr. Depth (ft)	1.28	6.19	3.15
Conv. Total (cfs)	60931.6	Conv. (cfs)	5365.1	18163.3	37403.2
Length Wtd. (ft)	75.25	Wetted Per. (ft)	113.96	19.28	186.29
Min Ch El (ft)	686.04	Shear (lb/sq ft)	0.01	0.02	0.01
Alpha	1.99	Stream Power (lb/ft s)	0.00	0.03	0.01
Frctn Loss (ft)		Cum Volume (acre-ft)	1.76	0.72	7.39
C & E Loss (ft)		Cum SA (acres)	1.87	0.22	5.91

CULVERT

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 587.625

INPUT
Description: RIVER STATION 5+87.625 (CULVERT@PHIPPS ROAD)
Distance from Upstream XS = .15
Deck/Roadway Width = 75
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 11

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	692.7		50	692.65		100	692.79	
150	692.83		200	692.75		250	693.02	
300	693.72		350	694.13		400	694.52	
450	694.81		500	694.95				

Upstream Bridge Cross Section Data
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-95	693.5	-20	693.95	30	693.13	80.08	692	109.94	689
117.92	686.04	118.92	686.04	119.92	686.04	128.17	689	166.43	688.4
251.02	691	296.2	693	320	693.72				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-95	.05	109.94	.03	128.17	.05

Bank Sta: Left	Right	Coeff Contr.	Expan.
109.94	128.17	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent

```
     -95  116.92  692.65        F
  120.92     320  692.65        F

Downstream  Deck/Roadway Coordinates
    num=       14
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
       0  693.15              50  693.05              100     693
     150   692.7             200  692.65              250  692.79
     300  692.83             350  692.75              400  693.02
     450  693.72             500  694.13              550  694.52
     600  694.81             650  694.95

Downstream Bridge Cross Section Data
Station Elevation Data    num=       13
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0   693.2   37.72   693.1  188.54   687.8  242.11     688  264.82  686.04
  265.82  686.04  266.82  686.04  286.05     688  323.59   687.8  382.91   687.8
   443.2     690   471.7  694.03   507.7  694.13

Manning's n Values        num=        3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  242.11    .035  286.05     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
        242.11  286.05            .1        .3
Ineffective Flow     num=        2
   Sta L   Sta R    Elev  Permanent
       0  263.82  692.25        F
  267.82   507.7  692.25        F

Upstream Embankment side slope                =       0 horiz. to 1.0 vertical
Downstream Embankment side slope              =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins           =  692.79
Energy head used in spillway design           =
Spillway height used in design                =
Weir crest shape                              = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
Culvert #1      Circular      4
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 1 - Square edge entrance with headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                .15      75     .011     .011        0                  .5                  1
Upstream   Elevation =  685.04
           Centerline Station =  118.92
Downstream Elevation =  685.04
           Centerline Station =  265.82

CULVERT OUTPUT  Profile #2 Year Event  Culv Group:  Culvert #1

  Q Culv Group (cfs)        117.00    Culv Full Len (ft)         75.00
  # Barrels                      1    Culv Vel US (ft/s)          9.31
  Q Barrel (cfs)            117.00    Culv Vel DS (ft/s)          9.31
```

E.G. US. (ft)	691.65	Culv Inv El Up (ft)	685.04
W.S. US. (ft)	691.11	Culv Inv El Dn (ft)	685.04
E.G. DS (ft)	690.62	Culv Frctn Ls (ft)	0.36
W.S. DS (ft)	689.11	Culv Exit Loss (ft)	
Delta EG (ft)	1.03	Culv Entr Loss (ft)	0.67
Delta WS (ft)	2.00	Q Weir (cfs)	
E.G. IC (ft)	691.17	Weir Sta Lft (ft)	
E.G. OC (ft)	691.65	Weir Sta Rgt (ft)	
Culvert Control	Outlet	Weir Submerg	
Culv WS Inlet (ft)	689.04	Weir Max Depth (ft)	
Culv WS Outlet (ft)	689.04	Weir Avg Depth (ft)	
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	
Culv Crt Depth (ft)	3.26	Min El Weir Flow (ft)	692.79

CULVERT OUTPUT Profile #10 Year Event Culv Group: Culvert #1

Q Culv Group (cfs)	75.30	Culv Full Len (ft)	75.00
# Barrels	1	Culv Vel US (ft/s)	5.99
Q Barrel (cfs)	75.30	Culv Vel DS (ft/s)	5.99
E.G. US. (ft)	693.14	Culv Inv El Up (ft)	685.04
W.S. US. (ft)	693.14	Culv Inv El Dn (ft)	685.04
E.G. DS (ft)	692.72	Culv Frctn Ls (ft)	0.15
W.S. DS (ft)	690.50	Culv Exit Loss (ft)	
Delta EG (ft)	0.43	Culv Entr Loss (ft)	0.28
Delta WS (ft)	2.64	Q Weir (cfs)	132.70
E.G. IC (ft)	693.03	Weir Sta Lft (ft)	26.69
E.G. OC (ft)	693.14	Weir Sta Rgt (ft)	261.74
Culvert Control	Outlet	Weir Submerg	0.00
Culv WS Inlet (ft)	689.04	Weir Max Depth (ft)	0.53
Culv WS Outlet (ft)	689.04	Weir Avg Depth (ft)	0.35
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	83.25
Culv Crt Depth (ft)	2.63	Min El Weir Flow (ft)	692.79

CULVERT OUTPUT Profile #100 Year Event Culv Group: Culvert #1

Q Culv Group (cfs)	83.01	Culv Full Len (ft)	75.00
# Barrels	1	Culv Vel US (ft/s)	6.61
Q Barrel (cfs)	83.01	Culv Vel DS (ft/s)	6.61
E.G. US. (ft)	693.45	Culv Inv El Up (ft)	685.04
W.S. US. (ft)	693.45	Culv Inv El Dn (ft)	685.04
E.G. DS (ft)	692.26	Culv Frctn Ls (ft)	0.18
W.S. DS (ft)	692.26	Culv Exit Loss (ft)	0.68
Delta EG (ft)	1.19	Culv Entr Loss (ft)	0.34
Delta WS (ft)	1.19	Q Weir (cfs)	306.96
E.G. IC (ft)	693.38	Weir Sta Lft (ft)	10.30
E.G. OC (ft)	693.45	Weir Sta Rgt (ft)	280.94
Culvert Control	Outlet	Weir Submerg	0.00
Culv WS Inlet (ft)	689.04	Weir Max Depth (ft)	0.80
Culv WS Outlet (ft)	689.04	Weir Avg Depth (ft)	0.56
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	151.22
Culv Crt Depth (ft)	2.76	Min El Weir Flow (ft)	692.79

CULVERT OUTPUT Profile #100 Year + 25% Culv Group: Culvert #1

Q Culv Group (cfs)	86.63	Culv Full Len (ft)	75.00
# Barrels	1	Culv Vel US (ft/s)	6.89
Q Barrel (cfs)	86.63	Culv Vel DS (ft/s)	6.89
E.G. US. (ft)	693.56	Culv Inv El Up (ft)	685.04
W.S. US. (ft)	693.55	Culv Inv El Dn (ft)	685.04
E.G. DS (ft)	692.26	Culv Frctn Ls (ft)	0.20
W.S. DS (ft)	692.26	Culv Exit Loss (ft)	0.73
Delta EG (ft)	1.30	Culv Entr Loss (ft)	0.37
Delta WS (ft)	1.29	Q Weir (cfs)	404.62
E.G. IC (ft)	693.46	Weir Sta Lft (ft)	-95.00
E.G. OC (ft)	693.56	Weir Sta Rgt (ft)	289.54
Culvert Control	Outlet	Weir Submerg	0.00
Culv WS Inlet (ft)	689.04	Weir Max Depth (ft)	0.92
Culv WS Outlet (ft)	689.04	Weir Avg Depth (ft)	0.62
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	185.24
Culv Crt Depth (ft)	2.82	Min El Weir Flow (ft)	692.79

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 550

INPUT
Description: RIVER STATION 5+50 (DOWNSTREAM PROJECT LIMITS)
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	693.2	37.72	693.1	188.54	687.8	242.11	688	264.82	686.04
265.82	686.04	266.82	686.04	286.05	688	323.59	687.8	382.91	687.8
443.2	690	471.7	694.03	507.7	694.13				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	242.11	.035	286.05	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
242.11	286.05	50	50	50	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	263.82	692.25	F
267.82	507.7	692.25	F

CROSS SECTION OUTPUT Profile #2 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	690.62	Element			
Vel Head (ft)	1.51	Wt. n-Val.		0.035	
W.S. Elev (ft)	689.11	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	689.11	Flow Area (sq ft)		12.17	
E.G. Slope (ft/ft)	0.012261	Area (sq ft)	88.95	93.65	146.23
Q Total (cfs)	120.00	Flow (cfs)		120.00	
Top Width (ft)	267.37	Top Width (ft)	90.76	43.94	132.67
Vel Total (ft/s)	9.86	Avg. Vel. (ft/s)		9.86	
Max Chl Dpth (ft)	3.07	Hydr. Depth (ft)		3.04	
Conv. Total (cfs)	1083.7	Conv. (cfs)		1083.7	
Length Wtd. (ft)	50.00	Wetted Per. (ft)		4.01	
Min Ch El (ft)	686.04	Shear (lb/sq ft)		2.32	

Alpha	1.00	Stream Power (lb/ft s)		22.91	
Frctn Loss (ft)	0.58	Cum Volume (acre-ft)	0.31	0.27	3.36
C & E Loss (ft)	0.41	Cum SA (acres)	0.77	0.16	4.80

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #10 Year Event

E.G. Elev (ft)	692.72	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.21	Wt. n-Val.		0.035	
W.S. Elev (ft)	690.50	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	690.50	Flow Area (sq ft)		17.76	
E.G. Slope (ft/ft)	0.010867	Area (sq ft)	243.44	155.02	355.65
Q Total (cfs)	212.00	Flow (cfs)		212.00	
Top Width (ft)	335.15	Top Width (ft)	130.50	43.94	160.71
Vel Total (ft/s)	11.94	Avg. Vel. (ft/s)		11.94	
Max Chl Dpth (ft)	4.46	Hydr. Depth (ft)		4.44	
Conv. Total (cfs)	2033.7	Conv. (cfs)		2033.7	
Length Wtd. (ft)	50.00	Wetted Per. (ft)		4.01	
Min Ch El (ft)	686.04	Shear (lb/sq ft)		3.01	
Alpha	1.00	Stream Power (lb/ft s)		35.88	
Frctn Loss (ft)	0.58	Cum Volume (acre-ft)	0.56	0.33	4.10
C & E Loss (ft)	0.62	Cum SA (acres)	1.10	0.16	5.03

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #100 Year Event

E.G. Elev (ft)	692.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	692.26	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	692.26	Flow Area (sq ft)	516.14	232.10	648.45
E.G. Slope (ft/ft)	0.000018	Area (sq ft)	516.14	232.10	648.45
Q Total (cfs)	400.00	Flow (cfs)	109.28	126.47	164.24
Top Width (ft)	397.47	Top Width (ft)	180.42	43.94	173.11

Vel Total (ft/s)	0.29	Avg. Vel. (ft/s)	0.21	0.54	0.25
Max Chl Dpth (ft)	6.22	Hydr. Depth (ft)	2.86	5.28	3.75
Conv. Total (cfs)	94258.1	Conv. (cfs)	25752.3	29802.9	38702.9
Length Wtd. (ft)	50.00	Wetted Per. (ft)	180.49	44.12	173.31
Min Ch El (ft)	686.04	Shear (lb/sq ft)	0.00	0.01	0.00
Alpha	1.62	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1.05	0.40	5.51
C & E Loss (ft)	0.02	Cum SA (acres)	1.45	0.16	5.49

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Year + 25%

E.G. Elev (ft)	692.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	692.26	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	692.26	Flow Area (sq ft)	516.14	232.10	648.45
E.G. Slope (ft/ft)	0.000028	Area (sq ft)	516.14	232.10	648.45
Q Total (cfs)	500.00	Flow (cfs)	136.61	158.09	205.30
Top Width (ft)	397.47	Top Width (ft)	180.42	43.94	173.11
Vel Total (ft/s)	0.36	Avg. Vel. (ft/s)	0.26	0.68	0.32
Max Chl Dpth (ft)	6.22	Hydr. Depth (ft)	2.86	5.28	3.75
Conv. Total (cfs)	94258.1	Conv. (cfs)	25752.3	29802.9	38702.9
Length Wtd. (ft)	50.00	Wetted Per. (ft)	180.49	44.12	173.31
Min Ch El (ft)	686.04	Shear (lb/sq ft)	0.01	0.01	0.01
Alpha	1.62	Stream Power (lb/ft s)	0.00	0.01	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	1.19	0.42	6.32
C & E Loss (ft)	0.02	Cum SA (acres)	1.61	0.16	5.60

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 500

INPUT
Description: RIVER STATION 5+00

Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	693.1	32.54	692.9	167.15	688.5	286.12	688	332.4	687
336.11	686.7	338.32	687	386.11	687.9	444.01	688.1	563.26	690

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	332.4	.035	338.32	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
332.4	338.32	50	50	50	.1	.3

CROSS SECTION OUTPUT Profile #2 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	689.08	Element			
Vel Head (ft)	1.54	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.54	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.87	Flow Area (sq ft)	6.84	4.11	7.85
E.G. Slope (ft/ft)	0.172536	Area (sq ft)	6.84	4.11	7.85
Q Total (cfs)	120.00	Flow (cfs)	29.54	56.56	33.90
Top Width (ft)	59.96	Top Width (ft)	25.17	5.92	28.88
Vel Total (ft/s)	6.38	Avg. Vel. (ft/s)	4.32	13.77	4.32
Max Chl Dpth (ft)	0.84	Hydr. Depth (ft)	0.27	0.69	0.27
Conv. Total (cfs)	288.9	Conv. (cfs)	71.1	136.2	81.6
Length Wtd. (ft)	50.00	Wetted Per. (ft)	25.17	5.95	28.88
Min Ch El (ft)	686.70	Shear (lb/sq ft)	2.93	7.43	2.93
Alpha	2.44	Stream Power (lb/ft s)	12.64	102.35	12.64
Frctn Loss (ft)	1.53	Cum Volume (acre-ft)	0.25	0.21	3.27
C & E Loss (ft)	0.00	Cum SA (acres)	0.70	0.14	4.71

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #10 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	691.01	Element			
Vel Head (ft)	3.42	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.60	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	688.24	Flow Area (sq ft)	8.27	4.43	9.49
E.G. Slope (ft/ft)	0.365023	Area (sq ft)	8.27	4.43	9.49
Q Total (cfs)	212.00	Flow (cfs)	55.31	93.22	63.47
Top Width (ft)	65.33	Top Width (ft)	27.67	5.92	31.74
Vel Total (ft/s)	9.56	Avg. Vel. (ft/s)	6.69	21.06	6.69
Max Chl Dpth (ft)	0.90	Hydr. Depth (ft)	0.30	0.75	0.30
Conv. Total (cfs)	350.9	Conv. (cfs)	91.6	154.3	105.0
Length Wtd. (ft)	50.00	Wetted Per. (ft)	27.67	5.95	31.75
Min Ch El (ft)	686.70	Shear (lb/sq ft)	6.81	16.95	6.81
Alpha	2.41	Stream Power (lb/ft s)	45.55	356.88	45.55
Frctn Loss (ft)	1.58	Cum Volume (acre-ft)	0.41	0.24	3.89
C & E Loss (ft)	0.12	Cum SA (acres)	1.01	0.14	4.92

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #100 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	691.85	Element			
Vel Head (ft)	4.05	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.80	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	688.47	Flow Area (sq ft)	14.78	5.62	16.95
E.G. Slope (ft/ft)	0.372013	Area (sq ft)	14.78	5.62	16.95
Q Total (cfs)	400.00	Flow (cfs)	121.07	140.01	138.92
Top Width (ft)	85.34	Top Width (ft)	36.98	5.92	42.43
Vel Total (ft/s)	10.71	Avg. Vel. (ft/s)	8.19	24.92	8.19
Max Chl Dpth (ft)	1.10	Hydr. Depth (ft)	0.40	0.95	0.40
Conv. Total (cfs)	655.8	Conv. (cfs)	198.5	229.6	227.8
Length Wtd. (ft)	50.00	Wetted Per. (ft)	36.99	5.95	42.44
Min Ch El (ft)	686.70	Shear (lb/sq ft)	9.28	21.92	9.28
Alpha	2.28	Stream Power (lb/ft s)	76.01	546.28	76.02
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.74	0.27	5.13
C & E Loss (ft)	0.41	Cum SA (acres)	1.32	0.14	5.37

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Year + 25%

			Left OB	Channel	Right OB
E.G. Elev (ft)	691.86	Element			
Vel Head (ft)	3.96	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.90	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	688.55	Flow Area (sq ft)	18.75	6.22	21.52
E.G. Slope (ft/ft)	0.340223	Area (sq ft)	18.75	6.22	21.52
Q Total (cfs)	500.00	Flow (cfs)	159.10	158.51	182.40
Top Width (ft)	95.45	Top Width (ft)	41.66	5.92	47.86
Vel Total (ft/s)	10.76	Avg. Vel. (ft/s)	8.48	25.49	8.48
Max Chl Dpth (ft)	1.20	Hydr. Depth (ft)	0.45	1.05	0.45
Conv. Total (cfs)	857.2	Conv. (cfs)	272.8	271.7	312.7
Length Wtd. (ft)	50.00	Wetted Per. (ft)	41.67	5.95	47.87
Min Ch El (ft)	686.70	Shear (lb/sq ft)	9.56	22.19	9.55
Alpha	2.21	Stream Power (lb/ft s)	81.09	565.61	80.93
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.88	0.28	5.94
C & E Loss (ft)	0.40	Cum SA (acres)	1.48	0.14	5.47

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 450

INPUT
Description: RIVER STATION 4+50
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	693.1	76.39	687	141.07	688.6	282.22	688.1	328.56	687
332.56	686.4	336.25	687	382.56	687.9	554.25	686.9	658.17	686.8
775.79	687.3	853.94	690						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	328.56	.035	336.25	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
328.56	336.25	50	50	50	.1	.3

Left Levee Station= 141.07 Elevation= 688.6
Right Levee Station= 382.56 Elevation= 687.9

CROSS SECTION OUTPUT Profile #2 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	688.15	Element	0.060	0.035	0.060
Vel Head (ft)	0.00	Wt. n-Val.	50.00	50.00	50.00
W.S. Elev (ft)	688.15	Reach Len. (ft)	28.13	11.15	435.90
Crit W.S. (ft)	687.90	Flow Area (sq ft)	28.13	11.15	435.90
E.G. Slope (ft/ft)	0.000111	Area (sq ft)	4.42	6.34	109.24
Q Total (cfs)	120.00	Flow (cfs)	60.33	7.69	464.13
Top Width (ft)	532.15	Top Width (ft)	0.16	0.57	0.25
Vel Total (ft/s)	0.25	Avg. Vel. (ft/s)	0.47	1.45	0.94
Max Chl Dpth (ft)	1.75	Hydr. Depth (ft)	418.8	601.3	10352.5
Conv. Total (cfs)	11372.6	Conv. (cfs)	60.34	7.78	464.16
Length Wtd. (ft)	50.00	Wetted Per. (ft)	0.00	0.01	0.01
Min Ch El (ft)	686.40	Shear (lb/sq ft)	0.00	0.01	0.00
Alpha	1.18	Stream Power (lb/ft s)	0.23	0.20	3.02
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.65	0.13	4.43
C & E Loss (ft)	0.01	Cum SA (acres)			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION OUTPUT Profile #10 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	688.35	Element	0.060	0.035	0.060
Vel Head (ft)	0.00	Wt. n-Val.	50.00	50.00	50.00
W.S. Elev (ft)	688.35	Reach Len. (ft)	46.11	12.70	530.37
Crit W.S. (ft)	687.90	Flow Area (sq ft)	46.11	12.70	530.37
E.G. Slope (ft/ft)	0.000185	Area (sq ft)	8.32	10.16	193.52
Q Total (cfs)	212.00	Flow (cfs)	117.43	7.69	469.98
Top Width (ft)	595.11	Top Width (ft)			

Vel Total (ft/s)	0.36	Avg. Vel. (ft/s)	0.18	0.80	0.36
Max Chl Dpth (ft)	1.95	Hydr. Depth (ft)	0.39	1.65	1.13
Conv. Total (cfs)	15596.2	Conv. (cfs)	612.2	747.5	14236.5
Length Wtd. (ft)	50.00	Wetted Per. (ft)	117.45	7.78	470.02
Min Ch El (ft)	686.40	Shear (lb/sq ft)	0.00	0.02	0.01
Alpha	1.19	Stream Power (lb/ft s)	0.00	0.02	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.38	0.23	3.58
C & E Loss (ft)	0.00	Cum SA (acres)	0.92	0.13	4.64

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION OUTPUT Profile #100 Year Event

E.G. Elev (ft)	688.62	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.62	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.90	Flow Area (sq ft)	156.75	14.75	656.73
E.G. Slope (ft/ft)	0.000284	Area (sq ft)	156.75	14.75	656.73
Q Total (cfs)	400.00	Flow (cfs)	45.22	16.16	338.63
Top Width (ft)	757.83	Top Width (ft)	272.44	7.69	477.70
Vel Total (ft/s)	0.48	Avg. Vel. (ft/s)	0.29	1.10	0.52
Max Chl Dpth (ft)	2.22	Hydr. Depth (ft)	0.58	1.92	1.37
Conv. Total (cfs)	23751.7	Conv. (cfs)	2684.8	959.3	20107.6
Length Wtd. (ft)	50.00	Wetted Per. (ft)	272.54	7.78	477.74
Min Ch El (ft)	686.40	Shear (lb/sq ft)	0.01	0.03	0.02
Alpha	1.21	Stream Power (lb/ft s)	0.00	0.04	0.01
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	0.64	0.25	4.74
C & E Loss (ft)	0.00	Cum SA (acres)	1.14	0.13	5.07

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION OUTPUT Profile #100 Year + 25%

E.G. Elev (ft)	688.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.67	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.91	Flow Area (sq ft)	172.07	15.18	683.60
E.G. Slope (ft/ft)	0.000382	Area (sq ft)	172.07	15.18	683.60
Q Total (cfs)	500.00	Flow (cfs)	61.18	19.67	419.15
Top Width (ft)	760.16	Top Width (ft)	273.14	7.69	479.33
Vel Total (ft/s)	0.57	Avg. Vel. (ft/s)	0.36	1.30	0.61
Max Chl Dpth (ft)	2.27	Hydr. Depth (ft)	0.63	1.97	1.43
Conv. Total (cfs)	25586.0	Conv. (cfs)	3130.8	1006.5	21448.7
Length Wtd. (ft)	50.00	Wetted Per. (ft)	273.24	7.78	479.36
Min Ch El (ft)	686.40	Shear (lb/sq ft)	0.02	0.05	0.03
Alpha	1.20	Stream Power (lb/ft s)	0.01	0.06	0.02
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	0.78	0.27	5.53

C & E Loss (ft)	0.01	Cum SA (acres)	1.30	0.13	5.17

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 400

INPUT
Description: RIVER STATION 4+00
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	693.1	96.75	687.9	142.87	687.7	291.79	688	335.83	687
341.79	686.1	345.93	687	391.79	687.7	603.59	688.6	761.08	686.8
934.07	690								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	335.83	.035	345.93	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
335.83	345.93	50	50	50	.1	.3

Right Levee Station= 603.59 Elevation= 688.6

CROSS SECTION OUTPUT Profile #2 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	688.13	Element			
Vel Head (ft)	0.05	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.08	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.88	Flow Area (sq ft)	72.45	15.43	50.16
E.G. Slope (ft/ft)	0.002712	Area (sq ft)	72.45	15.43	50.16
Q Total (cfs)	120.00	Flow (cfs)	41.77	44.76	33.47
Top Width (ft)	387.23	Top Width (ft)	242.39	10.10	134.75
Vel Total (ft/s)	0.87	Avg. Vel. (ft/s)	0.58	2.90	0.67
Max Chl Dpth (ft)	1.98	Hydr. Depth (ft)	0.30	1.53	0.37
Conv. Total (cfs)	2304.5	Conv. (cfs)	802.1	859.6	642.8
Length Wtd. (ft)	50.00	Wetted Per. (ft)	242.40	10.26	134.75
Min Ch El (ft)	686.10	Shear (lb/sq ft)	0.05	0.25	0.06
Alpha	4.47	Stream Power (lb/ft s)	0.03	0.74	0.04
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)	0.18	0.19	2.74
C & E Loss (ft)	0.00	Cum SA (acres)	0.48	0.12	4.09

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #10 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	688.33	Element			
Vel Head (ft)	0.04	Wt. n-Val.	0.060	0.035	0.060

W.S. Elev (ft)	688.28	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	688.10	Flow Area (sq ft)	122.52	17.50	82.72
E.G. Slope (ft/ft)	0.002582	Area (sq ft)	122.52	17.50	82.72
Q Total (cfs)	212.00	Flow (cfs)	96.81	53.88	61.31
Top Width (ft)	439.28	Top Width (ft)	246.20	10.10	182.98
Vel Total (ft/s)	0.95	Avg. Vel. (ft/s)	0.79	3.08	0.74
Max Chl Dpth (ft)	2.18	Hydr. Depth (ft)	0.50	1.73	0.45
Conv. Total (cfs)	4172.2	Conv. (cfs)	1905.3	1060.3	1206.6
Length Wtd. (ft)	50.00	Wetted Per. (ft)	246.22	10.26	182.99
Min Ch El (ft)	686.10	Shear (lb/sq ft)	0.08	0.27	0.07
Alpha	3.15	Stream Power (lb/ft s)	0.06	0.85	0.05
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.28	0.21	3.23
C & E Loss (ft)	0.01	Cum SA (acres)	0.71	0.12	4.26

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	688.59	Element			
Vel Head (ft)	0.05	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.54	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	688.26	Flow Area (sq ft)	185.42	20.06	136.56
E.G. Slope (ft/ft)	0.002930	Area (sq ft)	185.42	20.06	136.56
Q Total (cfs)	400.00	Flow (cfs)	203.15	72.03	124.82
Top Width (ft)	503.54	Top Width (ft)	250.91	10.10	242.53
Vel Total (ft/s)	1.17	Avg. Vel. (ft/s)	1.10	3.59	0.91
Max Chl Dpth (ft)	2.44	Hydr. Depth (ft)	0.74	1.99	0.56
Conv. Total (cfs)	7389.7	Conv. (cfs)	3753.0	1330.8	2305.9
Length Wtd. (ft)	50.00	Wetted Per. (ft)	250.94	10.26	242.54
Min Ch El (ft)	686.10	Shear (lb/sq ft)	0.14	0.36	0.10
Alpha	2.33	Stream Power (lb/ft s)	0.15	1.28	0.09
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	0.45	0.23	4.28
C & E Loss (ft)	0.01	Cum SA (acres)	0.84	0.12	4.66

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100 Year + 25%

			Left OB	Channel	Right OB
E.G. Elev (ft)	688.63	Element			
Vel Head (ft)	0.07	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.56	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	688.33	Flow Area (sq ft)	191.01	20.28	142.02
E.G. Slope (ft/ft)	0.004193	Area (sq ft)	191.01	20.28	142.02
Q Total (cfs)	500.00	Flow (cfs)	255.07	87.79	157.14
Top Width (ft)	509.20	Top Width (ft)	251.32	10.10	247.78
Vel Total (ft/s)	1.42	Avg. Vel. (ft/s)	1.34	4.33	1.11
Max Chl Dpth (ft)	2.46	Hydr. Depth (ft)	0.76	2.01	0.57
Conv. Total (cfs)	7721.8	Conv. (cfs)	3939.3	1355.8	2426.8
Length Wtd. (ft)	50.00	Wetted Per. (ft)	251.35	10.26	247.78

Min Ch El (ft)	686.10	Shear (lb/sq ft)	0.20	0.52	0.15
Alpha	2.29	Stream Power (lb/ft s)	0.27	2.24	0.17
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)	0.57	0.25	5.06
C & E Loss (ft)	0.01	Cum SA (acres)	1.00	0.12	4.75

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 350

INPUT
Description: RIVER STATION 3+50
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	693.1	130.28	687.9	233.97	687.7	302.4	687.9	344.44	687
351.75	686	352.56	685.8	353.47	686	356.43	687	402.56	687.5
472.06	687.6	615.18	688.7	988.32	689.3	1069.22	689.2	1147.67	690

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	344.44	.035	356.43	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
344.44	356.43	50	50	50	.1	.3

Left Levee Station= 302.4 Elevation= 687.9

CROSS SECTION OUTPUT Profile #2 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	687.96	Element			
Vel Head (ft)	0.10	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.86	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.75	Flow Area (sq ft)	17.19	17.31	53.77
E.G. Slope (ft/ft)	0.004247	Area (sq ft)	17.19	17.31	53.77
Q Total (cfs)	120.00	Flow (cfs)	15.78	60.27	43.95
Top Width (ft)	201.25	Top Width (ft)	40.07	11.99	149.19
Vel Total (ft/s)	1.36	Avg. Vel. (ft/s)	0.92	3.48	0.82
Max Chl Dpth (ft)	2.06	Hydr. Depth (ft)	0.43	1.44	0.36
Conv. Total (cfs)	1841.3	Conv. (cfs)	242.1	924.8	674.4
Length Wtd. (ft)	50.00	Wetted Per. (ft)	40.08	12.27	149.19
Min Ch El (ft)	685.80	Shear (lb/sq ft)	0.11	0.37	0.10
Alpha	3.49	Stream Power (lb/ft s)	0.10	1.30	0.08
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.12	0.17	2.68
C & E Loss (ft)	0.03	Cum SA (acres)	0.32	0.10	3.92

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #10 Year Event

E.G. Elev (ft)	688.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.97	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.97	Flow Area (sq ft)	52.17	18.71	72.07
E.G. Slope (ft/ft)	0.006732	Area (sq ft)	52.17	18.71	72.07
Q Total (cfs)	212.00	Flow (cfs)	41.11	86.37	84.51
Top Width (ft)	392.39	Top Width (ft)	216.03	11.99	164.37
Vel Total (ft/s)	1.48	Avg. Vel. (ft/s)	0.79	4.62	1.17
Max Chl Dpth (ft)	2.17	Hydr. Depth (ft)	0.24	1.56	0.44
Conv. Total (cfs)	2583.8	Conv. (cfs)	501.1	1052.7	1030.0
Length Wtd. (ft)	50.00	Wetted Per. (ft)	216.04	12.27	164.38
Min Ch El (ft)	685.80	Shear (lb/sq ft)	0.10	0.64	0.18
Alpha	4.25	Stream Power (lb/ft s)	0.08	2.96	0.22
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	0.18	0.19	3.14
C & E Loss (ft)	0.04	Cum SA (acres)	0.45	0.10	4.06

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Year Event

E.G. Elev (ft)	688.33	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.13	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	688.13	Flow Area (sq ft)	86.91	20.62	99.90
E.G. Slope (ft/ft)	0.009820	Area (sq ft)	86.91	20.62	99.90
Q Total (cfs)	400.00	Flow (cfs)	114.81	122.66	162.53
Top Width (ft)	417.11	Top Width (ft)	220.02	11.99	185.10
Vel Total (ft/s)	1.93	Avg. Vel. (ft/s)	1.32	5.95	1.63
Max Chl Dpth (ft)	2.33	Hydr. Depth (ft)	0.39	1.72	0.54
Conv. Total (cfs)	4036.5	Conv. (cfs)	1158.6	1237.8	1640.1
Length Wtd. (ft)	50.00	Wetted Per. (ft)	220.03	12.27	185.10
Min Ch El (ft)	685.80	Shear (lb/sq ft)	0.24	1.03	0.33
Alpha	3.34	Stream Power (lb/ft s)	0.32	6.13	0.54
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	0.29	0.21	4.15
C & E Loss (ft)	0.06	Cum SA (acres)	0.57	0.10	4.41

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there

is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Year + 25%

E.G. Elev (ft)	688.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.23	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	688.21	Flow Area (sq ft)	107.87	21.76	118.03
E.G. Slope (ft/ft)	0.009699	Area (sq ft)	107.87	21.76	118.03
Q Total (cfs)	500.00	Flow (cfs)	162.41	133.30	204.29
Top Width (ft)	431.81	Top Width (ft)	222.39	11.99	197.43
Vel Total (ft/s)	2.02	Avg. Vel. (ft/s)	1.51	6.13	1.73
Max Chl Dpth (ft)	2.43	Hydr. Depth (ft)	0.49	1.81	0.60
Conv. Total (cfs)	5077.1	Conv. (cfs)	1649.2	1353.5	2074.4
Length Wtd. (ft)	50.00	Wetted Per. (ft)	222.41	12.27	197.44
Min Ch El (ft)	685.80	Shear (lb/sq ft)	0.29	1.07	0.36
Alpha	2.94	Stream Power (lb/ft s)	0.44	6.58	0.63
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	0.40	0.23	4.91
C & E Loss (ft)	0.05	Cum SA (acres)	0.73	0.10	4.50

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 300

INPUT
Description: RIVER STATION 3+00
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	693.1	108.77	688.4	315.87	688.1	360.34	687	363.71	686
365.85	685.7	367.58	686	372.38	687	415.92	687.7	472.94	687.6
629.32	687.9	698.32	686.9	961.05	686.8	1002.17	686	1023.47	686
1082.37	687.1	1228.78	690						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	360.34	.035	372.38	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
360.34	372.38	50	50	50	.3	.5

Right Levee Station= 629.32 Elevation= 687.9

CROSS SECTION OUTPUT Profile #2 Year Event

E.G. Elev (ft)	687.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.91	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.67	Flow Area (sq ft)	16.84	19.53	579.49
E.G. Slope (ft/ft)	0.000080	Area (sq ft)	16.84	19.53	579.49
Q Total (cfs)	120.00	Flow (cfs)	2.21	10.05	107.74
Top Width (ft)	799.97	Top Width (ft)	36.90	12.04	751.03
Vel Total (ft/s)	0.19	Avg. Vel. (ft/s)	0.13	0.51	0.19

Max Chl Dpth (ft)	2.21	Hydr. Depth (ft)	0.46	1.62	0.77
Conv. Total (cfs)	13445.6	Conv. (cfs)	247.2	1126.0	12072.4
Length Wtd. (ft)	50.00	Wetted Per. (ft)	36.92	12.34	751.07
Min Ch El (ft)	685.70	Shear (lb/sq ft)	0.00	0.01	0.00
Alpha	1.41	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.11	0.15	2.32
C & E Loss (ft)	0.00	Cum SA (acres)	0.27	0.09	3.41

Warning: Multiple water surfaces were found that could balance the energy equation. The program selected the water surface whose main channel velocity head was the closest to the previously computed cross section.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #10 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	687.94	Element			
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.94	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.90	Flow Area (sq ft)	17.72	19.81	597.15
E.G. Slope (ft/ft)	0.000226	Area (sq ft)	17.72	19.81	597.15
Q Total (cfs)	212.00	Flow (cfs)	3.98	17.34	190.68
Top Width (ft)	802.11	Top Width (ft)	37.85	12.04	752.21
Vel Total (ft/s)	0.33	Avg. Vel. (ft/s)	0.22	0.88	0.32
Max Chl Dpth (ft)	2.24	Hydr. Depth (ft)	0.47	1.65	0.79
Conv. Total (cfs)	14096.4	Conv. (cfs)	264.6	1153.3	12678.6
Length Wtd. (ft)	50.00	Wetted Per. (ft)	37.87	12.34	752.25
Min Ch El (ft)	685.70	Shear (lb/sq ft)	0.01	0.02	0.01
Alpha	1.39	Stream Power (lb/ft s)	0.00	0.02	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.14	0.17	2.75
C & E Loss (ft)	0.00	Cum SA (acres)	0.30	0.09	3.53

Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION OUTPUT Profile #100 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	688.12	Element			
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.11	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.90	Flow Area (sq ft)	25.16	21.95	731.78
E.G. Slope (ft/ft)	0.000425	Area (sq ft)	25.16	21.95	731.78
Q Total (cfs)	400.00	Flow (cfs)	7.69	28.23	364.08
Top Width (ft)	827.56	Top Width (ft)	54.33	12.04	761.20
Vel Total (ft/s)	0.51	Avg. Vel. (ft/s)	0.31	1.29	0.50
Max Chl Dpth (ft)	2.41	Hydr. Depth (ft)	0.46	1.82	0.96
Conv. Total (cfs)	19393.6	Conv. (cfs)	373.0	1368.6	17652.1
Length Wtd. (ft)	50.00	Wetted Per. (ft)	54.34	12.34	761.24
Min Ch El (ft)	685.70	Shear (lb/sq ft)	0.01	0.05	0.03
Alpha	1.30	Stream Power (lb/ft s)	0.00	0.06	0.01
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	0.23	0.19	3.67
C & E Loss (ft)	0.00	Cum SA (acres)	0.41	0.09	3.87

Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION OUTPUT Profile #100 Year + 25%

			Left OB	Channel	Right OB
E.G. Elev (ft)	688.31	Element			
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.30	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.90	Flow Area (sq ft)	47.25	24.19	874.40
E.G. Slope (ft/ft)	0.000380	Area (sq ft)	47.25	24.19	874.40
Q Total (cfs)	500.00	Flow (cfs)	9.26	31.38	459.36
Top Width (ft)	965.50	Top Width (ft)	182.86	12.04	770.60
Vel Total (ft/s)	0.53	Avg. Vel. (ft/s)	0.20	1.30	0.53
Max Chl Dpth (ft)	2.60	Hydr. Depth (ft)	0.26	2.01	1.13
Conv. Total (cfs)	25641.5	Conv. (cfs)	474.7	1609.4	23557.4
Length Wtd. (ft)	50.00	Wetted Per. (ft)	182.87	12.34	770.64
Min Ch El (ft)	685.70	Shear (lb/sq ft)	0.01	0.05	0.03
Alpha	1.29	Stream Power (lb/ft s)	0.00	0.06	0.01
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.31	0.20	4.34
C & E Loss (ft)	0.00	Cum SA (acres)	0.50	0.09	3.94

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 250

INPUT
Description: RIVER STATION 2+50
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	687	66.96	688.5	109.52	687	112.41	686	117	685.5
120.3	686	124.3	687	146.59	687.7	203.61	687.6	359.99	687.9
428.99	686.9	691.72	686.8	732.84	686	754.14	686	813.04	687.1
959.45	690								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	112.41	.035	120.3	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
112.41	120.3	50	50	50	.1	.3

Left Levee Station= 66.96 Elevation= 688.5
Right Levee Station= 359.99 Elevation= 687.9

CROSS SECTION OUTPUT Profile #2 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	687.91	Element			
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.91	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.90	Flow Area (sq ft)	15.73	17.02	568.65
E.G. Slope (ft/ft)	0.000126	Area (sq ft)	15.73	17.02	568.65
Q Total (cfs)	150.00	Flow (cfs)	2.93	13.48	133.59
Top Width (ft)	769.97	Top Width (ft)	28.62	7.89	733.47
Vel Total (ft/s)	0.25	Avg. Vel. (ft/s)	0.19	0.79	0.23
Max Chl Dpth (ft)	2.41	Hydr. Depth (ft)	0.55	2.16	0.78
Conv. Total (cfs)	13342.9	Conv. (cfs)	260.2	1199.3	11883.3
Length Wtd. (ft)	50.00	Wetted Per. (ft)	28.80	7.95	733.63
Min Ch El (ft)	685.50	Shear (lb/sq ft)	0.00	0.02	0.01

Alpha	1.71	Stream Power (lb/ft s)	0.00	0.01	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.09	0.12	1.66
C & E Loss (ft)	0.00	Cum SA (acres)	0.24	0.08	2.55

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #10 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	687.92	Element			
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.92	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.90	Flow Area (sq ft)	16.07	17.11	577.48
E.G. Slope (ft/ft)	0.000365	Area (sq ft)	16.07	17.11	577.48
Q Total (cfs)	261.00	Flow (cfs)	5.11	23.12	232.76
Top Width (ft)	770.92	Top Width (ft)	28.96	7.89	734.07
Vel Total (ft/s)	0.43	Avg. Vel. (ft/s)	0.32	1.35	0.40
Max Chl Dpth (ft)	2.42	Hydr. Depth (ft)	0.56	2.17	0.79
Conv. Total (cfs)	13663.7	Conv. (cfs)	267.7	1210.5	12185.5
Length Wtd. (ft)	50.00	Wetted Per. (ft)	29.14	7.95	734.24
Min Ch El (ft)	685.50	Shear (lb/sq ft)	0.01	0.05	0.02
Alpha	1.69	Stream Power (lb/ft s)	0.00	0.07	0.01
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.12	0.14	2.08
C & E Loss (ft)	0.00	Cum SA (acres)	0.26	0.08	2.68

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	688.09	Element			
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.08	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.90	Flow Area (sq ft)	21.10	18.38	696.23
E.G. Slope (ft/ft)	0.000725	Area (sq ft)	21.10	18.38	696.23
Q Total (cfs)	492.00	Flow (cfs)	10.30	36.73	444.97
Top Width (ft)	783.61	Top Width (ft)	33.52	7.89	742.20
Vel Total (ft/s)	0.67	Avg. Vel. (ft/s)	0.49	2.00	0.64
Max Chl Dpth (ft)	2.58	Hydr. Depth (ft)	0.63	2.33	0.94
Conv. Total (cfs)	18266.8	Conv. (cfs)	382.4	1363.9	16520.5
Length Wtd. (ft)	50.00	Wetted Per. (ft)	33.71	7.95	742.37
Min Ch El (ft)	685.50	Shear (lb/sq ft)	0.03	0.10	0.04
Alpha	1.50	Stream Power (lb/ft s)	0.01	0.21	0.03
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	0.20	0.16	2.85
C & E Loss (ft)	0.00	Cum SA (acres)	0.36	0.08	3.01

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100 Year + 25%

			Left OB	Channel	Right OB
E.G. Elev (ft)	688.28	Element			
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.27	Reach Len. (ft)	50.00	50.00	50.00

Crit W.S. (ft)	687.91	Flow Area (sq ft)	27.98	19.88	838.12
E.G. Slope (ft/ft)	0.000634	Area (sq ft)	27.98	19.88	838.12
Q Total (cfs)	615.00	Flow (cfs)	13.96	39.14	561.90
Top Width (ft)	798.59	Top Width (ft)	38.91	7.89	751.79
Vel Total (ft/s)	0.69	Avg. Vel. (ft/s)	0.50	1.97	0.67
Max Chl Dpth (ft)	2.77	Hydr. Depth (ft)	0.72	2.52	1.11
Conv. Total (cfs)	24421.5	Conv. (cfs)	554.3	1554.2	22313.0
Length Wtd. (ft)	50.00	Wetted Per. (ft)	39.10	7.95	751.96
Min Ch El (ft)	685.50	Shear (lb/sq ft)	0.03	0.10	0.04
Alpha	1.38	Stream Power (lb/ft s)	0.01	0.19	0.03
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	0.26	0.17	3.36
C & E Loss (ft)	0.00	Cum SA (acres)	0.37	0.08	3.07

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 200

INPUT
Description: RIVER STATION 2+00
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	688	55.79	687.8	77.45	687.8	120.89	687	123.24	686
127.45	685.4	131.08	686	135.14	687	172.92	687.6	329.3	687.9
398.3	686.9	661.03	686.8	702.15	686	723.45	686	782.35	687.1
928.76	690								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	123.24	.035	131.08	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
123.24	131.08	50	50	50	.1	.3

Right Levee Station= 329.3 Elevation= 687.9

CROSS SECTION OUTPUT Profile #2 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	687.90	Element			
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.90	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.90	Flow Area (sq ft)	28.61	17.25	560.31
E.G. Slope (ft/ft)	0.000122	Area (sq ft)	28.61	17.25	560.31
Q Total (cfs)	150.00	Flow (cfs)	3.49	13.56	132.95
Top Width (ft)	795.00	Top Width (ft)	95.47	7.84	691.68
Vel Total (ft/s)	0.25	Avg. Vel. (ft/s)	0.12	0.79	0.24
Max Chl Dpth (ft)	2.50	Hydr. Depth (ft)	0.30	2.20	0.81
Conv. Total (cfs)	13602.8	Conv. (cfs)	316.9	1229.5	12056.4
Length Wtd. (ft)	50.00	Wetted Per. (ft)	95.68	7.93	691.84
Min Ch El (ft)	685.40	Shear (lb/sq ft)	0.00	0.02	0.01
Alpha	1.73	Stream Power (lb/ft s)	0.00	0.01	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.06	0.10	1.01
C & E Loss (ft)	0.00	Cum SA (acres)	0.17	0.07	1.74

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #10 Year Event

E.G. Elev (ft)	687.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.90	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.90	Flow Area (sq ft)	28.59	17.25	560.10
E.G. Slope (ft/ft)	0.000369	Area (sq ft)	28.59	17.25	560.10
Q Total (cfs)	261.00	Flow (cfs)	6.08	23.60	231.32
Top Width (ft)	794.89	Top Width (ft)	95.39	7.84	691.67
Vel Total (ft/s)	0.43	Avg. Vel. (ft/s)	0.21	1.37	0.41
Max Chl Dpth (ft)	2.50	Hydr. Depth (ft)	0.30	2.20	0.81
Conv. Total (cfs)	13594.7	Conv. (cfs)	316.6	1229.2	12049.0
Length Wtd. (ft)	50.00	Wetted Per. (ft)	95.60	7.93	691.83
Min Ch El (ft)	685.40	Shear (lb/sq ft)	0.01	0.05	0.02
Alpha	1.73	Stream Power (lb/ft s)	0.00	0.07	0.01
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.10	0.12	1.43
C & E Loss (ft)	0.00	Cum SA (acres)	0.19	0.07	1.86

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Year Event

E.G. Elev (ft)	688.05	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.04	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.90	Flow Area (sq ft)	44.53	18.35	657.90
E.G. Slope (ft/ft)	0.000784	Area (sq ft)	44.53	18.35	657.90
Q Total (cfs)	492.00	Flow (cfs)	15.65	38.16	438.19
Top Width (ft)	829.85	Top Width (ft)	123.24	7.84	698.77
Vel Total (ft/s)	0.68	Avg. Vel. (ft/s)	0.35	2.08	0.67
Max Chl Dpth (ft)	2.64	Hydr. Depth (ft)	0.36	2.34	0.94
Conv. Total (cfs)	17570.9	Conv. (cfs)	558.8	1363.0	15649.2
Length Wtd. (ft)	50.00	Wetted Per. (ft)	123.49	7.93	698.93
Min Ch El (ft)	685.40	Shear (lb/sq ft)	0.02	0.11	0.05
Alpha	1.58	Stream Power (lb/ft s)	0.01	0.24	0.03
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	0.16	0.14	2.07
C & E Loss (ft)	0.00	Cum SA (acres)	0.27	0.07	2.18

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Year + 25%

			Left OB	Channel	Right OB
E.G. Elev (ft)	688.25	Element			
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.24	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.91	Flow Area (sq ft)	68.69	19.89	795.82
E.G. Slope (ft/ft)	0.000657	Area (sq ft)	68.69	19.89	795.82
Q Total (cfs)	615.00	Flow (cfs)	29.45	39.94	545.61
Top Width (ft)	839.74	Top Width (ft)	123.24	7.84	708.66
Vel Total (ft/s)	0.70	Avg. Vel. (ft/s)	0.43	2.01	0.69
Max Chl Dpth (ft)	2.84	Hydr. Depth (ft)	0.56	2.54	1.12
Conv. Total (cfs)	23997.7	Conv. (cfs)	1149.2	1558.4	21290.0
Length Wtd. (ft)	50.00	Wetted Per. (ft)	123.69	7.93	708.83
Min Ch El (ft)	685.40	Shear (lb/sq ft)	0.02	0.10	0.05
Alpha	1.42	Stream Power (lb/ft s)	0.01	0.21	0.03
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.21	0.15	2.42
C & E Loss (ft)	0.00	Cum SA (acres)	0.28	0.07	2.23

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 150

INPUT
Description: RIVER STATION 1+50
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	687.8	40.57	687.8	82.15	687	84.27	686	90.26	685.2
96.74	686	99.09	687	115.25	687	206.52	686.8	276.65	686.7
334.02	686.9	596.75	686.8	637.87	686	659.17	686	718.07	687.1
864.48	690								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	84.27	.035	96.74	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
84.27	96.74	50	50	50	.1	.3

Right Levee Station= 115.25 Elevation= 687

CROSS SECTION OUTPUT Profile #2 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	687.29	Element			
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.28	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.00	Flow Area (sq ft)	3.66	20.92	324.66
E.G. Slope (ft/ft)	0.000542	Area (sq ft)	3.66	20.92	324.66
Q Total (cfs)	150.00	Flow (cfs)	0.76	29.03	120.21
Top Width (ft)	659.35	Top Width (ft)	16.56	12.47	630.31
Vel Total (ft/s)	0.43	Avg. Vel. (ft/s)	0.21	1.39	0.37
Max Chl Dpth (ft)	2.08	Hydr. Depth (ft)	0.22	1.68	0.52
Conv. Total (cfs)	6445.3	Conv. (cfs)	32.8	1247.5	5165.1

Length Wtd. (ft)	50.00	Wetted Per. (ft)	16.79	12.57	630.54
Min Ch El (ft)	685.20	Shear (lb/sq ft)	0.01	0.06	0.02
Alpha	2.62	Stream Power (lb/ft s)	0.00	0.08	0.01
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	0.04	0.08	0.50
C & E Loss (ft)	0.02	Cum SA (acres)	0.10	0.06	0.98

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION OUTPUT Profile #10 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	687.58	Element			
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.57	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.06	Flow Area (sq ft)	10.76	24.59	511.96
E.G. Slope (ft/ft)	0.000427	Area (sq ft)	10.76	24.59	511.96
Q Total (cfs)	261.00	Flow (cfs)	2.66	33.74	224.60
Top Width (ft)	689.44	Top Width (ft)	31.83	12.47	645.14
Vel Total (ft/s)	0.48	Avg. Vel. (ft/s)	0.25	1.37	0.44
Max Chl Dpth (ft)	2.37	Hydr. Depth (ft)	0.34	1.97	0.79
Conv. Total (cfs)	12626.0	Conv. (cfs)	128.7	1632.3	10865.0
Length Wtd. (ft)	50.00	Wetted Per. (ft)	32.06	12.57	645.37
Min Ch El (ft)	685.20	Shear (lb/sq ft)	0.01	0.05	0.02
Alpha	1.80	Stream Power (lb/ft s)	0.00	0.07	0.01
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	0.08	0.10	0.81
C & E Loss (ft)	0.02	Cum SA (acres)	0.12	0.06	1.10

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION OUTPUT Profile #100 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	688.02	Element			
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.02	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.18	Flow Area (sq ft)	37.73	30.15	804.74
E.G. Slope (ft/ft)	0.000375	Area (sq ft)	37.73	30.15	804.74
Q Total (cfs)	492.00	Flow (cfs)	10.55	44.41	437.04
Top Width (ft)	764.40	Top Width (ft)	84.27	12.47	667.66
Vel Total (ft/s)	0.56	Avg. Vel. (ft/s)	0.28	1.47	0.54
Max Chl Dpth (ft)	2.82	Hydr. Depth (ft)	0.45	2.42	1.21
Conv. Total (cfs)	25404.6	Conv. (cfs)	544.9	2293.0	22566.7
Length Wtd. (ft)	50.00	Wetted Per. (ft)	84.72	12.57	667.89
Min Ch El (ft)	685.20	Shear (lb/sq ft)	0.01	0.06	0.03
Alpha	1.45	Stream Power (lb/ft s)	0.00	0.08	0.02
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	0.11	0.11	1.24
C & E Loss (ft)	0.04	Cum SA (acres)	0.16	0.06	1.40

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Year + 25%

			Left OB	Channel	Right OB
E.G. Elev (ft)	688.22	Element			
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	688.22	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.24	Flow Area (sq ft)	54.38	32.61	937.64
E.G. Slope (ft/ft)	0.000359	Area (sq ft)	54.38	32.61	937.64
Q Total (cfs)	615.00	Flow (cfs)	18.97	49.55	546.48
Top Width (ft)	774.37	Top Width (ft)	84.27	12.47	677.63
Vel Total (ft/s)	0.60	Avg. Vel. (ft/s)	0.35	1.52	0.58
Max Chl Dpth (ft)	3.02	Hydr. Depth (ft)	0.65	2.62	1.38
Conv. Total (cfs)	32441.7	Conv. (cfs)	1000.5	2613.8	28827.4
Length Wtd. (ft)	50.00	Wetted Per. (ft)	84.92	12.57	677.87
Min Ch El (ft)	685.20	Shear (lb/sq ft)	0.01	0.06	0.03
Alpha	1.36	Stream Power (lb/ft s)	0.01	0.09	0.02
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	0.14	0.12	1.42
C & E Loss (ft)	0.05	Cum SA (acres)	0.16	0.06	1.43

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 100

INPUT
Description: RIVER STATION 1+00
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	687	33.45	686.6	51.34	686	58.45	685.9	65.46	686
90.29	686.4	158.49	687.8	527.26	687.2	622.2	686	637.69	686
702.74	687.3	810.56	690						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	51.34	.035	65.46	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
51.34	65.46	50	50	50	.1	.3

Right Levee Station= 158.49 Elevation= 687.8

CROSS SECTION OUTPUT Profile #2 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	687.19	Element			
Vel Head (ft)	0.21	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	686.98	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	686.93	Flow Area (sq ft)	18.21	14.55	27.57
E.G. Slope (ft/ft)	0.013276	Area (sq ft)	18.21	14.55	27.57
Q Total (cfs)	150.00	Flow (cfs)	26.61	72.57	50.82
Top Width (ft)	116.89	Top Width (ft)	49.68	14.12	53.09
Vel Total (ft/s)	2.49	Avg. Vel. (ft/s)	1.46	4.99	1.84
Max Chl Dpth (ft)	1.08	Hydr. Depth (ft)	0.37	1.03	0.52
Conv. Total (cfs)	1301.9	Conv. (cfs)	231.0	629.8	441.0

Length Wtd. (ft)	50.00	Wetted Per. (ft)	49.69	14.12	53.10
Min Ch El (ft)	685.90	Shear (lb/sq ft)	0.30	0.85	0.43
Alpha	2.20	Stream Power (lb/ft s)	0.44	4.26	0.79
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	0.03	0.06	0.30
C & E Loss (ft)	0.06	Cum SA (acres)	0.06	0.04	0.58

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #10 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	687.50	Element			
Vel Head (ft)	0.23	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.27	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.19	Flow Area (sq ft)	33.09	18.64	45.02
E.G. Slope (ft/ft)	0.011683	Area (sq ft)	33.09	18.64	45.02
Q Total (cfs)	261.00	Flow (cfs)	65.84	102.94	92.23
Top Width (ft)	132.68	Top Width (ft)	51.34	14.12	67.22
Vel Total (ft/s)	2.70	Avg. Vel. (ft/s)	1.99	5.52	2.05
Max Chl Dpth (ft)	1.37	Hydr. Depth (ft)	0.64	1.32	0.67
Conv. Total (cfs)	2414.7	Conv. (cfs)	609.1	952.3	853.3
Length Wtd. (ft)	50.00	Wetted Per. (ft)	51.62	14.12	67.23
Min Ch El (ft)	685.90	Shear (lb/sq ft)	0.47	0.96	0.49
Alpha	1.99	Stream Power (lb/ft s)	0.93	5.32	1.00
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	0.05	0.08	0.49
C & E Loss (ft)	0.06	Cum SA (acres)	0.07	0.04	0.69

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	687.93	Element			
Vel Head (ft)	0.41	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.52	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.52	Flow Area (sq ft)	45.67	22.10	62.96
E.G. Slope (ft/ft)	0.018244	Area (sq ft)	45.67	22.10	62.96
Q Total (cfs)	492.00	Flow (cfs)	140.36	170.87	180.77
Top Width (ft)	144.63	Top Width (ft)	51.34	14.12	79.17
Vel Total (ft/s)	3.76	Avg. Vel. (ft/s)	3.07	7.73	2.87
Max Chl Dpth (ft)	1.62	Hydr. Depth (ft)	0.89	1.57	0.80
Conv. Total (cfs)	3642.5	Conv. (cfs)	1039.2	1265.0	1338.3
Length Wtd. (ft)	50.00	Wetted Per. (ft)	51.87	14.12	79.18
Min Ch El (ft)	685.90	Shear (lb/sq ft)	1.00	1.78	0.91
Alpha	1.87	Stream Power (lb/ft s)	3.08	13.78	2.60
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	0.07	0.08	0.74
C & E Loss (ft)	0.11	Cum SA (acres)	0.08	0.04	0.97

Warning: The energy equation could not be balanced within the specified number of iterations. The

program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100 Year + 25%

			Left OB	Channel	Right OB
E.G. Elev (ft)	688.12	Element			
Vel Head (ft)	0.46	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.66	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.66	Flow Area (sq ft)	52.95	24.10	74.67
E.G. Slope (ft/ft)	0.018924	Area (sq ft)	52.95	24.10	74.67
Q Total (cfs)	615.00	Flow (cfs)	182.56	201.07	231.38
Top Width (ft)	151.53	Top Width (ft)	51.34	14.12	86.07
Vel Total (ft/s)	4.05	Avg. Vel. (ft/s)	3.45	8.34	3.10
Max Chl Dpth (ft)	1.76	Hydr. Depth (ft)	1.03	1.71	0.87
Conv. Total (cfs)	4470.6	Conv. (cfs)	1327.1	1461.6	1681.9
Length Wtd. (ft)	50.00	Wetted Per. (ft)	52.01	14.12	86.09
Min Ch El (ft)	685.90	Shear (lb/sq ft)	1.20	2.02	1.02
Alpha	1.82	Stream Power (lb/ft s)	4.15	16.82	3.18
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.08	0.09	0.84
C & E Loss (ft)	0.13	Cum SA (acres)	0.08	0.04	1.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 050

INPUT
Description: RIVER STATION 0+50
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	687.8	40.74	686	44.72	685	50	684.9	53.73	685
61.1	686	99.99	686.4	137.1	686.4	220.06	686.5	355.88	686.5
599.26	687.9	614	686	634.32	686	700.87	687.4	802.75	690

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	40.74	.035	61.1	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
40.74	61.1	50	50	50	.1	.3

Right Levee Station= 599.26 Elevation= 687.9

CROSS SECTION OUTPUT Profile #2 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	687.03	Element			
Vel Head (ft)	0.02	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.01	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	686.39	Flow Area (sq ft)	11.64	35.78	194.00
E.G. Slope (ft/ft)	0.000764	Area (sq ft)	11.64	35.78	194.00
Q Total (cfs)	150.00	Flow (cfs)	5.06	60.75	84.20
Top Width (ft)	427.44	Top Width (ft)	22.95	20.36	384.13
Vel Total (ft/s)	0.62	Avg. Vel. (ft/s)	0.43	1.70	0.43
Max Chl Dpth (ft)	2.11	Hydr. Depth (ft)	0.51	1.76	0.51
Conv. Total (cfs)	5428.1	Conv. (cfs)	183.1	2198.2	3046.8
Length Wtd. (ft)	50.00	Wetted Per. (ft)	22.97	20.55	384.13
Min Ch El (ft)	684.90	Shear (lb/sq ft)	0.02	0.08	0.02
Alpha	3.31	Stream Power (lb/ft s)	0.01	0.14	0.01
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	0.01	0.03	0.17
C & E Loss (ft)	0.00	Cum SA (acres)	0.02	0.02	0.33

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #10 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	687.34	Element			
Vel Head (ft)	0.02	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.32	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	686.81	Flow Area (sq ft)	19.61	41.93	318.04
E.G. Slope (ft/ft)	0.000738	Area (sq ft)	19.61	41.93	318.04
Q Total (cfs)	261.00	Flow (cfs)	9.97	77.80	173.22
Top Width (ft)	486.82	Top Width (ft)	29.79	20.36	436.67
Vel Total (ft/s)	0.69	Avg. Vel. (ft/s)	0.51	1.86	0.54
Max Chl Dpth (ft)	2.42	Hydr. Depth (ft)	0.66	2.06	0.73
Conv. Total (cfs)	9606.7	Conv. (cfs)	367.1	2863.8	6375.8
Length Wtd. (ft)	50.00	Wetted Per. (ft)	29.82	20.55	436.68
Min Ch El (ft)	684.90	Shear (lb/sq ft)	0.03	0.09	0.03
Alpha	2.61	Stream Power (lb/ft s)	0.02	0.17	0.02
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	0.02	0.04	0.28
C & E Loss (ft)	0.00	Cum SA (acres)	0.03	0.02	0.40

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	687.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.51	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.01	Flow Area (sq ft)	25.65	45.79	403.86
E.G. Slope (ft/ft)	0.001458	Area (sq ft)	25.65	45.79	403.86
Q Total (cfs)	492.00	Flow (cfs)	20.06	126.61	345.33
Top Width (ft)	524.03	Top Width (ft)	34.08	20.36	469.60
Vel Total (ft/s)	1.04	Avg. Vel. (ft/s)	0.78	2.76	0.86
Max Chl Dpth (ft)	2.61	Hydr. Depth (ft)	0.75	2.25	0.86
Conv. Total (cfs)	12886.4	Conv. (cfs)	525.4	3316.0	9044.9
Length Wtd. (ft)	50.00	Wetted Per. (ft)	34.11	20.55	469.60
Min Ch El (ft)	684.90	Shear (lb/sq ft)	0.07	0.20	0.08
Alpha	2.34	Stream Power (lb/ft s)	0.05	0.56	0.07
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	0.02	0.05	0.47
C & E Loss (ft)	0.00	Cum SA (acres)	0.03	0.02	0.65

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION OUTPUT Profile #100 Year + 25%

			Left OB	Channel	Right OB
E.G. Elev (ft)	687.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.61	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	687.08	Flow Area (sq ft)	29.46	47.99	455.54
E.G. Slope (ft/ft)	0.001684	Area (sq ft)	29.46	47.99	455.54
Q Total (cfs)	615.00	Flow (cfs)	25.93	147.12	441.95
Top Width (ft)	545.23	Top Width (ft)	36.52	20.36	488.36
Vel Total (ft/s)	1.15	Avg. Vel. (ft/s)	0.88	3.07	0.97
Max Chl Dpth (ft)	2.71	Hydr. Depth (ft)	0.81	2.36	0.93
Conv. Total (cfs)	14987.8	Conv. (cfs)	631.9	3585.4	10770.5
Length Wtd. (ft)	50.00	Wetted Per. (ft)	36.56	20.55	488.36
Min Ch El (ft)	684.90	Shear (lb/sq ft)	0.08	0.25	0.10
Alpha	2.22	Stream Power (lb/ft s)	0.07	0.75	0.10
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	0.03	0.05	0.54
C & E Loss (ft)	0.00	Cum SA (acres)	0.03	0.02	0.67

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION

RIVER: TRIB TO GREENPON
REACH: UPSTR PHIPPS RD. RS: 000

INPUT
Description: RIVER STATION 0+00 (DOWNSTREAM STUDY LIMIT)
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	686.5	15.36	686	25	685.7	36.63	686	98.52	686.2
170.56	686.5	226.84	686.9	308.71	687.3	443.4	687.2	564.12	686.8
597.73	686	693.54	687.1	793.73	690				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	15.36	.035	36.63	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
15.36	36.63	0	0	0	.1	.3

Right Levee Station= 308.71 Elevation= 687.3

CROSS SECTION OUTPUT Profile #2 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	686.97	Element			
Vel Head (ft)	0.03	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	686.94	Reach Len. (ft)			
Crit W.S. (ft)	686.59	Flow Area (sq ft)	10.52	23.08	107.18
E.G. Slope (ft/ft)	0.002500	Area (sq ft)	10.52	23.08	107.18
Q Total (cfs)	150.00	Flow (cfs)	9.94	51.72	88.34
Top Width (ft)	234.01	Top Width (ft)	15.36	21.27	197.38
Vel Total (ft/s)	1.07	Avg. Vel. (ft/s)	0.94	2.24	0.82
Max Chl Dpth (ft)	1.24	Hydr. Depth (ft)	0.69	1.09	0.54
Conv. Total (cfs)	2999.8	Conv. (cfs)	198.7	1034.3	1766.8
Length Wtd. (ft)		Wetted Per. (ft)	15.80	21.28	197.38
Min Ch El (ft)	685.70	Shear (lb/sq ft)	0.10	0.17	0.08
Alpha	1.93	Stream Power (lb/ft s)	0.10	0.38	0.07
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #10 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	687.27	Element			
Vel Head (ft)	0.04	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.23	Reach Len. (ft)			
Crit W.S. (ft)	686.74	Flow Area (sq ft)	15.03	29.33	173.98
E.G. Slope (ft/ft)	0.002505	Area (sq ft)	15.03	29.33	173.98
Q Total (cfs)	261.00	Flow (cfs)	17.80	77.16	166.03
Top Width (ft)	294.13	Top Width (ft)	15.36	21.27	257.50
Vel Total (ft/s)	1.20	Avg. Vel. (ft/s)	1.18	2.63	0.95
Max Chl Dpth (ft)	1.53	Hydr. Depth (ft)	0.98	1.38	0.68
Conv. Total (cfs)	5215.3	Conv. (cfs)	355.7	1541.9	3317.6
Length Wtd. (ft)		Wetted Per. (ft)	16.10	21.28	257.50
Min Ch El (ft)	685.70	Shear (lb/sq ft)	0.15	0.22	0.11
Alpha	1.90	Stream Power (lb/ft s)	0.17	0.57	0.10
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100 Year Event

			Left OB	Channel	Right OB
E.G. Elev (ft)	687.45	Element			
Vel Head (ft)	0.04	Wt. n-Val.	0.060	0.035	0.060

W.S. Elev (ft)	687.41	Reach Len. (ft)			
Crit W.S. (ft)	686.98	Flow Area (sq ft)	17.88	33.26	414.33
E.G. Slope (ft/ft)	0.002501	Area (sq ft)	17.88	33.26	414.33
Q Total (cfs)	492.00	Flow (cfs)	23.56	95.12	373.32
Top Width (ft)	704.38	Top Width (ft)	15.36	21.27	667.75
Vel Total (ft/s)	1.06	Avg. Vel. (ft/s)	1.32	2.86	0.90
Max Chl Dpth (ft)	1.71	Hydr. Depth (ft)	1.16	1.56	0.62
Conv. Total (cfs)	9837.6	Conv. (cfs)	471.1	1901.9	7464.6
Length Wtd. (ft)		Wetted Per. (ft)	16.28	21.28	667.77
Min Ch El (ft)	685.70	Shear (lb/sq ft)	0.17	0.24	0.10
Alpha	2.04	Stream Power (lb/ft s)	0.23	0.70	0.09
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100 Year + 25%

			Left OB	Channel	Right OB
E.G. Elev (ft)	687.56	Element			
Vel Head (ft)	0.04	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	687.52	Reach Len. (ft)			
Crit W.S. (ft)	687.10	Flow Area (sq ft)	19.47	35.48	484.05
E.G. Slope (ft/ft)	0.002501	Area (sq ft)	19.47	35.48	484.05
Q Total (cfs)	615.00	Flow (cfs)	27.06	105.90	482.03
Top Width (ft)	707.98	Top Width (ft)	15.36	21.27	671.35
Vel Total (ft/s)	1.14	Avg. Vel. (ft/s)	1.39	2.99	1.00
Max Chl Dpth (ft)	1.82	Hydr. Depth (ft)	1.27	1.67	0.72
Conv. Total (cfs)	12297.5	Conv. (cfs)	541.1	2117.6	9638.7
Length Wtd. (ft)		Wetted Per. (ft)	16.39	21.28	671.37
Min Ch El (ft)	685.70	Shear (lb/sq ft)	0.19	0.26	0.11
Alpha	1.84	Stream Power (lb/ft s)	0.26	0.78	0.11
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

SUMMARY OF MANNING'S N VALUES

River:TRIB TO GREENPON

Reach	River Sta.	n1	n2	n3
UPSTR PHIPPS RD.	685.25	.05	.03	.05
UPSTR PHIPPS RD.	655.25	.05	.03	.05
UPSTR PHIPPS RD.	625.25	.05	.03	.05
UPSTR PHIPPS RD.	587.625	Culvert		
UPSTR PHIPPS RD.	550	.06	.035	.06
UPSTR PHIPPS RD.	500	.06	.035	.06
UPSTR PHIPPS RD.	450	.06	.035	.06
UPSTR PHIPPS RD.	400	.06	.035	.06
UPSTR PHIPPS RD.	350	.06	.035	.06

UPSTR PHIPPS RD.	300	.06	.035	.06
UPSTR PHIPPS RD.	250	.06	.035	.06
UPSTR PHIPPS RD.	200	.06	.035	.06
UPSTR PHIPPS RD.	150	.06	.035	.06
UPSTR PHIPPS RD.	100	.06	.035	.06
UPSTR PHIPPS RD.	050	.06	.035	.06
UPSTR PHIPPS RD.	000	.06	.035	.06

SUMMARY OF REACH LENGTHS

River: TRIB TO GREENPON

Reach	River Sta.	Left	Channel	Right
UPSTR PHIPPS RD.	685.25	30	30	30
UPSTR PHIPPS RD.	655.25	30	30	30
UPSTR PHIPPS RD.	625.25	75.25	75.25	75.25
UPSTR PHIPPS RD.	587.625	Culvert		
UPSTR PHIPPS RD.	550	50	50	50
UPSTR PHIPPS RD.	500	50	50	50
UPSTR PHIPPS RD.	450	50	50	50
UPSTR PHIPPS RD.	400	50	50	50
UPSTR PHIPPS RD.	350	50	50	50
UPSTR PHIPPS RD.	300	50	50	50
UPSTR PHIPPS RD.	250	50	50	50
UPSTR PHIPPS RD.	200	50	50	50
UPSTR PHIPPS RD.	150	50	50	50
UPSTR PHIPPS RD.	100	50	50	50
UPSTR PHIPPS RD.	050	50	50	50
UPSTR PHIPPS RD.	000	0	0	0

Profile Output Table - Standard Table 1

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
UPSTR PHIPPS RD.	685.25	117.00	688.00	691.73	690.07	691.73	0	1	292	240	0
UPSTR PHIPPS RD.	685.25	208.00	688.00	693.14	690.34	693.15	0	1	665	286	0
UPSTR PHIPPS RD.	685.25	393.00	688.00	693.45	690.70	693.46	0	1	755	297	0
UPSTR PHIPPS RD.	685.25	491.25	688.00	693.56	690.85	693.57	0	1	787	300	0
UPSTR PHIPPS RD.	655.25	117.00	688.00	691.68	690.51	691.72	0	2	129	199	0
UPSTR PHIPPS RD.	655.25	208.00	688.00	693.14	691.35	693.15	0	1	513	307	

0										
UPSTR PHIPPS RD.	655.25	393.00	688.00	693.45	691.77	693.46	0	1	610	329
0										
UPSTR PHIPPS RD.	655.25	491.25	688.00	693.55	691.91	693.56	0	2	644	336
0										
UPSTR PHIPPS RD.	625.25	117.00	686.04	691.11	689.11	691.64	0	6	20	165
0										
UPSTR PHIPPS RD.	625.25	208.00	686.04	693.14	690.52	693.14	0	1	726	272
0										
UPSTR PHIPPS RD.	625.25	393.00	686.04	693.45	692.66	693.45	0	1	813	300
0										
UPSTR PHIPPS RD.	625.25	491.25	686.04	693.55	692.66	693.56	0	1	845	318
0										
UPSTR PHIPPS RD.	587.625	Culvert								
UPSTR PHIPPS RD.	550	120.00	686.04	689.11	689.11	690.62	0	10	12	267
1										
UPSTR PHIPPS RD.	550	212.00	686.04	690.50	690.50	692.72	0	12	18	335
1										
UPSTR PHIPPS RD.	550	400.00	686.04	692.26	692.26	692.26	0	1	1397	397
0										
UPSTR PHIPPS RD.	550	500.00	686.04	692.26	692.26	692.26	0	1	1397	397
0										
UPSTR PHIPPS RD.	500	120.00	686.70	687.54	687.87	689.08	0	14	19	60
3										
UPSTR PHIPPS RD.	500	212.00	686.70	687.60	688.24	691.01	0	21	22	65
4										
UPSTR PHIPPS RD.	500	400.00	686.70	687.80	688.47	691.85	0	25	37	85
5										
UPSTR PHIPPS RD.	500	500.00	686.70	687.90	688.55	691.86	0	25	46	95
4										
UPSTR PHIPPS RD.	450	120.00	686.40	688.15	687.90	688.15	0	1	475	532
0										
UPSTR PHIPPS RD.	450	212.00	686.40	688.35	687.90	688.35	0	1	589	595
0										
UPSTR PHIPPS RD.	450	400.00	686.40	688.62	687.90	688.62	0	1	828	758
0										
UPSTR PHIPPS RD.	450	500.00	686.40	688.67	687.91	688.68	0	1	871	760
0										
UPSTR PHIPPS RD.	400	120.00	686.10	688.08	687.88	688.13	0	3	138	387
0										
UPSTR PHIPPS RD.	400	212.00	686.10	688.28	688.10	688.33	0	3	223	439
0										
UPSTR PHIPPS RD.	400	400.00	686.10	688.54	688.26	688.59	0	4	342	504
0										

UPSTR PHIPPS RD. 1	400	500.00	686.10	688.56	688.33	688.63	0	4	353	509
UPSTR PHIPPS RD. 1	350	120.00	685.80	687.86	687.75	687.96	0	3	88	201
UPSTR PHIPPS RD. 1	350	212.00	685.80	687.97	687.97	688.12	0	5	143	392
UPSTR PHIPPS RD. 1	350	400.00	685.80	688.13	688.13	688.33	0	6	207	417
UPSTR PHIPPS RD. 1	350	500.00	685.80	688.23	688.21	688.41	0	6	248	432
UPSTR PHIPPS RD. 0	300	120.00	685.70	687.91	687.67	687.91	0	1	616	800
UPSTR PHIPPS RD. 0	300	212.00	685.70	687.94	687.90	687.94	0	1	635	802
UPSTR PHIPPS RD. 0	300	400.00	685.70	688.11	687.90	688.12	0	1	779	828
UPSTR PHIPPS RD. 0	300	500.00	685.70	688.30	687.90	688.31	0	1	946	965
UPSTR PHIPPS RD. 0	250	150.00	685.50	687.91	687.90	687.91	0	1	601	770
UPSTR PHIPPS RD. 0	250	261.00	685.50	687.92	687.90	687.92	0	1	611	771
UPSTR PHIPPS RD. 0	250	492.00	685.50	688.08	687.90	688.09	0	2	736	784
UPSTR PHIPPS RD. 0	250	615.00	685.50	688.27	687.91	688.28	0	2	886	799
UPSTR PHIPPS RD. 0	200	150.00	685.40	687.90	687.90	687.90	0	1	606	795
UPSTR PHIPPS RD. 0	200	261.00	685.40	687.90	687.90	687.91	0	1	606	795
UPSTR PHIPPS RD. 0	200	492.00	685.40	688.04	687.90	688.05	0	2	721	830
UPSTR PHIPPS RD. 0	200	615.00	685.40	688.24	687.91	688.25	0	2	884	840
UPSTR PHIPPS RD. 0	150	150.00	685.20	687.28	687.00	687.29	0	1	349	659
UPSTR PHIPPS RD. 0	150	261.00	685.20	687.57	687.06	687.58	0	1	547	689
UPSTR PHIPPS RD. 0	150	492.00	685.20	688.02	687.18	688.02	0	1	873	764
UPSTR PHIPPS RD. 0	150	615.00	685.20	688.22	687.24	688.22	0	2	1025	774
UPSTR PHIPPS RD. 1	100	150.00	685.90	686.98	686.93	687.19	0	5	60	117
UPSTR PHIPPS RD.	100	261.00	685.90	687.27	687.19	687.50	0	6	97	133

1										
UPSTR PHIPPS RD.	100	492.00	685.90	687.52	687.52	687.93	0	8	131	145
1										
UPSTR PHIPPS RD.	100	615.00	685.90	687.66	687.66	688.12	0	8	152	152
1										
UPSTR PHIPPS RD.	050	150.00	684.90	687.01	686.39	687.03	0	2	241	427
0										
UPSTR PHIPPS RD.	050	261.00	684.90	687.32	686.81	687.34	0	2	380	487
0										
UPSTR PHIPPS RD.	050	492.00	684.90	687.51	687.01	687.54	0	3	475	524
0										
UPSTR PHIPPS RD.	050	615.00	684.90	687.61	687.08	687.66	0	3	533	545
0										
UPSTR PHIPPS RD.	000	150.00	685.70	686.94	686.59	686.97	0	2	141	234
0										
UPSTR PHIPPS RD.	000	261.00	685.70	687.23	686.74	687.27	0	3	218	294
0										
UPSTR PHIPPS RD.	000	492.00	685.70	687.41	686.98	687.45	0	3	465	704
0										
UPSTR PHIPPS RD.	000	615.00	685.70	687.52	687.10	687.56	0	3	539	708
0										

Profile Output Table - Standard Table 2

Reach	River Sta	E.G. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
UPSTR PHIPPS RD.	685.25	691.7324	691.73	0.00	0.01	0.00	0.94	35.06	81.00	240
UPSTR PHIPPS RD.	685.25	693.1470	693.14	0.00	0.00	0.00	8.91	42.26	156.83	286
UPSTR PHIPPS RD.	685.25	693.4602	693.45	0.01	0.00	0.00	20.03	76.00	296.98	297
UPSTR PHIPPS RD.	685.25	693.5694	693.56	0.01	0.00	0.00	26.41	93.53	371.31	300
UPSTR PHIPPS RD.	655.25	691.7228	691.68	0.04	0.03	0.05	1.23	75.69	40.08	199
UPSTR PHIPPS RD.	655.25	693.1455	693.14	0.00	0.00	0.00	7.85	58.42	141.73	307
UPSTR PHIPPS RD.	655.25	693.4567	693.45	0.01	0.00	0.00	18.99	99.71	274.30	329
UPSTR PHIPPS RD.	655.25	693.5647	693.55	0.02	0.00	0.00	25.76	120.78	344.71	336
UPSTR PHIPPS RD.	625.25	691.6447	691.11	0.54				117.00		165
UPSTR PHIPPS RD.	625.25	693.1439	693.14	0.00			15.64	65.38	126.97	272
UPSTR PHIPPS RD.	625.25	693.4531	693.45	0.01			33.15	118.79	241.05	300
UPSTR PHIPPS RD.	625.25	693.5598	693.55	0.01			43.26	146.44	301.56	318
UPSTR PHIPPS RD.	587.625	Culvert								
UPSTR PHIPPS RD.	550	690.6157	689.11	1.51	0.58	0.41		120.00		267
UPSTR PHIPPS RD.	550	692.7161	690.50	2.21	0.58	0.62		212.00		335
UPSTR PHIPPS RD.	550	692.2596	692.26	0.00	0.00	0.02	109.28	126.47	164.24	397
UPSTR PHIPPS RD.	550	692.2607	692.26	0.00	0.01	0.02	136.61	158.09	205.30	397
UPSTR PHIPPS RD.	500	689.0847	687.54	1.54	1.53	0.00	29.54	56.56	33.90	60
UPSTR PHIPPS RD.	500	691.0142	687.60	3.42	1.58	0.12	55.31	93.22	63.47	65

UPSTR PHIPPS RD.	500	691.8513	687.80	4.05	0.00	0.41	121.07	140.01	138.92	85
UPSTR PHIPPS RD.	500	691.8621	687.90	3.96	0.01	0.40	159.10	158.51	182.40	95
UPSTR PHIPPS RD.	450	688.1507	688.15	0.00	0.02	0.01	4.42	6.34	109.24	532
UPSTR PHIPPS RD.	450	688.3542	688.35	0.00	0.02	0.00	8.32	10.16	193.52	595
UPSTR PHIPPS RD.	450	688.6229	688.62	0.00	0.03	0.00	45.22	16.16	338.63	758
UPSTR PHIPPS RD.	450	688.6808	688.67	0.01	0.05	0.01	61.18	19.67	419.15	760
UPSTR PHIPPS RD.	400	688.1302	688.08	0.05	0.17	0.00	41.77	44.76	33.47	387
UPSTR PHIPPS RD.	400	688.3270	688.28	0.04	0.20	0.01	96.81	53.88	61.31	439
UPSTR PHIPPS RD.	400	688.5853	688.54	0.05	0.25	0.01	203.15	72.03	124.82	504
UPSTR PHIPPS RD.	400	688.6292	688.56	0.07	0.28	0.01	255.07	87.79	157.14	509
UPSTR PHIPPS RD.	350	687.9579	687.86	0.10	0.01	0.03	15.78	60.27	43.95	201
UPSTR PHIPPS RD.	350	688.1198	687.97	0.15	0.03	0.04	41.11	86.37	84.51	392
UPSTR PHIPPS RD.	350	688.3268	688.13	0.19	0.06	0.06	114.81	122.66	162.53	417
UPSTR PHIPPS RD.	350	688.4145	688.23	0.19	0.05	0.05	162.41	133.30	204.29	432
UPSTR PHIPPS RD.	300	687.9137	687.91	0.00	0.01	0.00	2.21	10.05	107.74	800
UPSTR PHIPPS RD.	300	687.9388	687.94	0.00	0.01	0.00	3.98	17.34	190.68	802
UPSTR PHIPPS RD.	300	688.1196	688.11	0.01	0.03	0.00	7.69	28.23	364.08	828
UPSTR PHIPPS RD.	300	688.3061	688.30	0.01	0.02	0.00	9.26	31.38	459.36	965
UPSTR PHIPPS RD.	250	687.9083	687.91	0.00	0.01	0.00	2.93	13.48	133.59	770
UPSTR PHIPPS RD.	250	687.9235	687.92	0.00	0.02	0.00	5.11	23.12	232.76	771
UPSTR PHIPPS RD.	250	688.0900	688.08	0.01	0.04	0.00	10.30	36.73	444.97	784
UPSTR PHIPPS RD.	250	688.2798	688.27	0.01	0.03	0.00	13.96	39.14	561.90	799
UPSTR PHIPPS RD.	200	687.9021	687.90	0.00	0.01	0.00	3.49	13.56	132.95	795
UPSTR PHIPPS RD.	200	687.9052	687.90	0.00	0.02	0.00	6.08	23.60	231.32	795
UPSTR PHIPPS RD.	200	688.0522	688.04	0.01	0.03	0.00	15.65	38.16	438.19	830
UPSTR PHIPPS RD.	200	688.2475	688.24	0.01	0.02	0.00	29.45	39.94	545.61	840
UPSTR PHIPPS RD.	150	687.2854	687.28	0.01	0.07	0.02	0.76	29.03	120.21	659
UPSTR PHIPPS RD.	150	687.5779	687.57	0.01	0.06	0.02	2.66	33.74	224.60	689
UPSTR PHIPPS RD.	150	688.0248	688.02	0.01	0.06	0.04	10.55	44.41	437.04	764
UPSTR PHIPPS RD.	150	688.2228	688.22	0.01	0.06	0.05	18.97	49.55	546.48	774
UPSTR PHIPPS RD.	100	687.1909	686.98	0.21	0.10	0.06	26.61	72.57	50.82	117
UPSTR PHIPPS RD.	100	687.4955	687.27	0.23	0.09	0.06	65.84	102.94	92.23	133
UPSTR PHIPPS RD.	100	687.9265	687.52	0.41	0.18	0.11	140.36	170.87	180.77	145
UPSTR PHIPPS RD.	100	688.1212	687.66	0.46	0.20	0.13	182.56	201.07	231.38	152
UPSTR PHIPPS RD.	050	687.0338	687.01	0.02	0.06	0.00	5.06	60.75	84.20	427
UPSTR PHIPPS RD.	050	687.3354	687.32	0.02	0.06	0.00	9.97	77.80	173.22	487
UPSTR PHIPPS RD.	050	687.5445	687.51	0.04	0.09	0.00	20.06	126.61	345.33	524
UPSTR PHIPPS RD.	050	687.6594	687.61	0.05	0.10	0.00	25.93	147.12	441.95	545
UPSTR PHIPPS RD.	000	686.9691	686.94	0.03			9.94	51.72	88.34	234
UPSTR PHIPPS RD.	000	687.2710	687.23	0.04			17.80	77.16	166.03	294
UPSTR PHIPPS RD.	000	687.4492	687.41	0.04			23.56	95.12	373.32	704
UPSTR PHIPPS RD.	000	687.5551	687.52	0.04			27.06	105.90	482.03	708

Profile Output Table - Culvert Only

Reach	River Sta		E.G. US. (ft)	W.S. US. (ft)	E.G. IC (ft)	E.G. OC (ft)	Min El Weir Flow (ft)	Q Culv Group (cfs)	Q Weir (cfs)	Delta WS (ft)	Culv Vel US (ft/s)	Culv Vel DS (ft/s)
UPSTR PHIPPS RD.	587.625	Culvert #1	691.65	691.11	691.17	691.65	692.79	117.00		2.00	9.31	9.31
UPSTR PHIPPS RD.	587.625	Culvert #1	693.14	693.14	693.03	693.14	692.79	75.30	132.70	2.64	5.99	5.99
UPSTR PHIPPS RD.	587.625	Culvert #1	693.45	693.45	693.38	693.45	692.79	83.01	306.96	1.19	6.61	6.61
UPSTR PHIPPS RD.	587.625	Culvert #1	693.56	693.55	693.46	693.56	692.79	86.63	404.62	1.29	6.89	6.89

ERRORS WARNINGS AND NOTES
Errors Warnings and Notes for Plan : Pr 08-27-07

River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 685.25 Profile: 2 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 685.25 Profile: 10 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 685.25 Profile: 100 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 685.25 Profile: 100 Year + 25%
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 655.25 Profile: 2 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 655.25 Profile: 10 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 655.25 Profile: 100 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 655.25 Profile: 100 Year + 25%
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 625.25 Profile: 2 Year Event
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 625.25 Profile: 10 Year Event

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     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 550     Profile: 2 Year Event
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
     Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
             water surface came back below critical depth.  This indicates that there is not a valid subcritical answer.  The
             program defaulted to critical depth.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 550     Profile: 10 Year Event
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
     Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
             water surface came back below critical depth.  This indicates that there is not a valid subcritical answer.  The
             program defaulted to critical depth.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 550     Profile: 100 Year Event
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
     Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
             water surface came back below critical depth.  This indicates that there is not a valid subcritical answer.  The
             program defaulted to critical depth.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 550     Profile: 100 Year + 25%
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
     Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
             water surface came back below critical depth.  This indicates that there is not a valid subcritical answer.  The
             program defaulted to critical depth.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 500     Profile: 2 Year Event
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 500     Profile: 10 Year Event
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 500     Profile: 100 Year Event
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
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This may indicate the need for additional cross sections.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 500 Profile: 100 Year + 25%
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 450 Profile: 2 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 450 Profile: 10 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 450 Profile: 100 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 450 Profile: 100 Year + 25%
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 400 Profile: 2 Year Event
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 400 Profile: 10 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 400 Profile: 100 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 400 Profile: 100 Year + 25%
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 350 Profile: 2 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 350 Profile: 10 Year Event
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.

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     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
             water surface came back below critical depth.  This indicates that there is not a valid subcritical answer.  The
             program defaulted to critical depth.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 350     Profile: 100 Year Event
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program selected the water
             surface that had the least amount of error between computed and assumed values.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
             water surface came back below critical depth.  This indicates that there is not a valid subcritical answer.  The
             program defaulted to critical depth.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 350     Profile: 100 Year + 25%
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 300     Profile: 2 Year Event
     Warning:Multiple water surfaces were found that could balance the energy equation. The program selected the water surface
             whose main channel velocity head was the closest to the previously computed cross section.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
             used.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 300     Profile: 10 Year Event
     Note:   Hydraulic jump has occurred between this cross section and the previous upstream section.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 300     Profile: 100 Year Event
     Note:   Hydraulic jump has occurred between this cross section and the previous upstream section.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 250     Profile: 2 Year Event
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
             used.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 250     Profile: 10 Year Event
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
             used.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 250     Profile: 100 Year Event
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
             used.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 250     Profile: 100 Year + 25%
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
             used.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 200     Profile: 2 Year Event
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
             water surface came back below critical depth.  This indicates that there is not a valid subcritical answer.  The
             program defaulted to critical depth.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 200     Profile: 10 Year Event
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
             water surface came back below critical depth.  This indicates that there is not a valid subcritical answer.  The
             program defaulted to critical depth.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 200     Profile: 100 Year Event
     Warning:The cross-section end points had to be extended vertically for the computed water surface.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 200     Profile: 100 Year + 25%
     Warning:The cross-section end points had to be extended vertically for the computed water surface.
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River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 150 Profile: 2 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 150 Profile: 10 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 150 Profile: 100 Year Event
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 150 Profile: 100 Year + 25%
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 100 Profile: 2 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 100 Profile: 10 Year Event
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 100 Profile: 100 Year Event
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 100 Profile: 100 Year + 25%
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 050 Profile: 2 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: TRIB TO GREENPON Reach: UPSTR PHIPPS RD. RS: 050 Profile: 10 Year Event
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

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     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
             used.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 050     Profile: 100 Year Event
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
             used.
     Note:   Hydraulic jump has occurred between this cross section and the previous upstream section.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 050     Profile: 100 Year + 25%
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
             used.
     Note:   Hydraulic jump has occurred between this cross section and the previous upstream section.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 000     Profile: 2 Year Event
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
             used.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 000     Profile: 10 Year Event
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
             used.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 000     Profile: 100 Year Event
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
             used.
River: TRIB TO GREENPON  Reach: UPSTR PHIPPS RD.     RS: 000     Profile: 100 Year + 25%
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
             used.
```

APPENDIX 4

SITE PHOTOGRAPHS

VIEW OF PHIPPS ROAD CULVERT

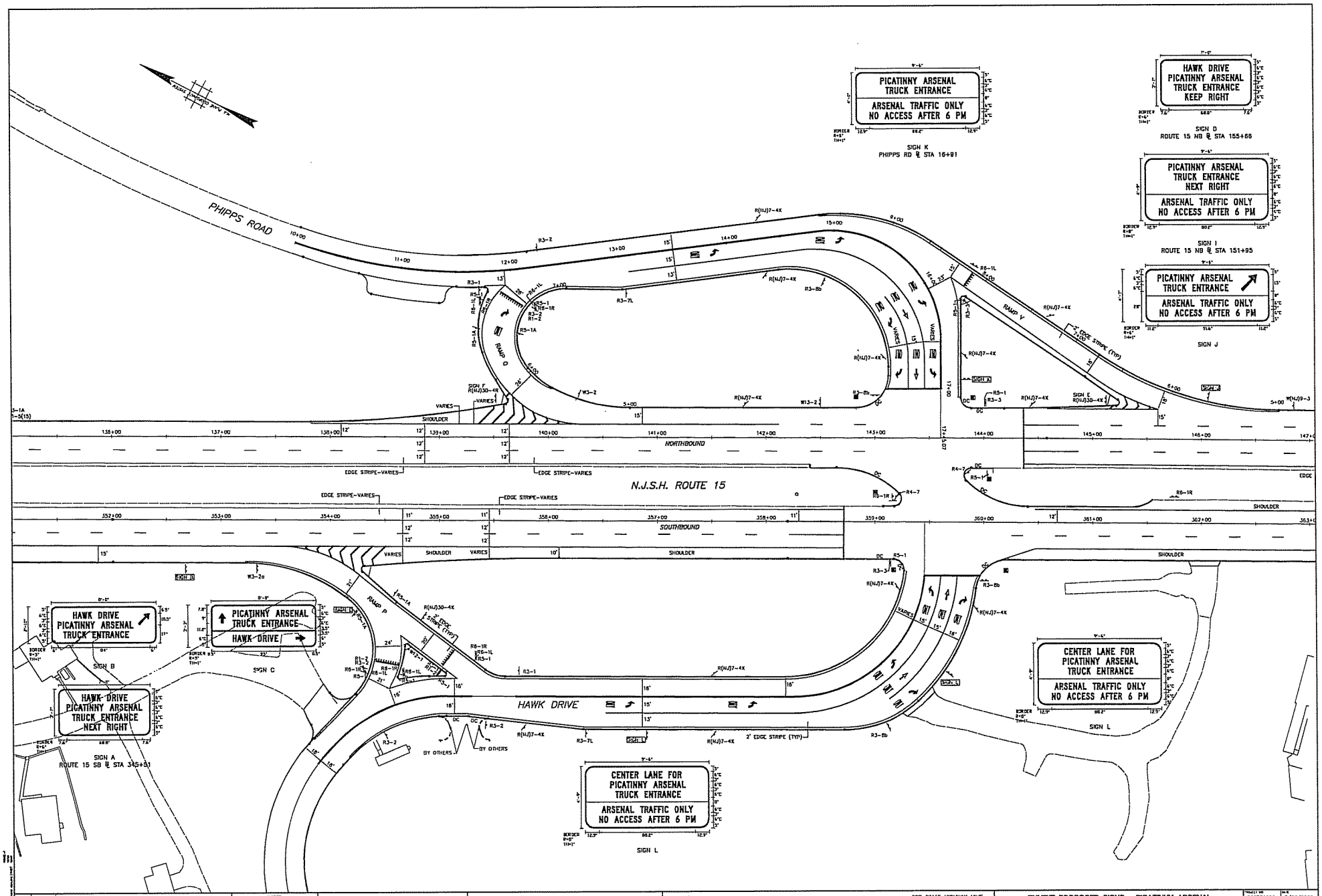
LOOKING DOWNSTREAM

{UPSTREAM HEADWALL SHOWN}

n channel => 0.03 → 0.035

n overbanks => 0.05 → 0.06

APPENDIX 11.6



REVISION NO.	DATE	REVISION

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BOROUGH OF WHARTON MORRIS COUNTY NEW JERSEY

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